

VII. DISEASES OF THE INTESTINES.

ACUTE CATARRHAL ENTERITIS.

Synonyms.—Acute Intestinal Catarrh; Acute Diarrhea; Enterocolitis.

Definition.—An acute catarrhal inflammation of all, or a part of the intestinal tract, and characterized by frequent mucous diarrheal stools.

Etiology.—There are certain predisposing causes that should be taken into consideration; viz., age, season, previous attacks, and individual susceptibility.

Age.—While no age is exempt, children under two years of age suffer from catarrhal enteritis more than those in any other period of life.

Season.—The hot season, or the months of July, August, and September, will witness the most cases.

Previous Attacks.—Previous attacks render the patient far more liable to the disease.

Individual Susceptibility.—Some individuals, who are otherwise perfectly healthy, suffer from frequent attacks of diarrhea.

Other conditions, such as an enfeebled vitality, insufficient clothing, confinement within doors without proper exercise, may be considered as predisposing to this disease.

The Exciting Cause may be divided into primary and secondary.

Primary.—Irritation is the primary cause of an attack, and may arise from food, changed secretions, acid or alkaline, drugs, or from infection. The most common, especially in children, is improper food, unripe fruit being peculiarly irritating. Green food stuffs not properly prepared, or insufficiently cooked, are very common causes during the hot summer months.

Over-eating, even though the food be of good quality and properly prepared, may also give rise to diarrhea. Pure water, or water to which

the patient is not accustomed, may also be the causal factor. Toxic substances in the form of ptomains, produced in cheese, milk, canned goods, or from the ingestion of certain drug's, such as arsenic, mercury, antimony, and the mineral acids and alkalies, may give rise to diarrhea. Even harsh cathartics may act in the same way.

Sudden atmospheric changes, especially from hot to cold, when the individual has insufficient clothing, may produce the disease, while a change in the intestinal secretions, either an excessive or perverted secretion, will give rise to diarrhea. Mental excitation, such as a great shock, or severe fright, will also act as the excitant.

Secondary.—Infectious diseases, such as typhoid fever, tuberculosis, dysentery, cholera, measles, pneumonia, septicemia, and pyemia are preceded or attended by diarrhea. The extension of the inflammatory process from adjacent parts, such as gastritis, peritonitis, hepatitis, intestinal ulcer, hernia, invagination; certain cachectic diseases, as cancer, Bright's disease, anemia, syphilis, etc.; circulatory disturbance, especially congestion of the portal circulation.

Pathology.—The pathological changes are similar to those of all mucous surfaces, viz: Engorgement by an excessive exudation of mucus. The membrane is red and swollen, though when the inflammatory process is long continued, the redness subsides and the mucous membrane becomes soft and pale. The solitary and agminate glands become enlarged and stand out prominently; the centers of the follicles undergo necrosis, giving rise to follicular ulcers. The mesenteric glands are usually swollen and hyperemic.

Symptoms.—The symptoms depend somewhat upon the seat of the inflammation, whether a part or the whole of the intestine be involved. Diarrhea is the most characteristic symptom and is very early attended with pain, usually of a griping character. If the colon be much involved there will be a more constant desire to go to stool, and there will be tenesmus, similar to dysentery.

The stools vary from two or three to twenty or thirty in twenty-four hours. They may be small, and mostly mucus, or large, watery, and feculent, the color depending largely upon the amount of bile present. Mucus with specks of blood is often seen in the stool, and sometimes undigested food.

There is usually more or less rumbling of the bowels, especially where the small intestine is the seat of the disease, and is due to increased peristalsis. The tongue is generally elongated and red at tip and edges, there is marked thirst, the skin is dry and hot, and the temperature slightly elevated. In children there may be nausea and vomiting, and in nervous children, a convulsion is not uncommon. In delicate children and old people, there is danger of collapse, the skin becoming relaxed, cold, and clammy.

Diagnosis.—There is usually but little difficulty in recognizing this disease. Sometimes it may resemble typhoid fever, but the peculiar temperature curve, the enlarged spleen, and the characteristic eruption of the latter, will enable one to note the difference between the two. It is distinguished from dysentery by the severe tenesmus of the latter, together with a mucous or muco-bloody stool.

Prognosis.—Unless severe complications arise, the prognosis should be favorable.

Treatment.—The management and care of the patient is of great importance, and must be rigidly followed to get the best results from medication; in fact, the best treatment may be rendered void by neglect in this line. The patient should be placed in bed and required to remain quiet, not allowing him to get out of bed to stool, as the exertion brings on increased peristalsis; for this reason a bed-pan should be used. The patient should be encouraged to resist the call to stool just as long as possible.

The diet should consist of milk taken in small quantities, or whey or junket may replace the milk, which usually is received kindly. Malted milk is also borne well, and strained chicken or lamb broth may be given after the acute stage is passed.

During convalescence, scraped beef, well-cooked rice, and fresh, ripe fruit may be cautiously given, withdrawing at once any article that causes irritation. During the acute stage the patient is very thirsty, and calls almost constantly for water; the gratification of his thirst, however, increases the irritation and aggravates the disease. Small bits of cracked ice or albumen water, in small quantities, may be allowed, or, what is better still, a teaspoonful of white liquid physic in a fourth of a glass of

water; this acts kindly to the inflamed bowel, and at the same time checks the thirst.

In the use of remedies, do not give castor-oil or salines, unless you are thoroughly convinced that there are accumulations of fecal matter that are a source of irritation. Where the tongue is elongated and red at tip and edges, give,—

Aconite	5 drops.
Ipecac	10 drops.
Water	4 ounces. M.

Sig. Teaspoonful every hour.

Many of the old Eclectics are still wedded to the old neutralizing cordial, which is certainly a grand prescription.

Where the tongue is red and moist, the following prescription will give good results:

Magnesium Sulphate	10-20 drops.
Water	4 ounces. M.

Sig. Teaspoonful every hour.

Where there is nausea, bismuth and mint-water will be indicated.

When there is griping pain and much flatus, colocynth is one of our best remedies.

When the tongue is broad, skin relaxed, and pain points to the umbilical region, use,—

Nux Vomica	5 drops.
Water	4 ounces. M.

Sig. A teaspoonful every hour.

Where the stools are watery, and green in color, give arsenite of copper 2x, half as much as will lie on a dime, every one or two hours.

Where there is nervous irritation, with nausea, the prescription will be,—

Rhus Tox	10 drops.
Water	4 ounces. M.

This is one of our best agents.

If the tongue be full and coated, Podophyllin 2x, 2 grains, every two or three hours, will give good results.

Dioscorea.—Where there is marked tenderness on pressure, or the patient complains of constant soreness, use,—

Dioscorea	10-30 drops.
Water	4 ounces. M.

Sig. A teaspoonful every one, two, or three hours.

Local Measures.—Where the stools are frequent and acrid, flushing out the bowel is of great benefit. We may use simple sterilized water, or a weak saline solution; allow the stream to flow till the water returns perfectly clean. Should the pain be intense, a tablespoonful of starch-water, to which has been added from five to twenty-five drops of laudanum, should be thrown into the rectum. A liniment of camphor, turpentine, 1 ounce each; alcohol, 2 ounces, may be used to gently rub over the abdomen every three or four hours.

CHRONIC CATARRHAL ENTERITIS.

Synonyms.—Chronic Intestinal Catarrh; Chronic Enterocolitis; Chronic Diarrhea.

Definition.—A chronic inflammation of all, or a part, of the intestine.

Etiology.—Repeated attacks of acute enteritis, the patient resuming his duties before a complete cure is effected, may be responsible for the disease. Long-continued exposure, with improper food, is perhaps the most common cause; thus we find chronic diarrhea one of the most common diseases of soldier life, and quite a large per cent of the pensions that are to-day being drawn by veterans are due to chronic diarrhea.

The long-continued use or abuse of cathartics may also irritate, and finally impair, the tone of the bowel, so as to give rise to chronic

inflammation. Chronic congestion of the portal circulation due to structural change of the liver, or chronic enlargement of the spleen, is often accompanied by diarrhea. Tuberculosis, as well as cancer of the intestine, gives rise to the same condition.

Pathology.—In the earlier stages the changes are similar to those of the acute form; but later, the mucosa assumes a slaty hue, with deep pigmentation in the tips of the villi and around the solitary glands. This gives the mucous membrane the “shaven beard” appearance. The mucous membrane is very much thickened in patches, and at other portions it is very thin, giving it an irregular, sacculated appearance. Some portions are so thickened as to amount to stricture.

In children and old people, there is more apt to be atrophy of the mucous membrane, attended by marked thinning of the walls and great dilatation. As the disease progresses, ulcers form in the lymphatic follicles; these are one-eighth to one-fourth of an inch in diameter, and, where several coalesce, give rise to large, irregular-shaped ulcers, that penetrate the muscular coats, and sometimes the entire intestine.

The ulcers are more frequently found in the descending colon, the sigmoid flexure, and the rectum. In severe cases the bowel is honeycombed with these ulcers. The entire mucous surface is bathed with a dirty, tenacious mucus or muco-pus. As a result of the inflammatory process, adhesions of their peritoneal surfaces often take place.

Symptoms.—Diarrhea is the most pronounced feature, though it varies greatly; thus there may be one copious watery evacuation early in the morning, the bowels remaining in a quiescent state the remaining twenty-four hours; or there may be eight or ten stools per day; or the average daily stools may be three or four in number, but increased if any unusual diet be taken. Each stool is generally preceded by griping pains and severe tenesmus, if the lower bowel be the seat of the disease. There is tenderness in the course of the inflamed tract, and if ulceration be present, deep pressure reveals marked soreness.

The stools are preceded or accompanied by borborygmus. In color they may be of any shade, though usually dark and offensive, and consist of mucus, shreds of mucous membrane, pus, and fecal matter; sometimes more or less blood is present.

Where the stools are frequent, they are usually small in quantity. The general health depends, to a great extent, upon the severity of the case. Where but one or two stools occur each twenty-four hours, the strength of the patient is but little impaired ; but where they are frequent, the patient soon loses flesh and strength; the skin becomes dry and harsh, the tongue is coated with a dirty, pasty coating, the breath more or less fetid, and a slight fever may attend, at a late stage of the disease. There is generally melancholy, and life appears as one continual drag.

As the disease progresses, the patient becomes emaciated, the feet become puffy, and, where there is hepatic complications, anasarca develops. The skin now becomes yellow, the pulse feeble, the tongue red and dry, night-sweats occasionally occur, and the patient dies from exhaustion; or typhoid symptoms develop, the patient dying of sepsis.

Diagnosis.—This is usually readily made; the presence of diarrhea, attended by pain, more or less flatulency, tenderness on pressure, the character of the stool—all tend to confirm the diagnosis.

Prognosis.—This depends to a great extent upon the stage of the disease. Where of long standing, and where there is much structural change in delicate and impoverished children and in the aged, there can be but little encouragement given. The earlier the treatment, the more favorable the prognosis.

Treatment.—A strict adherence to a dry diet is one of the essentials of a cure; in fact, more can be accomplished by this than from medication, and unless a patient will agree to a strict observance of these rules, the physician should refuse to take the case.

Tea, coffee, milk, and water should be restricted at mealtime and for two hours after. A sandwich composed of thin, stale bread and scraped beef for breakfast, bread slightly spread with butter and dusted with malted milk for dinner, and a cup of hot malted milk for supper, will do for severe cases, while a somewhat more generous diet may be allowed in milder cases. A small piece of broiled tenderloin and bread, or a soft-boiled egg, may be allowed. Some may eat well-cooked rice or wheat-germ meal. Ice-cream in small quantities may be allowed.

As the patient is very liable to frequent relapses, he should discard

coffee, tea, water at meal-time, for at least six months after he is discharged as cured, and some cases need total abstinence throughout life. Starchy, fatty, and sweet articles should be avoided. To add tone to the digestive apparatus, give,—

Nux Vomica	5 drops.
Hydrastin Phosphate	3 - 5 grains.
Water	4 ounces. M.

Sig. A teaspoonful every four hours; this will give good results.

Where the mucous membrane is feeble and relaxed, the stools frequent and watery, the following prescription will do good service:

Tinct. Geranium	1 - 2 drams.
Water	4 ounces. M.

Or five-grain doses of bismuth subgallate may be given for a day or two, but should not be continued for any length of time.

Epilobium has been successfully used by our school, but should be used for a long time to get the best results.

Where pain is of a spasmodic and colicky character, colo-cynth will be the remedy.

Where the coating of the tongue is lifted in spots, and the stools are foamy, charcoal will be a good agent, five grains of the first or second trituration, after each meal.

Where there is ulceration, flushing the bowel with a solution of boracic acid will be highly beneficial and where there is catarrh of the sigmoid I have obtained good results by introducing through a sigmoid speculum, a pledget of cotton well covered with balsam of Peru; this is allowed to remain till removed by the patient going to stool. This may be applied, two, three, or four times a week.

The patient should take gentle exercise, daily, in the open air; but severe exertion should be avoided.

PHLEGMONOUS ENTERITIS.

Suppurative inflammation of the submucous layer of the intestines is a very rare disease, and can seldom be diagnosed during life. It is seen in connection with strangulated hernia, intussusception, and obstruction of the bowel. The symptoms resemble those of peritonitis, there being abdominal distention, marked tenderness on pressure, intense tenesmus, and violent attacks of vomiting, which may become stercoraceous.

Rigors may occur, and the prostration is rapid and extreme. The temperature is high, 104° or 105°, the pulse small and wiry, and the tongue dry and red. Typhoid symptoms are now marked, and the patient passes from the stage of prostration to one of collapse or death.

Diagnosis.—This is made post-mortem.

Treatment.—It will be palliative, relieving the patient's suffering as far as possible. In operative cases a surgeon should be called, and this followed by supportive measures.

PSEUDO-MEMBRANOUS ENTERITIS.

Synonyms.—Croupous Enteritis; Diphtheretic Enteritis.

Definition.—An intense inflammation of the mucous membrane of both the small and large intestine, and characterized by a croupous exudate.

Etiology.—Several factors may give rise to this form of diseased condition. It may follow or accompany certain infectious diseases, such as pneumonia, typhoid fever, scarlet fever, pyemia, and kindred diseases. It may also accompany certain chronic cachectic diseases, such as cancer of the liver and Bright's disease ; while the ingestion of certain drugs, mercury, arsenic, ammonia, lead, and certain acids, may be responsible for the disease.

Pathology.—The morbid changes that take place are twofold ; the one affecting the mucosa in the ileum and colon, the other the solitary follicles.

In the first, an exudate of varying thickness and of a grayish white or grayish yellow color, is seen upon a deeply congested base.

In the second, the exudate is found around the opening of the follicles, in the center of which ulceration may be seen; in some the solitary glands are prominent and capped by the exudate.

Symptoms.—These are not characteristic, and the disease may only be discovered after death. When due to chemical irritants, there is generally severe vomiting and purging, the stools being mixed with more or less bloody mucus. If the result of any of the infectious diseases, there is usually pain and diarrhea and occasionally some of the exudate is seen in the stool.

Treatment.—This will be symptomatic. There will be sufficient evidence of sepsis to justify us in selecting the proper antiseptic. Echinacea will be thought of on general principles, though duskiness of tissue would be the most striking symptom. Potassium chlorate and hydrastin would be called for when there were offensive odors from breath and stool. Phytolacca will be used for glandular enlargement.

MUCOUS COLITIS.

Synonyms.—Tubular Diarrhea; Membranous Enteritis.

Definition.—A chronic disease of the colon, characterized by the formation of masses or plugs of mucus, which are voided in strings, shreds, or in tubular form.

Etiology.—The definite cause is not known. It most frequently occurs in women of nervous temperament and hysterically inclined, and in neurasthenic males. It is often found in connection with other rectal troubles, such as hemorrhoids, pockets, papilla, and hypertrophy of the rectal mucosa and prolapsus of the bowel. It is occasionally found in delicate children with prolapsus of the bowel.

Pathology.—The pathological changes are not very marked and can not be said to be characteristic. There may be seen localized catarrhal areas, and the sigmoid and the rectum may be relaxed, of a purplish

hue and bathed in tenacious mucus. It may possibly be due to irritation of the sympathetic system of nerves, for the correction of rectal irritation and urethral and uterine disorders is invariably followed by an improved condition of the entire intestinal tract.

Symptoms.—The mucus may be passed daily, though usually it occurs in paroxysms at intervals of three or four weeks. Each attack is usually marked by pain, tenesmus, and more or less nervous excitement. An attack may last for several days, when there is an interval of rest for a few weeks. The passing of the mucus gives some relief to the pain. Any undue or prolonged excitement brings on an attack.

Diagnosis.—This is readily recognized by the character of the stool.

Prognosis.—The disease is chronic in character, and requires not only treatment for the colon, but also to improve the nervous condition of the patient. They are usually very unsatisfactory patients to treat, though there is little danger to life. When the causes can be removed the prognosis should be favorable.

Treatment.—A thorough examination should be made of the rectum and reproductive apparatus, and any wrongs that are found, corrected. Sometimes colonic flushing with water, medicated to suit the case, will give very good results. Where there is catarrh of the sigmoid, and there usually is in these cases, the local application of balsam of Peru, as mentioned in treatment for chronic enteritis, will be highly beneficial. The diet of the patient should be carefully selected, avoiding such articles of food as experience has proved harmful.

All sources of irritation to the mind and body should be avoided. Change of one's surroundings is often far more beneficial than medication. Nux vomica and hydrastin is a good tonic, and should be given three times a day. Potassium bichromate, 2x, in three-grain doses, will do much to overcome the excessive secretion of mucus. Agrimony one dram, to water four ounces, a teaspoonful every three hours, will benefit some cases. When an attack comes on, the patient should be put to bed and all excitement avoided.

DIARRHEAS OF CHILDREN.

Synonyms.—Acute Gastro-intestinal Catarrh; Summer Complaint; Acute Gastro-enteritis; Cholera Infantum.

Definition.—In nearly all the infantile diarrheas, there is an involvement or irritation of the stomach as well, and frequently they occur in epidemic form. Especially is this true of cholera infantum. It may accompany an attack of indigestion, the patient being free of fever, or an attack may be attended by high temperature, great excitation of the nervous system, and extreme prostration.

The summer diarrheas are usually divided into three varieties:

(2) Acute dyspeptic diarrhea; (2) cholera infantum, or summer complaint; (3) ileo-colitis.

Etiology.—The greatest number of cases occur between the age of six and eighteen months, and are confined almost entirely to bottle-fed babies. According to Holt's Statistics, only three per cent, out of two thousand cases examined, occurred in children that were entirely breast-fed. While no class is exempt, the poor are the greatest sufferers. The second summer is commonly regarded as the most trying period in an infant's life, owing to the substitution of solids for fluids, and the eruption of teeth.

The most important causal factors in enteritis in children, are diet and temperature. Most artificial infant foods are rich in starch and sugar, and readily ferment in hot weather; this is especially true where the nursing-bottle and nipple are not kept absolutely sweet and clean. Neglect on the part of the poorer classes in this one important matter accounts largely for the great mortality among this class of patients. The disease may begin as early as May, progressively increasing until July, when it reaches the maximum; then gradually declines till August or September.

Booker has isolated forty varieties of bacteria, found in the stools, and probably each or all possess some pathogenic properties, and, when found in milk, may produce important changes. detrimental to digestion.

Pathology.—The mucous membrane of the large and small intestine

generally shows catarrhal inflammation, and when the disease assumes a chronic form, follicular ulceration is not uncommon. A fibrinous exudate (Croupous Enteritis), a rare condition, affects the lower part of the ileum and colon. As a result of the diffuse watery diarrhea, the liquid parts of the blood are decreased, anemia being quite marked. Not infrequently the spleen is enlarged.

Clinical Forms.—*Acute Dyspeptic Diarrhea.*—The disease may come on gradually, the general health not being much affected for a few days, though the stools are quite frequent, and consist of curds, undigested food, feces, and gas, offensive in character and of a greenish or yellowish-green color. The child soon becomes peevish and restless at night. At other times the attack comes on suddenly, with vomiting, colicky, griping pains, and a fever which rapidly attains a temperature of 104° or 105°. Not infrequently, in nervous children, the disease is ushered in with a convulsion.

The abdomen becomes distended, is sensitive, and the child flexes the limbs on the abdomen for relief. If bottle-fed, the stools contain greenish curds, gas, and feces. If older, unripe fruit is apt to form an important part of the stools. If not arrested, it may terminate in cholera infantum or ileo-colitis.

In dyspeptic diarrhea, the pain is griping in character, and the abdomen is distended, while in cholera infantum the stools are "eatery in character, and the abdomen is apt to be flat or collapsed; and in ileo-colitis the pain is tenesmic, and the stools contain mucus or mucus and blood.

Cholera Infantum.—The disease may be preceded for twenty-four or forty-eight hours by diarrhea, the stools being loose and fecal in character, and very offensive. Soon, however, the child becomes thirsty, greedily taking anything of a fluid character, and cries and frets constantly for water, crying for it when brought in its presence. Fluids, however, are rejected as soon as swallowed. The stools now become frequent, are large and watery; losing their fecal character and odor, the napkin often being stained a green or brown color, but devoid of feces.

The prostration is rapid and extreme, and the plump, rosy child can scarcely be recognized in twenty-four or forty-eight hours after an

attack. At first the skin is dry and harsh, the pulse small and rapid, and the child is restless, and can not be kept quiet in bed, but must be changed almost constantly. The temperature runs very high, ranging from 103° to 108°.

Cerebral complications are first noticed by the child rolling the head from side to side. The head now becomes hot, the face flushed, the child cries and frets constantly, or, if it drops asleep, the eyes are only partly closed, and the child is soon awakened by a sharp cry.

As a result of the frequent watery stools, the abdomen becomes flat, the eye is sunken, the nose pinched, and the tissues inelastic, and the stage of collapse is ushered in. The extremities now become cold; the nose, lips, and ears become blue, vomiting ceases, the stools lessen in frequency, the pulse is small and thready, the child passing into a comatose state, and death soon terminates the case; or reaction takes place, the pulse becomes stronger, the body regains its warmth, and the child enters the convalescent stage.

The disease may run a very rapid and fatal course, death occurring within twenty-four or forty-eight hours; or it may be prolonged three or four days, each additional day of life adding to the patient's chance of recovery.

Ileo-colitis.—This is the dysentery of childhood, the symptoms depending upon the extent and location of the inflammation; thus, when the ileum is the chief seat of the inflammation, the stools will contain fecal matter, while mucus and blood compose the stool, if the colon receive the force of the attack. Generally, however, both are involved, and the stools at first are composed of feces, undigested food, and mucus. An attack may follow acute dyspeptic diarrhea, or it may develop suddenly.

Fever early develops, the temperature ranging from 102° to 104°, the pulse small and frequent, the skin hot and dry, urine scanty and high-colored, and nausea and vomiting frequently attend. The stools are greenish, and for forty-eight or seventy-two hours contain fecal matter; but as the disease progresses, they are composed of mucus and blood, and in some cases blood alone.

The stools are attended with griping, colicky pains, the tenesmus often

resulting in prolapsus of the bowel. The abdomen is *distended*, and there is pain and tenderness along the course of the colon. The stools vary in number, from two or three to thirty per day. If not early relieved, the child rapidly loses flesh and strength, the face becomes pinched and haggard, and the child may die from exhaustion.

Treatment.—The treatment of the various forms of summer complaints may be divided into hygienic, dietetic, and medicinal.

Hygienic.—The laity as well as the profession, are beginning to realize as never before the necessity of fresh air, not only in the treatment, but also in the prevention of the disease, and cities vie with each other in providing park facilities, playgrounds, and fresh-air funds for the overcrowded portions of our great cities. Fresh air is absolutely necessary to the life of these little patients, and, when it is at all possible, they should be kept much in the open air. Among the more favored classes a trip to the seashore or mountains works wonders in a very short time.

Bathing is beneficial, not only in insuring cleanliness, but also in carrying off excessive heat. The *soda* bath will prove of great benefit, the child being sponged off every few hours when the temperature range is high. Especially beneficial is sponging the head with hot water when there is determination of "blood to the brain, as manifested by rolling of the head.

The clothing should be as light and loose as possible, and during the heat of the day should consist of only a slip and napkin, changing to flannel during the night, if the night-air becomes cool.

Dietetic.—Since errors in diet are responsible for a very large per cent of summer diarrheas, the dietetic treatment will at once be recognized as one of vast importance; and we are not to forget that digestion is arrested in nearly all these cases, and that nourishment is to be given only in the blandest form and in very *small* quantities at a time.

Since over ninety per cent of summer diarrheas occur among bottle-fed children, our first attention will be turned to the bottle and the nipple. Every artificially fed baby should be furnished with at *least* two nursing-bottles, and several *maroon* or *black nipples*, and a crock of soda-water, in which to place the bottle after each feeding.

Never allow a *nursing-tube* to be used in a bottle, as it is almost impossible, to keep it sweet and clean in hot weather. After each feeding, the bottle should be thoroughly rinsed with hot water, and placed in soda or lime water until the next feeding, the nipple thoroughly turned and rinsed, and placed in cool, sterilized water. The food should be prepared *fresh* for each feeding, or else kept in a sterilized bottle in a refrigerator, and heated at each feeding.

In the selection of the food much depends upon the condition of the stomach. Some will not tolerate milk in any form, and small quantities of albumin or rice-water or toast-water will be the only nourishment retained. Others will do nicely on cow's milk diluted with barley-water; this is a favorite with me, and, when it can be taken, receives first choice,—three parts milk and one part barley-water. Sherry or pepsin whey is another favorite food.

However, there is no food that will agree with all patients; in fact, we might say that each patient needs a special study as to foods, and Horlick's malted milk, Mellin's food, Carnrick's lacta preparata, Fairchild's peptogenetic milk, and Eskay's foods are the most likely to meet with favor; but whatever food is selected, it must be given fresh each time and in small quantities.

Water.—Pure water may be given freely to cleanse the stomach; especially in cholera infantum, will we find great irritation of the stomach, and even a teaspoonful of water will be rejected. In such cases it is well to allow the patient to drink several ounces, and in this way wash out the stomach. The bowels may also be irrigated or flushed with plain water.

To allay the intolerable thirst, small bits of ice placed in a cloth may be given the child to suck, which gives great relief; or teaspoonful doses of white liquid physic may be given, well diluted in water, say one teaspoonful of white liquid physic to a half glass of water.

Medicinal.—In acute dyspeptic diarrhea, where there is offending material in the bowel, there is nothing better than the old neutralizing cordial, though some prefer castor-oil. This is to be followed by the small doses of neutralizing cordial, or, if there be much fever, aconite three to five drops, and ipecac five to eight drops to half glass of water, a

teaspoonful given every hour.

If the tongue be broad and pale, nux vomica drops two, to water four ounces, and a teaspoonful every hour, will replace the above. Where there is colicky, griping pains, colocynth three to five drops, will be added to four ounces of water, and a teaspoonful given every hour. Where the stools are greenish in color, lactic acid 3i, to water four ounces, will give good results. Chamomilla will also be well received in similar conditions. If the tongue be pasty, sodium sulphite 10 - 20 grains, to water four ounces, will be found of great value.

Where the stools are watery and green, arsenate of copper will give good results; about as much of the second trituration as will lay on a dime, will be placed in a half glass of water, and a teaspoonful given every hour.

If atony of the bowel exists, bismuth subnitrate or subgallate may be given. Colonic flushing may be used in some cases.

Cholera Infantum.—The stomach may be washed out by allowing the little patient to drink freely of water with a little bicarbonate of soda and the bowels flushed by a normal saline enema.

To allay the nausea and retching, aconite two drops, ipecac five drops to water four ounces, a teaspoonful every hour, will often accomplish the desired object. If not, place about twenty grains of the neutralizing powder in a cup, and add four ounces of hot water and a teaspoonful of brandy, and give in small sips. This is especially useful, if the fever is not high.

Rhus tox. five drops to water four ounces, and given every thirty or sixty minutes, will quiet the irritable stomach, where there is great cerebral spinal irritation.

Nux Vomica.—If the face is pale, tongue broad, lips full, two drops of nux, to water four ounces, will answer better.

Gelsemium.—When the child is restless and constantly rolls his head, add fifteen drops of gelsemium to a half glass of water, and give a teaspoonful every thirty or sixty minutes. With the above symptoms the head is hot, and the best results can be obtained, not only in cooling the

head, but in quieting the restless condition, by sponging the head with hot water. *Do not* lay a cloth on the head, as the heat will be retained, but have one attendant gently sponge the forehead, while another attendant gently fans the patient; in this way the head can be rapidly cooled and the patient obtain rest.

Where the patient starts and cries out in his sleep, rhus tox. will be found beneficial. For the bowels, the first trituration of the monobromide of camphor, in three or five grain doses, or the small dose of the second trituration of arsenite of copper, will not disappoint.

Saline Solution.—Where the system is drained of its fluids, as noted in the flabby muscles, the pinched face, the cold extremities, the subcutaneous injection of four or eight ounces of normal saline solution (sodium chloride 1 drachm, aqua 16 ounces), will give better results than any internal medication. From eight to sixteen ounces can be used in twenty-four hours.

Ileo-colitis.—Here we have an inflammation of the ileum and the colon, and the treatment will be similar to that for all irritable and inflamed mucous membranes. Aconite and ipecac for the small, frequent pulse, elongated tongue, reddened at the end and edges.

Colocynth for colicky pain and the tenesmus and bearing-down sensation. Dioscorea, where there is tenderness over the abdomen. Where the fever is slight, the tissues full, and an astringent is permissible, bismuth subnitrate will give good results.

When the tenesmus is very severe and almost constant, an enema of opium and starch-water, ten to twenty drops of the former, to a tablespoon of the latter, will quiet the straining, and give prompt relief.

CONSTIPATION.

Synonyms.—Costiveness ; Obstipation.

Definition.—The retention of fecal matter beyond the normal time, attended by great difficulty in expulsion, with a sense of insufficiency in action.

Etiology.—It is impossible to draw the dividing-line between a normal condition of the bowel and constipation; for while one well-formed stool per day is the rule, in some individuals two stools per day is the normal condition; while in others a stool every other day would be considered a condition of health. The causes are numerous, and may be described as follows:

Heredity.—Many children come into the world with a feeble constitution and weak intestinal track as their heritage; hence constipation is early developed.

Temperament.—Persons of a nervous and bilious temperament, usually pale and dark-skinned, with torpid liver, furnish conditions favorable for constipation.

Sex.—While constipation is not confined to one sex, it is very much more prevalent among females. They are more prone to neglect a regular habit, and, through false modesty, neglect the calls of nature, when in public buildings or conveyances. Also their life, as a rule, is less active than that of the male; again, frequent pregnancies weakening the abdominal muscles, or a gravid uterus pressing against the rectum, or an inflamed and prolapsed ovary, are conditions that favor costiveness.

Sedentary life, and neglect to respond to nature's call, favor this condition. In this age of competition, where the almighty dollar is the goal of the great majority of the human family, nature's call is either neglected or postponed till the bowel loses its sensitiveness, constipation naturally resulting.

Cathartics.—The habit so many Americans have, of taking liver-pills, compound cathartics, and the many bottled waters that are on the market, for every ache and pain, is responsible for a very large proportion of the cases of constipation.

Diseases.—Wasting diseases and acute fevers, also anemia and chronic diseases of the lungs, heart, and liver: neurasthenia and chronic disease of the stomach and bowels; adhesions, resulting from peritonitis, dysentery, and enteritis, whereby the bowel loses its peristaltic action; painful diseases of the rectum, such as hemorrhoids, fissures, etc., cause the patient to refrain from stool as long as possible. Catarrhal disease, whereby a tenacious mucus is secreted, is also responsible for this

common complaint.

Obesity.—Obesity weakens the abdominal muscles, and thus favors obstipation.

Tumors.—Growths, by their pressure, weaken and obstruct the bowel.

Foreign bodies, either as scybala, enteroliths, or seeds, may cause constipation.

Stricture is a local cause, while atony of the bowel is a very common, general, or systemic cause.

Excessive diuresis and diaphoresis, by withdrawing the fluids from the system, give rise to constipation.

Diet and Water.—A concentrated diet, that is largely deprived of debris, is conducive to constipation, as well as one that is coarse, in which there is an excess of waste; while a change of water, especially to one chalky in character, brings about the same condition.

Pathology.—No characteristic lesions are found as the result of constipation, though dilatation may follow long impaction of the colon. Stercoral ulcers may follow from pressure of scybalous masses.

Symptoms.—These vary in different individuals. In some the general health is but little affected if at all, if the bowels do not move for days and days; while another feels uneasy and nervous if he does not have a stool every twenty-four hours. In my early practice I knew a man of active habits, who enjoyed perfect health, and yet often passed an entire week without stool, saying that he felt absolutely no discomfort.

The symptoms may be divided into local and general.

Local evidence of constipation is found in a sense of fullness and weight in the abdomen, occasionally colicky pains, and a dragging sensation in the rectum. Not infrequently diarrhea alternates with the constipation, where there is more or less flatulency and griping pains. When the stools consist of large, hardened, fecal masses, there is great pain in defecation, leaving the rectum quite painful for hours, and where this continues for a long time, results in painful hemorrhoids.

The general symptoms are legion. The most common are: headache, dizziness, a general sense of languor, bad breath, coated tongue, loss of appetite, palpitation of the heart, cold hands and feet, dark circles beneath the eyes, and melancholy or hypochondriasis.

In women, there are menstrual derangements, owing to pressure against the uterus and its appendages. Not infrequently there is neuralgia, owing to pressure upon visceral and sacral nerves. There is often torpor of the liver, with jaundice, a dry, harsh skin, or one cold and clammy. With these conditions there are dyspeptic symptoms. Pain in the cardiac region, extending to back and under the shoulder-blade, is not uncommon.

Where there is impaction of large masses of fecal matter, the systemic symptoms are so severe that the local condition may be overlooked, and the patient assume a very grave condition. The history of the following cases, which occurred early in my practice, affords a good illustration:

Mrs. O., aged about twenty-five years, mother of one child, complained of various aches and pains, but a gradual enlargement of the abdomen caused her to believe that she was pregnant, and attributed every new symptom that developed, as due to her condition, and made every preparation for a confinement. As time passed, her condition grew worse, and, having passed the time of her expected confinement, she grew anxious, and then alarmed, at her increased and enormous size. At this time, four months after her expected delivery, I was called to the case.

I found the abdomen very much enlarged, though uniform, and the patient quite dropsical; the skin white, inelastic, and doughy, and pitting on pressure. The woman suffered a great deal from abdominal pains. The case being obscure, I called a noted surgeon in counsel. After a careful examination, both digital and by sound, he diagnosed the case as ovarian tumor, and advised an operation. To this the patient asked a few days to decide, and the surgeon left for his home. Forty-eight hours later, I was hurriedly summoned to the house, where I found the patient in great pain. On getting out of bed to urinate, she was seized with a severe cramp, and was delivered of a fetus and after-birth, of about six months gestation.

The abdomen, however, was but very little reduced in size, and, six or seven days later, I drew a large wooden bucket full of fluid from the abdomen; after which, I could outline a hard, tumorlike substance occupying the left iliac region, and which I diagnosed as fecal matter. I then prescribed one tablespoonful of olive-oil every three hours; had the abdomen massaged with olive-oil every three hours, and an ounce of the oil injected into the bowel every five hours. Within forty-eight hours the tumor mass began to soften and give way, and, with the emptying of the bowel, the dropsy rapidly subsided, and an uneventful convalescence was rapidly terminated.

Diagnosis.—There will be no difficulty about diagnosing simple constipation, and should there be stricture due to malignant growths, the general health would be so impaired that the differential diagnosis could be made. Fecal impaction may be recognized by palpation, percussion, and the use of the rectal tube.

Prognosis.—Unless there is organic stricture or paralysis, the prognosis should be favorable.

Treatment.—Time, patience, regular habits, and persistency in the treatment, are essential to a cure. The constant use of cathartics must be prohibited, and the patient made to understand their harmful effect. To stimulate peristalsis, and at the same time obtain a better circulation in the bowel and abdominal muscles, direct the patient to knead the bowels for ten minutes before rising each morning, drink a glass of cold water, to which is added a drop of nux vomica, and after breakfast make an effort to have stool. If this method is regularly carried out each morning, it will not be long before a marked improvement will be seen.

Impress upon the patient the necessity of going to stool at a regular, stated hour each day, that success depends upon it, and that he or she must never be too busy to carry out one of the most essential parts of the treatment.

For the first few days, in extreme cases, to encourage the patient, fifteen grains of sodium phosphate may be given at bedtime, or a glycerin suppository may be used occasionally; but these should be used only when necessity demands their use.

Well-regulated exercise in the open air should be taken daily by all

patients whose occupation necessitates a sedentary life. Where there is fecal accumulation, and where the bowel is lined by mucous feces, like a "teakettle is with lime," high colonic flushing should be used; Have the patient lie in bed, and, with a long tube, introduce into the bowel as much water as the patient can retain; then grasp the abdominal walls, and shake and rub the abdomen, passing the water from side to side, thus thoroughly flushing the bowel, loosening old linings; this will stimulate the bowel as nothing else will. This may be followed by using the double Irrigator, allowing several gallons of water to now in and out. Where the bowel has seemingly lost its peristaltic power, galvanism will be found useful. A raw apple, eaten before going to bed each night, has been found helpful in producing a regular habit, or he may eat each morning a fig-ball, composed of the following: Figs and dates, of each one pound; powdered senna two ounces, manna half ounce. Chop the ingredients very fine, and make into sixteen balls.

Fruits and green vegetables should constitute the principal part of the patient's diet. Should there be any rectal irritation, a common cause of constipation, it should be removed. Hemorrhoids, fissures, ulcers, papilla, pockets, etc., should be removed. Sometimes a thorough dilating of the rectum will accomplish much in this direction. After using a rectal speculum in the first dilation, the patient may use a graduated series of porcelain dilators, beginning with the smallest size, and, as the rectum becomes accustomed to its presence, use a larger size. The patient should drink freely of water, but avoid the many saline cathartic waters that are on the market.

DYSENTERY.

Synonyms. —Flux; Bloody. Flux; Recto-Colitis.

Definition.—An acute and sometimes chronic, infectious disease of the large intestine, characterized, pathologically, by inflammation and ulceration of the mucous membrane; clinically, by frequent, small, painful, mucous or bloody stools, attended by great tenesmus and almost constant desire to evacuate the bowels, a fever of more or less severity, great prostration, and quite rapid emaciation.

History.—Dysentery is one of the oldest and most widely distributed of diseases which the physician is called upon to treat. That it is a very

ancient disease is proven by the fact that it was well known to, and accurately described by, Hippocrates, Galen, Herodotus, and many other early writers. As evidence of its universal distribution, we have yet to learn of any part of the inhabitable globe which has not been visited by this unwelcome guest.

Although usually regarded as a disease of the temperate or tropical zones, Greenland, Iceland, Norway, Sweden, and Siberia have paid tribute to dysentery.

Of this disease Sodre says, "There is no country, and no extensive district in any country, from the equator to the poles, in which dysentery has not been observed in the sporadic, endemic, or epidemic form." Great epidemics, attended by a high death-rate, have made dysentery one of the most dreaded lesions which affect humanity. Thus the epidemic which visited Sweden in 1857 claimed thirty-seven thousand victims, of whom ten thousand died; and in 1897, Japan was visited by an epidemic in which ninety thousand cases occurred, with twenty thousand deaths.

It prevails to an alarming extent in army and camp life, and Woodward, in speaking of its ravages during the War of the Rebellion, gives the record of cases occurring in both armies as two hundred and fifty-nine thousand and seventy-one cases of acute, and twenty-eight thousand four hundred fifty-one cases of chronic dysentery. This great number can, in all probability, be duplicated in all the great wars which have afflicted the human race during the centuries of warfare. Fortunately, with the observance of better sanitary measures, the disease is becoming rarer, and the presence of dysentery does not now produce the alarm which it once occasioned.

Varieties.—The division of the older writers into acute and chronic is, I believe, better than the more modern division of catarrhal, amebic, and diphtheritic; for, as Sodre well says, "Dysentery is one, and one only, whether it be considered from an etiological, clinical, or anatomical point of view, and the latter division only tends to confuse the student. They are simply different phases or symptoms of the one disease."

Etiology.—Among- the predisposing causes are the following:

Season ranks first, for by far the greatest number of cases occur during

the late summer or early autumn months. Sudden atmospheric changes, where the days are hot but the nights cool, are conditions which favor dysentery. Climate also predisposes to the disease; for while we find dysentery from the poles to the equator, it becomes far more frequent, and finally endemic as we approach the equator.

Age.—While no age is exempt, it is more frequently found in adults. Males are more frequently affected owing to greater exposure.

Unhygienic surroundings predispose to the lesion, as shown by the frequent outbreaks in public institutions where sanitary measures are neglected, and in army and navy penal institutions.

Catarrhal conditions of the intestinal canal, as well as certain infectious diseases—such as typhoid fever, typhus fever, and, in fact, the eruptive fevers in general—predispose to dysentery.

While these various conditions favor the development of dysentery, it is not likely that any one, or all combined, ever produce the disease. They simply prepare a soil favorable to the development of the germ or toxin which gives rise to the disease.

The tendency of the disease to appear in epidemic form is one of the best evidences of its infectious character. It is true that we meet with sporadic cases, yet this may be said of a number of infectious diseases.

The Shiga bacillus, or *bacillus dysenteriae*, is regarded by many as the distinctive pathogenic agent, while others believe it due to a combination rather than an association of micro-organisms, a number of which constantly infect the intestinal canal. Bertrand, one of the most prominent advocates of this theory, says, “Dysenteric infection is poly-bacterial, not specific.” The most generally accepted specific germ is that described by Lamb in 1859, and Losch in 1875, as *ameba coli*. The germ or toxin is most likely disseminated through drinking water.

Pathology.—The tissue changes in dysentery are quite varied, depending upon the severity and character of the attack. In the acute catarrhal form, especially if sporadic, the inflammation is nearly always confined to the colon and rectum, though in rare cases the ileum is involved.

The mucous membrane becomes hyperemic, swollen, and more or less injected, and bright-red in color, changing to a dusky hue, with increase of sepsis. The whole surface is covered with a tenacious, jelly-like, bloody mucus, often mixed with more or less purulent material. The solitary glands become swollen, and vary in size from that of a radish-seed to that of a pea. Necrosis may result, followed by ulceration. The submucosa may be invaded, becoming swollen and infiltrated, and, in the severer grade, extend to the serous and muscular coats.

In some cases, more frequently in children, the follicles bear the force of the attack, and the disease is known as follicular dysentery. Here there is infiltration, followed by necrosis and ulceration. These ulcers may be small and separate, or several may coalesce, giving rise to ugly, ragged, and irregular ulcerative patches. In the graver forms, usually the epidemic, pseudo-membranous patches form; hence the term, diphtheritic dysentery.

There may be extremes of tissue change, from the thin, slight, yellowish membrane, occupying circumscribed areas of the mucous membrane, to the most severe types, where a thick exudate of fibrin, pus, and blood invades the submucosa and serous coats. Necrosis taking place, this membrane sloughs away, leaving large, irregular ulcers. Where this is extensive, there is evidence of great sepsis, and death often results. Where healing follows, there is apt to be contraction of the ulcers, followed by more or less stricture.

In hot climates, where dysentery assumes the graver forms, it is known as tropical dysentery, or amebic dysentery. As in the forms already considered, the colon and rectum are the usual seats of the trouble, and, as in the former, are characterized by hyperemia and infiltration of the mucosa and submucosa, with the subsequent stage of ulceration. The ameba are found in the ulcers, in the coats of the bowels, and in the discharges. The infection is carried to the liver, probably through the portal circulation, and single or multiple abscesses are not infrequent. Abscess of the lung is a more infrequent result.

Chronic Dysentery.—In chronic dysentery the mucous membrane presents varied discolorations. Sometimes it is a dingy or brownish red, at other times of an ashy gray, or of a purplish-dusky hue. It is thickened in some parts, while denuded at others, thus giving portions of the gut a dilated or sacculated appearance, with stricture intervening.

Ulcers of various sizes and shapes are found, while the entire bowel is bathed in a bloody or purulent mucus.

Symptoms.—Dysentery presents a variety of symptoms, depending upon the form of the disease and the amount of the bowel involved; also whether sporadic or epidemic. There is one group of symptoms, however, that is common to every form and may be said to be characteristic; viz., *pain, tenesmus, and frequent, small, bloody, mucous stools.*

Acute catarrhal dysentery, the form most frequently found in temperate climates, is very properly divided into sporadic and epidemic. The sporadic form, usually the milder, may be preceded for a few days by evidence of dyspepsia, with more or less uneasiness and pain in the abdomen.

Diarrhea is usually the earliest symptom, and may continue for twenty-four or forty-eight hours before the true dysenteric discharges are present. These begin by a frequent desire to go to stool, attended by colicky pain and tenesmus. The stools now are small, contain but little feculent matter, and consist of a jelly-like mass of mucus, with an admixture of more or less blood. There is a sensation as though the rectum is loaded, and must be emptied. There is great pain preceding and following each stool, with a peculiar burning sensation in the rectum.

There is some fever, though generally not of a very active character. The tongue is furred, and great thirst is experienced, the gratification of which increases the irritation already existing, and aggravates the patient's suffering. Unless early overcome, the disease grows severer each day, the face takes on an anxious and pinched expression, and the disease assumes the character of the epidemic form.

The latter is usually the more severe in character, and is truly a grave disease. "Epidemic dysentery occurs in two principal forms, though there are various gradations: there are cases with obstinate constipation of the small intestines, with an active grade of fever; and others where there is an irritability of the intestinal tract, with a low or asthenic fever.

"In the first form, the disease almost always commences with a well-marked rigor or chill, followed by high febrile action. The discharges

from the bowels soon become frequent, are preceded and attended by tormina, the pains being of a severe, cutting character. The tenesmus, or desire to evacuate the bowels, is almost constant, and is very distressing during the operation, it seeming to the patient that the desire for an evacuation would never cease.

“No rest can be obtained during this condition, and, a natural consequence, the patient is very fretful and uneasy. The discharges from the bowels are sometimes pure mucus, at others mucus mixed with blood, and again seemingly almost pure blood; in each case the material being unchanged, not dirty or discolored, as in the next form of the disease.

“As it continues, we find that day by day the disease becomes more severe. The fever is remittent or continued, and very active, the skin being dry and parched, the pulse hard and frequent, pain in the head and back, the tongue coated, a bad taste in the mouth, and loss of appetite, the urine scanty, sometimes passed with difficulty, and anxiety and uneasiness from the almost total loss of sleep from the commencement of the disease. Up to the sixth or seventh day the symptoms will be thus acute; but after that, we find the fever assuming a typhoid type, and the discharges from the bowels become discolored and offensive, as in the next variety.

“The second form frequently commences as above described, the fever following the chill, or rigor, being acute. The discharges from the bowels are small, and composed of mucus and blood, and attended with an intense tormina and tenesmus. But in the progress of the disease it is found that any cathartic will start the small intestines into action, and we have more or less offensive feculent matter passed with the dysenteric discharges, or alternately with them. When this occurs, the typhoid symptoms, described below, soon make their appearance.

“In other cases, the discharges are semi-diarrheal at the commencement, and we find this irritability of the small intestines, and sometimes of the stomach, continuing' throughout the progress of the disease. This feature of the disease must be noticed; for if we should give in this case a cathartic to increase secretion from the liver, and open the small intestines, we would many times set up an irritation that we would find it impossible to quiet.”

Typhoid Dysentery.—Occasionally there is evidence of sepsis from the beginning of the attack. There is more or less depression from the start; patient feels tired, languid, and the bowels are loose. The tongue is broad, coated with a dirty, moist coating. The skin is clammy and relaxed; pulse small and quick; the temperature not very high, 100° or 101°, possibly 102°, and very rarely reaches 103°. As the disease progresses, the tongue becomes dry and brown, sordes appear on the teeth, while the stools become small and frequent, and are composed of mucus, blood, pus, and shreds of mucous membrane.

The stools vary in color. At times a grayish, pultaceous mucus; hence it is sometimes called gray flux. Again the mucus is pink or of a purplish hue. Day by day the patient grows worse. The face takes on a pinched or haggard expression, the nose is thin and blue, the eyes sunken, the pulse small and feeble, the temperature drops, the extremities are kept warm with difficulty, a cold sweat covers the body, and the patient dies in a state of collapse.

The pain is not so intense in this form, the nervous system being benumbed by the sepsis. Complications with the liver are more apt to be seen in this form.

In all severe forms of dysentery, whether sporadic or epidemic, the tormina may extend to the bladder, causing intense suffering.

Complications.—A peritonitis may follow by extension of the inflammatory process, or in rarer and usually fatal cases, by perforation. Abscess of the liver has already been noted, and is not infrequent in hot climates. Pericarditis and endocarditis in rare cases follow dysentery, where the latter has been prolonged for weeks or months. Paralysis has been noted in but few cases.

Diagnosis.—Dysentery is one of the most readily recognized of diseases of like severity. The frequent call to stool, the great tormina and tenesmus, the character of the stools, jelly-like mucus mixed with blood, or the stool may be entirely of blood, the intense thirst and systemic disturbance can not be mistaken for any other condition. The inexperienced might possibly mistake a proctitis or hemorrhoids, fissure, stricture, or sympathetic irritation from the bladder for dysentery; but if one remembers the far greater systemic disturbance of dysentery, the mistake will be avoided.

Prognosis.—Although a grave disease, especially in the epidemic and typhoid forms, the Eclectic treatment has been peculiarly successful. In exceptional epidemics, where the type is peculiarly malignant, the prognosis must be guarded.

Treatment.—The treatment of dysentery consists not only in the proper selections of remedies, but in good nursing and careful attention to diet, for a great deal depends upon the care the patient receives. The patient should be put to bed with the first dysenteric stool, and perfect quiet enjoined. He must be impressed with the necessity of resisting the call to stool as far as possible; for many times the desire will pass away if the patient only exerts a little will power. Drinking water should be restricted, though bits of cracked ice may be allowed.

The diet should consist of hot milk, given in small quantities; if cow's milk can not be taken, malted milk in some form should be given. Albumen-water in very small quantities is well received; also scraped beef; but if irritation follows, it should at once be withheld. During convalescence cooked fruits may be used to advantage. Unless the patient has been constipated, and there is accumulation of feces, cathartics should not be given.

In sporadic dysentery the treatment, is simple.

Tincture Aconite	5 drops.
Tincture Ipecac	5 drops.
Aqua	5 ounces. M.

Sig. Teaspoonful every hour will be sufficient to effect a cure.

The aconite quiets the fever, and the ipecac relieves the intestinal irritation.

Where there is marked tenderness over the abdomen, *dioscorea* may be either alternated with the above, or replace the ipecac.

For the tenderness, and especially for the burning sensation in the rectum, tincture *colocynth* will be found a valuable remedy. Where there is nausea, the tongue pale, a white ring around the mouth, pain pointing to the umbilicus, tincture *nux vomica*, 5 drops, to water 4

ounces, will give prompt relief.

If the tongue be moist and red, with an irritable stomach, subnitrate bismuth in mint-water should be used, a teaspoonful every one, two, or three hours.

Where the tongue is *red* and *elongated*,

Sulphate of Magnesia	1 drachm.
Water	4 ounces. M.

Sig. Teaspoonful every hour will give quick results.

The remedy, however, which will fit more cases than any other is the "white liquid physic." My father used the old formula, with the alum left out, and was remarkably successful in his treatment of dysentery. His prescription was :

White Liquid Physic,	
Simple Syrup	2 ounces each. M.

Sig. Teaspoonful every hour.

Where the patient was very thirsty, as he usually was, the doctor would put a teaspoonful in a fourth of a glass of water, and let the patient sip at pleasure; this quenches the thirst, and does not start the bowels. Of this treatment Dr. Cooper says, "White liquid physic comes as near being a specific for a given disease as any remedy can be."

Some patients can not take the remedy as strong as the above, and therefore it must be diluted. Thus I was called to see a very grave case of dysentery, where the stomach rejected all medication. On suggesting white liquid physic, the attending physician informed me that he had given the remedy, but the patient could not retain it. I then added *one teaspoonful* of the agent to a half glass of water, and the remedy was not only retained, but improvement began at once, and continued to recovery.

Where the call to stool is almost constant, and attended by great pain, an enema of starch and laudanum will afford relief; ten to thirty drops of laudanum to a tablespoonful of starch-water, the injection to be

retained as long as possible. My friend, Dr. Eben Behymer, prefers the use of the opium suppository for the same condition; or, if the rectum is very irritable, a half grain of powdered opium, in a small No. 4 capsule, will be better retained than a suppository.

Where the pain is unbearable, a hypodermic of morphia is justifiable, or a hot sitz-bath may answer the same purpose.

Where malaria prevails and there is a distinct periodicity manifested, quinia will be necessary in effecting a cure.

In epidemic dysentery, the treatment just outlined may be sufficient, though special cases will need careful study and additional treatment. In some epidemics the conditions are so similar, that nearly all cases will be benefited by the same medication, or, in other words, epidemic remedies meet the diseased condition, and the treatment is very simple. For example, the epidemic that prevailed so extensively at Harrison, Ohio, in 1868, and in which many died, was one in which the second trituration of Podophyllin was a specific. My father was going night and day for several weeks, yet only lost two cases, and those elderly patients. Here the tongue showed the yellowy pasty coating, the yellow skin, full veins, and full tissue.

\Where the evidence of sepsis is marked, showing typhoid symptoms, each case needs special study. The dirty, moist, pasty coating on the tongue calls for sodium sulphite. The slick, moist, red tongue, or spoiled-beef tongue, calls for sulphurous acid, while the dry, brown tongue, with sordes on the teeth, calls for hydrochloric acid. Echinacea and baptisia will be the remedies where the tissues are full and present a purplish or frozen appearance and the stools are of a prune-juice character, with shreds of mucus.

Where the bowel is not too sensitive, washing out the gut with boracic acid solution is good treatment. Where there is but little fever and the tissues are relaxed, nothing is better than sub-gallate of bismuth and opium. Five to ten grains of the former, and one-fourth grain of the latter, every three or four hours.

Where the tongue presents a *yellowish* or *bluish* color, with a *dirty, moist coating*, with a *bad breath* somewhat cadaveric, potassium chlorate and hydrastin phosphate should be administered.

It is hardly necessary to say, in this day of antiseptics, that the patient should be kept *clean*, and that his room should be well ventilated, and that Pratt's chlorides, or some equally good disinfectant, should be used freely.

CHRONIC DYSENTERY.

Chronic inflammation of the large intestine is usually the result of the acute form, though in rare cases it is subacute from the beginning. When not the result of an acute attack, a ca-tarrhal condition of the rectum and colon usually precedes the disease, while wrongs of the liver and spleen are frequent. Dr. Scudder thus describes the disease:

Symptoms.— “The prominent symptom of the affection is more or less frequent discharges from the bowels, attended with more or less pain and tenesmus. The discharges vary greatly in color and character, sometimes a whitish-gray or yellowish mucus, occasionally mixed with blood, but more frequently with feculent matter. In some cases all the discharges are feculent, but of small size, and at the last part the mucus is discharged with tenesmus. In severe cases, the discharges are reddish, pultaceous, with more or less pus, and very offensive.”

The small intestine may be either irritable or torpid. In the first case the feces are discharged in a fluid form; in the second, usually in hard masses, sometimes scybalous.

“In some rare cases we find more or less fluid feculent material with every discharge, and suppose from this that the small intestines are working; but the administration of a cathartic will bring away large masses of scybala.

“The condition of the general health varies greatly. Usually we find a dry, harsh skin, imperfect action of the kidneys, irregular appetite, more or less pain in the head and in various parts of the body, with great loss of flesh and strength. In some cases these symptoms are very marked, the patient being confined to his bed a considerable part of the time.

“Where the disease was contracted in a hot climate, the skin is frequently sallow and yellow, dry like parchment, or relaxed and flabby.

In severe cases the disease is complicated with an intermittent fever, recurring every day, every other day, or at intervals of a week; all the dysenteric symptoms being aggravated at that time. The disease continuing, terminates fatally by exhaustion, or by ulceration and perforation, or more frequently by inducing an asthenic condition, terminating in disease of the lungs, liver, or brain.”

Diagnosis.— “Chronic dysentery is one of the most easily recognized of diseases, though the condition of the bowels and complications are hard to determine. Where any doubt exists the rectum should be examined with a speculum.”

Prognosis.— “Where of not very long- standing, the general health being pretty good, there is not much difficulty in its removal ; but if of long duration, the general health being severely affected, and evidence of considerable structural change, the prognosis is uncertain.”

Treatment.— “In the treatment of chronic dysentery we are not to forget the general character of the disease as well as the local trouble. There is usually derangement of the entire digestive apparatus, stomach, bowels, and liver. The secretions are also deranged. The skin is either dry and harsh, or relaxed and doughy. The kidneys are sluggish, and a successful treatment will necessitate the care "of the entire organism.

“A good stomachic is desirable very early in the treatment, and there is none better than *nux vomica* and *hydrastin*. For the kidneys, saline diuretics are of much benefit. For the sluggish liver, Podophyllin and leptandrin in small doses give good results.

“For the dysentery, *white liquid* physic is as efficacious in this form as it is in the acute. Where there is great relaxation, and the stools are a glairy or jelly-like mucus, bismuth subgallate and opium are among the best. Where there is *general soreness*, dioscorea is a most useful agent. The furred tongue, with *full tissues* and *doughy* skin, calls for the second trituration of podophyllin.

“For rectal irritation, where there is a feeling as though there was a foreign body in the rectum, colocynth is the remedy. Where the tongue is *coated in patches*, is *moist* and *pallid*, and the hemorrhage is *passive*, carbo veg., in three-grain doses of the first trituration, will prove

curative.

“Where there is relaxation of the *entire* bowel, tincture of geranium or epilobium has been successfully used by our school.

“As to local measures, they are often indispensable. A flexible rectal tube, carefully introduced a few inches into the bowel, and a stream from a fountain syringe allowed to flow till the bowel is slightly distended, when the tube is pushed in a little further, always following the distention caused by the flow till the tube is introduced a foot or more—in this way there is little danger of injuring the bowel, and a thorough flushing is secured. Boracic acid, a tonic, or astringent wash, may be selected according to the needs of the bowel.

“Where the disease persists despite the treatment, an early examination of the rectum and sigmoid should be made with a speculum, and any wrong, such as fissure, ulcer, or hemorrhoid, should be corrected. If there be catarrh of the sigmoid, a pledget of absorbent cotton, smeared with balsam of Peru, and introduced through a sigmoid speculum by means of a long-dressing forceps, will give the most satisfactory results. This may be used every other day.”

APPENDICITIS.

Definition.—An inflammation, acute or chronic, of the appendix vermiformis. This includes typhlitis, inflammation of the cecum, and perityphlitis, the peritoneal covering of the cecum. One can very readily see that these additional parts would be more or less involved in an acute inflammation of the appendix, and that a positive differential diagnosis can only be made postmortem.

Etiology.—In examining various authorities, we find the causes assigned as responsible for appendicitis to be legion. From congenital malformation of the appendix to peritoneal adhesions; from la grippe to tuberculosis, and of foreign bodies there seems to be no end; especially aggravating, according to some writers, are prune-seeds, cherry-stones, grape-seeds, gall-stones, pills, fish-bones, etc.; one writer stating that the most frequent cause is the *pressure* from pins.

Heredity has been given as predisposing to appendicitis, while the ever-

present bacteria have been charged with the responsibility of producing this affection.

Blows, injuries, strains, and indigestible food, all come in for a share as the causal agent. The truth is, the *cause* is unknown, though in all probability, the presence of fecal matter, together with decomposed gases, are most frequently the exciting causes.

Appendicitis occurs most frequently between the ages of sixteen and thirty, and among males more often than females, the ratio being four to one.

Pathology.—The pathology depends to some extent upon the degree of the inflammation. The inflammation, beginning in the mucous membrane, may extend to the submucosa and muscular and serous coats. In the milder forms, the inflammatory process is simply catarrhal, resolution taking place without ulceration. At other times various degrees of ulceration take place; it may be confined to the mucous membrane, and do but little harm; or it may extend into the deeper tissue, or even to perforation. In interstitial appendicitis, a fibrous exudate covers the outer or serous covering, and this forms adhesions with coils of intestines, walling off the appendix from the peritoneal sac.

Where ulceration and perforation occur rapidly, this new tissue may be perforated, the pus entering the peritoneal cavity; but if slow in its formation, the adhesions become strong enough to prevent this disaster. If ulceration occurs in a part not covered by the peritoneum, and is the part next the mesocecum, a circumscribed abscess results, and there will be little danger from peritonitis. In such cases the pus will make its way out where there is the least resistance. It may be downwards along the psoas muscles, and empty into the large or small intestine, or pass upwards to the diaphragm. It has been known to empty into the bladder.

When the ulceration occurs near the cecum, the nutrient artery may be destroyed, and the appendix slough off. In such cases the opening into the bowel is usually closed by adhesions before the escape of pus into the abdomen. In some cases a fibroid change begins in the distal end of the appendix, and extends to the proximal extremity, obliterating the lumen, and giving rise to what is known as appendicitis obliterans.

Symptoms.—The disease may come on insidiously with prodromal symptoms, such as loss of appetite, slight colicky pains, and constipation, the patient complaining of some tenderness or soreness in the right side, and in walking stoops or leans toward the affected side. Generally, however, the patient is seized with a pain in the abdomen, sometimes in the region of the umbilicus; or it may be general at first, but soon locates in the right iliac fossa. At first it is paroxysmal, the patient diagnosing it as colic, though pain is *elicited between paroxysms, if pressure is made over the affected spot.*

At the end of twenty-four hours the pain has become constant. The position at this time is dorsal and the right leg is flexed to take off the tension by shortening the psoas and iliacus muscles. All bands of clothing are loosened, and not infrequently even the bed-clothing is not permitted to rest upon the inflamed part, the slightest pressure causing pain; a circumstance that renders a differential diagnosis from colic or indigestion quite plain.

Though the facial expression varies, the general expression is one of anxiety, which increases as the disease advances. The respiration is embarrassed, and, if the peritoneum is much involved, chiefly thoracic.

Nausea and vomiting is an early and somewhat characteristic symptom. Fever develops early, though moderate in degree, the temperature rarely going over 103° within the first forty-eight hours. In some cases no fever is present. Constipation is nearly always present, though there may be diarrhea. Frequent micturition is not an unusual symptom.

Physical examination of the abdomen reveals a slight tumor in the right iliac region, unless the peritoneum is involved and there is marked tympanites, when the abdomen is too sensitive to permit deep enough pressure to distinguish any tumefaction.

The particular point involved is McBurney's point; that is, one and a half to two inches from the anterior superior spine of the ilium, in a line drawn from it to the umbilicus. If the appendix be turned backwards, or if the tumor be small, the intervention of the distended coils of intestine may prevent its being detected by palpation. If mild, resolution will take place in a few days, by a subsidence of the fever, a yielding of the constipation, and the entire disappearance of the indurated mass in a

week or ten days. In severe cases, the patient grows rapidly worse, perforation occurs, with abscess formation or diffuse peritonitis.

Diagnosis.—When a patient under forty years of age is suddenly seized with a pain in the right iliac fossa—the tender spot, McBurney's point—and there is nausea, vomiting, or obstinate constipation, and the patient lies on the back with the right leg drawn up, and an indurated tumor develops at the seat of pain, there is but little doubt as to the nature of the case.

Prognosis.—Although a grave disease, I am satisfied that a large per cent will recover if not subjected to the use of the knife. Where perforation with abscess formation occurs, the only recourse, and the one that promises the only relief, is operation; but these will be found few in number if the patient be seen early.

Treatment.—While I am opposed to the use of active cathartics, I am satisfied that the administration of small doses of salts is very beneficial, or olive-oil may be substituted for the saline. At the same time enemas of warm water and glycerin will assist materially in opening the bowels. It may be necessary to use a rectal tube, introducing it as rapidly as the bowel fills with water. In this way the tube may be carried up to the transverse colon, and even beyond this in many cases. Too great force, however, must not be used in this method. Lobelia used in the enema will give splendid results.

Where there is fever, aconite or veratrum may be used with much benefit; and where there is severe colicky pain, colocynth will often give relief. Where the pain becomes unbearable, or the patient is constantly calling for relief, a hypodermic of morphia should be used, though opiates, as a rule, should not be given. Where abscess formation takes place, and there is no evidence of its pointing to the abdominal walls or of perforating the intestine, the surgeon should be called.

In recurring appendicitis—that is, after a patient has had three or more attacks of the disease, and is well during the interval between attacks—it is better to have the offending organ removed.

INTESTINAL ULCERS.

Probably no part of the body is more subject to the ulcerative process than the intestinal canal, and it may arise from various causes. The symptoms may be so slight as not to suggest the nature of the lesion, and the disease go undiscovered until revealed by an autopsy.

Various forms of ulceration are noted, the principal ones being stercoral and the simple ulcers attending catarrhal disease of the intestine, or the result of the infectious fevers.

Etiology.—The same causes that give rise to gastric ulcer may produce duodenal ulcer, and extensive burns are not infrequently followed by intestinal ulceration. Septicemia may be responsible for this condition, probably the result of embolism.

Amyloid degeneration of the intestinal blood-vessels are also cited as a possible cause.

Follicular and catarrhal ulcers develop in catarrhal enteritis of both children and adults. Long-continued constipation, attended by impaction of hardened fecal masses, may give rise to stercoral ulcers. Ulceration frequently attends the infectious fevers; especially is it found in typhoid fever, dysentery, diphtheria, small-pox, pyemia, and erysipelas. Of the chronic diseases, tuberculosis attended by ulceration and syphilis are the most notable.

Pathology.—The pathological changes are the same as take place in gastric ulcer, or that of any other mucous surface. The ulcer may be superficial, involving the mucosa, or extend to the deeper structures, even to perforation.

Symptoms.—The most constant symptom of intestinal ulceration, unless located very high up in the bowel or of a very superficial character, is diarrhea. Hemorrhage is also quite frequent, and unless retained in the bowel for some time, is bright red in color; otherwise it is tarry in character.

Pain occurs three or four hours after eating. The general symptoms depend upon the causes giving rise to it, and whether masked by the primary lesions. The stools contain pus, blood, shreds of mucus, fecal

matter, and various bacteria.

Treatment.—The diet should be bland and nourishing, and though at first liquid in character, should be changed to a dry diet as soon as possible. Beginning with pepsin or sherry whey, malted milk, Mellin's food, imperial granum, Eskay's food, etc., we change to scraped beef, stewed sweetbreads, broiled steak, lamb-chops, toasted bread, baked potatoes, etc., but enjoin the use of tea, coffee, milk, or water while taking food.

In the way of medication, hydrastin phosphate, ten grains to four ounces of water, a teaspoonful every three or four hours, will give good results. Where the action of an astringent is desired, bismuth subgallate, in five or ten grain doses, is to be recommended.

Dioscorea will be used where there is soreness of the bowels, or colocynth if colicky pains are experienced. Epilobium and ipecac are not to be forgotten. Where the ulcers are in the sigmoid flexure or rectum, tampons of wool smeared with balsam of Peru, and passed with dressing forceps to the seat of the ulcers, will prove of great benefit. They should be used two or three times per week.

CANCER OF THE INTESTINE.

Only a small per cent of malignant growths are located in the intestinal canal, variously estimated at from four to eight per cent.

Etiology.—Cancer generally occurs in the second half of life, or from the fortieth to the sixty-fifth year of age, and is more often found among males than females. Aside from heredity and age, various sources of irritation, such as fissures, ulcers, hemorrhoids, and fistulas, predispose to carcinoma by furnishing a suitable soil for the development of the malignant germ, whatever that may be; and the frequency with which cancer locates itself in the rectum sustains this view.

Pathology.—The predilection for certain parts of the intestine is shown in the examination of two hundred and forty-three cases of cancer of the intestine, in the Pathologic Institute of Vienna. Thus, five were in the duodenum; six in the ileum; none in the jejunum; one hundred and eighteen in the large intestine; one in the vermiform appendix; fourteen

in the cecum; sixty-three in the colon in general; forty in the sigmoid flexure; and one hundred and fourteen in the rectum. (See Nothnagel's "Encyclopedia of Medicine.")

The varieties of cancer found in the intestine do not differ from those occurring in other portions of the body; namely, scirrhus, encephaloid, colloid, and cylindrical-celled epithelioma.

Beginning in the mucous membrane, it soon invades the entire intestinal wall, frequently encircling the entire lumen, and in this way gives rise to intestinal obstruction; or it may be a diffuse, nodular mass, involving but one side of the gut.

The encephaloid and cylindrical-celled epithelioma are soft, fungoid in character, and rapidly ulcerate, while the scirrhus are slow in developing, and are late in ulcerating. Above the cancerous mass there is dilatation of the bowel, which forms a depot for fecal accumulations. The cancerous mass often invades contiguous parts. Fatal hemorrhage may result from deep ulceration, which sometimes attends these cancerous growths.

Symptoms.—There are no characteristic symptoms in the early stage, and in some cases they run their course with but little evidence of their malignant character, cachexia and anemia, that always attends carcinomatous growths. Where the growth develops rapidly there is generally slight fever, the temperature in the morning being 99° or 100°, and in the evening 101° or 102°. At other times the temperature is normal or subnormal.

The first symptoms, in some cases, will be evidence of occlusion, the patient being obstinately constipated, or diarrhea may attend, the stools consisting of a dark-brown, thin liquid, and very offensive; or the patient may pass small quantities of mucus, pus, and blood, with occasionally little balls of fecal matter, resembling the feces of sheep, or again it may be ribbon-shaped.

Pain is a common symptom, though varying in character. It may be dull, the patient complaining of soreness and tenderness on pressure, or it may be sharp, lancinating, and darting in character.

If the growth be located in the duodenum, there will be evidence of

obstruction of the pancreatic and bile ducts, and dilatation of the stomach. If located in the lower part of the large intestine, there will be pain in the sacral region, extending to the genital organs. If in the sigmoid, the stools are apt to consist of mucus, pus, and blood. Rectal cancer is apt to be attended with intense pain in defecation, followed by tenesmus and exhaustion.

The patient early takes on a cachectic appearance, the skin becomes dry and harsh, and emaciation is rapid. The tumor mass may usually be felt through the flat abdominal walls; it may be movable or tied down by adhesion, and fixed. The mass is usually tender, any manipulation causing pain. The appetite is often retained and the tongue clean.

Diagnosis.—This is not always readily made. The age of the patient, heredity, constipation, cachexia, sharp, lancinating pain, emaciation, small bloody stools, and a palpable nodular mass, are the chief diagnostic symptoms.

Prognosis.—It is always unfavorable, the patient dying in from three or four months to three or four years.

Treatment.—Where the growth is located in the duodenum, there is generally dilatation of the stomach, which favors a retention of food, and fermentation of the gastric contents. To relieve this unpleasant condition, frequent washing out of the stomach by the lavage tube will prove beneficial. The diet should be nutritious and easily digested, and better if given in fluid form.

The bowels should be kept open by use of the small strychnin, aloe, and belladonna pill. Morphia may be necessary to allay the severe pain. In rectal cancer, where the pain is intense, an opium suppository will give relief, or a small gelatine capsule containing one grain of powdered opium may be pushed within the rectum, where it will cause less tenesmus than a larger suppository. Where there is an offensive diarrhea, an antiseptic and disinfectant enema should be given several times per day.

CHOLERA MORBUS.

Synonyms.—Cholera Nostra; Sporadic Cholera.

Definition.—An acute affection characterized by nausea, vomiting of serous material, frequent watery stools, colicky pains, and severe muscular cramps, and attended by great prostration.

Etiology.—This is a disease of hot weather, beginning in June, increasing in frequency in July and August, and usually disappearing in September. Bad hygienic conditions predispose to cholera morbus, though the exciting conditions are unripe or overripe fruit, indigestible vegetables, such as cucumbers, radishes, egg-plant, etc. Drinking large quantities of ice-water when overheated, or tainted milk or water, may also be considered as excitants. It is more frequent among males than females, and among adults than in children, though cholera infantum may be considered the cholera morbus of children.

Pathology.—No characteristic anatomical changes take place. In some cases, catarrhal changes peculiar to gastro-enteritis are found, while in others no morbid changes are seen.

Symptoms.—The attack generally comes on suddenly, not infrequently in the night, and is announced by pain in the umbilical region, attended by nausea, which terminates in vomiting. At the same time the patient has an urgent call to stool, which is large, copious, and feculent in character. In a short time the retching and call to stool is almost constant, and the pain in the bowels is intense.

The stools vary in character; at first they are of a yellowish or yellowish-brown color, copious in quantity, and of a fecal character. As the disease progresses, however, they early lose their fecal character, and consist of a dirty water, even resembling the rice-water discharges of cholera.

Very early, cramping of the muscles of the legs, toes, and sometimes of the abdominal muscles, ensues, which is exceedingly painful, and causes the patient to cry out with his great suffering. In extreme cases, the spasmodic contraction of the muscles amount to opisthotonos.

The prostration is now extreme; the pulse is small, feeble, and frequent, the eyes sunken, the face blue and pinched, the extremities cold, the

skin becomes relaxed and bathed in a cold, clammy perspiration. If not arrested, the patient's strength is gradually exhausted, he becomes dull and careless as to his condition, until finally coma and death result. Fortunately, this is a rare result, and before the alarming symptoms appear, the disease seems to have expended its force, the vomiting and diarrhea subside, and the patient makes a speedy and uneventful recovery, so that, after twenty-four or forty-eight hours, he is seemingly as well as ever.

Diagnosis.—We diagnose the disease by the large, copious, watery evacuations, pain in the abdomen, retching and vomiting, great prostration, and cramping of the muscles. Unless Asiatic cholera is prevailing at the time, it could hardly be mistaken for any other disease. Arsenical or ptomaine poisoning would be recognized by the history of the case.

Prognosis.—It is nearly always favorable if seen reasonably early. When the patient is old and feeble, or a sufferer from Bright's disease or structural heart lesions, the prognosis must be guarded. If not seen till the stage of collapse, a fatal termination may occur. The only fatality I ever knew in this disease was of this character.

Treatment.—Direct a mustard-plaster to the abdomen and hot-water bottles to the feet. Internally, from a half to a tea-spoonful of the compound tincture of cajupet every fifteen or twenty minutes will afford speedy relief. If the pain be severe, one teaspoonful of chlorodyne may be added to ten teaspoonfuls of water and a teaspoonful of the mixture given every fifteen, twenty, thirty, or sixty minutes; or, what is better and much quicker in its results, a hypodermic injection of sulphate of morphin. The dose will be from a fourth to a half grain, according to the severity of the symptoms. This will not only relieve the pain, overcome the cramps, but generally allays the vomiting and diarrhea.

For the diarrhea, nux vomica and subnitrate of bismuth will prove beneficial. Where there is coldness of the extremities, a relaxed skin and threatened collapse, active measures must be used. Hot applications are to be made to the feet, legs, and trunk, or the limbs are to be rubbed vigorously with dry mustard.

In extreme cases, the patient should be rolled in a blanket wrung out of hot mustard-water. Internally, compound tincture of cajupet should be

given, and strychnia one-thirtieth of a grain given hypodermically; or, what is better still, a five-per-cent solution of camphor and ether administered hypodermically. The dose will be from twenty to thirty minims, as often as the heart's action demands its use.

At the same time a pint of normal saline solution should be given subcutaneously. The diet should be restricted for a few days following convalescence.

INTESTINAL OBSTRUCTION.

Synonym.—Ileus.

Definition.—A partial or complete occlusion of the intestinal canal, due to compression of the bowel, invagination, twisting, adhesions, or foreign bodies.

Etiology and Pathology.—It may arise from various causes, among which may be enumerated: “1. Bands of adhesion, the result of inflammatory action; 2. From a congenital intestinal pouch becoming adherent; 3. From the appendix ceci assuming a fixed and adherent position; 4. From the twisting of the intestine upon its own axis, upon the mesentery, or upon other coils of intestine ; 5. From tumors developed in the mesentery, leading to constriction; 6. From intussusception; 7. From cancerous disease of the intestine; 8. From contraction of cicatrices, as after dysentery or fever; 9. From enteritis or peritonitis; 10. From impaction of feces, or of foreign bodies, as gall-stones, etc.; 11. Obscure forms of hernia, as into the obturator foramen, etc.; 12. Prolapsus-ani and inflamed hemorrhoids; 13. Abdominal or pelvic tumors.” (Habershon.)

Some of these cases are readily determined, and may be excluded from the subject, as enteritis, peritonitis, prolapsus-ani, inflamed hemorrhoids, and abdominal or pelvic tumors. Again, it has been contended by some authors that all the symptoms found in these cases may be produced by a spasmodic state of the intestine, no strangulation or cause of obstruction being detected after death.

Symptoms.— “In the early stage of the affection, the patient is obstinately constipated, and complains of an uneasy sensation at the

part where the obstruction exists, being sometimes able to place the hand directly on the part. In a longer or shorter time he complains of a twisting or violent pain about the umbilicus, without tenderness on pressure; in fact, frequently relieved by it. Nausea comes on, with frequent retchings, vomiting of the contents of the stomach, then of bile, and finally of feculent matter.

“The abdomen becomes very much distended by gas, is tense and tender, the countenance shrunken and anxious, the extremities cold, with frequently cold, clammy perspiration, hiccough, and gradual failure of vital power.

“The disease pursues a variable course. Sometimes the suffering is extreme at the commencement, and all the worst symptoms above named appear in twenty-four or forty-eight hours; in others, the disease will not terminate fatally under six or seven days; and in some cases the large intestine being the seat of the obstruction, it may last for three or four weeks.”

Diagnosis.— “Much difficulty is experienced in detecting the character of these cases, as the symptoms at first are none of them distinctive. If of sudden occurrence, as when the patient feels a sudden, severe, colicky pain when straining at stool, becoming more and more severe, and attended with tenesmus and constant desire to go to stool, but unable to pass anything from the bowels, we have a tolerably plain case.

“In other cases we are led to believe that there is intestinal obstruction by the continuance of the constipation, sufficient means having been used for its removal; by the fixed location of the severe pain, and the constant nausea and marked prostration. At a later stage, the continuance of all the above symptoms, and the appearance of stercoraceous vomiting, are positive evidence.

“If the patient has had peritonitis, we have reasonable ground to conclude that it results from adhesions. Tumors are likely to have given rise to previous uneasiness, and to be so developed as to be diagnosed on examination. Cancer will have been of long duration, and given rise to disturbance of the bowels, and the ileus of slow formation. Impaction of feces may sometimes be determined by the hard, irregular tumor that presents, and its sudden appearance; obscure hernia by its location and the circumscribed character of the pain.”

Prognosis.— “The prognosis in these affections is unfavorable, though many recover. If there is continued increase in the severity of the symptoms, the nausea and vomiting being intense and persistent, and especially of stercoraceous material, with great prostration and anxiety, the prospect is very poor. If, however, the bowels are moved, the pain being mitigated, the patient will recover. In some cases of intussusception, when the symptoms are very severe, the patient still retains his strength, the nausea abates somewhat, and after two, three, or four weeks of suffering, a portion of the intussuscepted bowel is discharged, and the patient recovers. So many of these have occurred, that we would not despair, even after having employed all the means recommended without success, for nature will sometimes step in, and thus save the life of the person.”

Treatment.— “In almost all cases purgatives will have been thoroughly tried before we are called, so that we will not have to regret the giving them as one of our errors; still, cases will undoubtedly occur in which symptoms will be so obscure that we will administer them ourselves, to the great detriment of the patient. In all cases, the administration of opium and an infusion of dioscorea, in sufficient quantity to relieve the pain, will be all the internal medicine usually of use. The nausea must be quieted as much as possible, by the use of the means heretofore named: an infusion of compound powder of rhubarb, peach bark, subnitrate of bismuth, ice, morphia, etc., and the employment of counter-irritation to the epigastrium. The association of chloroform, sulphuric ether, or tincture of gelsemium will be advantageous in some cases, the two first especially in cases of tympanitis.

“To relieve the obstruction, large quantities of fluid—thin gruel is as good as anything—should be thrown up the bowel with a pump syringe. As much as from half to one gallon may be thus used, completely distending the large intestine. This may be repeated several times per day; or, what is deemed even better than this, the introduction of air by means of an air-pump, until the large intestine is distended to its full extent. Change of position is sometimes advantageous, at others hurtful, and the same may be said of the sudden application of cold water. Great relief may sometimes be given by the use of the hot sitz-bath, and occasionally by the use of hot fomentations to the abdomen.

“The question of surgical interference in bad cases becomes one of anxious consideration, as in some cases the obstruction is of such character as that it might thus be relieved with the greatest facility. Mr. Hilton has resorted to this mode of relief with success, but others have signally failed. When it can be determined that the obstruction is of the large intestine, the operation for artificial anus offers the best chance for success. If the means first named do not prove successful, we endeavor to prolong the patient's life, hoping that nature will step in and remove the obstruction. We thus use stimulants in small quantities, and nutritious enemata, and such means as will relieve the sufferings of the patient as much as possible.” (Scudder's “Practice.”)

VIII. DISEASES OF THE LIVER.

JAUNDICE.

Synonym.—Icterus.

Definition.—Jaundice is a symptom rather than a specific disease, and is found in various affections of the liver. It is characterized by a deposit of bilirubin in the various structures and fluids of the body, which gives them a yellow or jaundiced hue.

Until recently, two varieties of jaundice have been recognized; (a) *Hepatogenous* or *obstructive jaundice*; and (b) *hematogenous jaundice*, due to a toxic state of the blood resulting from various poisons acting either directly upon the blood or upon the liver cells.

The investigations of Stadelmann, Hunter, Naunyn, Minkowski, and others, have seemingly disproved the doctrine of hematogenous jaundice, and most pathologists agree that all forms of jaundice can only come from obstruction, hepatogenous.

Etiology.—1. The obstruction in catarrhal jaundice is due to inflammatory tumefaction of the duodenum or bile-ducts.

2. Foreign bodies, such as gall-stones or parasites, within the ducts.

3. Tumors within the duct, or by pressure from without; such as tumors, gravid uterus, or fecal matter.

4. Stricture, or obliteration of the duct.

CATARRHAL JAUNDICE.

Synonyms.—Icterus Catarrhalis ; Duodeno-Cholangitis; Inflammation of the Common Bile-duct.

Definition.—A catarrhal inflammation of the lining membrane of the biliary ducts, especially the larger, and the duodenum,, and attended by discoloration of the skin and tissues from a consequent retention and absorption of the bile.

Etiology.—Catarrhal jaundice is most frequently secondary to catarrh of the gastro-duodenal mucous membrane, the inflammatory process extending from the duodenum to the larger duct, and through this to the smaller ones- beyond. It usually follows an attack of indigestion, or may be the result of cold and exposure. It not infrequently occurs in the course of the infectious fevers; such as pneumonia, typhoid fever, and malaria. Great emotional disturbances are sometimes followed by jaundice, and poisoning by phosphorus may also give rise to it, while, in chronic heart or kidney lesions, there is frequently portal obstruction, which is attended by the same results.

While it may occur at any age, it is more common in early life, between the ages of two and seven, and more often seen in males than in females.

Pathology.—That portion of the duct lying in the intestine is more frequently and seriously affected, though the inflammation may extend to the cystic or even hepatic duct. The mucous membrane lining the ducts is swollen and inflamed. The liver is usually congested, slightly enlarged, and of a deep yellow color. The gall-bladder is usually distended with bile. The ducts are occluded by the swollen mucosa and plugs of inspissated mucus.

Symptoms.—The symptoms that precede the staining of the tissues are those of gastro-intestinal catarrh, anorexia, coated tongue, nausea, and sometimes vomiting, sense of weight in the epigastrium, with constipation of the bowels, although, in exceptional cases, there is

diarrhea.

The symptoms of jaundice vary very greatly, depending upon the nature of the hepatic lesion and the complications attending it. Within three or four days after the above named symptoms have taken place, discoloration of the skin and conjunctiva occurs.

The yellow tinge begins in the eyes, forehead, and neck, gradually extending over the body, the color being deepest in the wrinkles and folds of the skin. The color is generally of a lemon hue, becoming darker and assuming a bronze or greenish tint as the hepatic lesion assumes a graver character.

The urine is but slightly diminished in quantity, but becomes dark-brown or coffee color, and when agitated, foams, the froth showing a decided yellow tinge. When it comes in contact with the linen, it stains it yellow. The test usually employed for the detection of bile is that of Gmelin, and consists of placing a few drops of urine on a porcelain slab, and adding an equal quantity of nitric acid. If bile be present, a rapid play of colors results, in which green is characteristic.

The perspiration also contains bile pigment, and will stain the clothing, which is especially noticeable under the armpits. The tears, saliva, and milk scarcely ever contain bile pigment. Should pneumonia complicate the hepatic lesion, the expectoration is sometimes tinged with bile. The stools are drab or of a putty color, and generally very offensive.

The pulse is often greatly reduced in frequency, sometimes dropping to thirty, or even twenty beats per minute. This action is supposed to be due to the impression made upon the cardiac nerves by the bilirubin, and is not considered of grave importance.

A very unpleasant symptom is an intense pruritis, that develops when the disease assumes the chronic form. It may be general, or confined to the palms and soles, and between the fingers and toes, and is usually worse at night after the patient becomes warm in bed. The scratching that seems almost irresistible, is accountable for the papules, pustules, ulcers, and crusts, so often present. Urticaria, boils, carbuncles, and hemorrhages are sometimes present. In severe chronic cases, xanthelasma—yellow spots—are sometimes found.

The bile acids variously affect the nervous system. There is usually headache, and vertigo is not uncommon. Despondency, irritability of temper, and insomnia will characterize some icteric patients, while others become drowsy and listless, and are inclined to sleep most of the time. Where there is severe structural lesion of the liver, grave cerebral symptoms may develop, such as delirium, convulsions, coma, and death.

Diagnosis.—The diagnosis of jaundice is readily made, although sometimes the exact lesion giving rise to it is quite difficult to determine.

Prognosis.—The duration of catarrhal jaundice is from a few days to six or eight weeks, the average being from ten days to two weeks. The prognosis is therefore favorable. Where the yellow hue continues beyond two months, and especially where the hue assumes a darker shade, or where hemorrhage occurs in the skin and mucous membranes, with an elevation of temperature, the outlook is unfavorable.

Treatment.—This will depend altogether upon the conditions present. If there be no complications, and there is but little fever, chionanthus will be the only remedy required.

Chionanthus	1 dram.
Water	4 ounces. M.

Sig. A teaspoonful every one, two, or three hours.

This will bring about a speedy clearing up of the tissues. If the circulation be feeble and a tendency to capillary congestion, aconite and belladonna will be given in connection with the chionanthus.

Where the fever is active, veratrum will replace the aconite. Where there is irritation of the nervous system, gelsemium will prove highly beneficial. When there is fullness in the region of the liver, full tongue, and heavily coated, full tissues and full veins, Podophyllin is the remedy *par excellence*. As much of the second trituration as will lie on a dime, every two or three hours, will bring- good results. For the dry skin, an infusion of dioscorea and asclepias, or diaphoretic powder, will be called for.

If the tongue be moist and coated and there is constipation, sodium phosphate in twenty-grain doses, every four or five hours, will be of

marked benefit. Where the skin is yellow, sodden, and inelastic, the tongue moist and yellow, and no fever, chelidonium should not be overlooked. Where the tongue is broad, pale, and flabby, and there is puffiness under the eyes, and the kidneys are sluggish, potassium acetate four drams, to water four ounces, a teaspoonful every four hours, the patient drinking copiously of water after each dose, will assist materially in clearing up the skin, by flushing the kidneys and eliminating the coloring matter from the blood. Where there is nausea, with thick tongue, nux vomica and hydrastin must not be forgotten. Where acids are indicated, the hydrochloric or nitric acid, given every three hours, will greatly aid in effecting a cure. Euonymus is a useful remedy in jaundice where malaria is a complication, and a tonic and stimulant is required.

Additional treatment, as given by Dr. Scudder in his practice, is as follows:

“If the disease comes on slowly, and has lasted for some time, the vegetable alteratives, with saline diuretics, the judicious use of tonics, and the thorough use of the bath, will be the principal means. If there should be tenderness on pressure over the liver, the irritating plaster will materially aid the treatment. Being satisfied that there is no structural lesion, making it impossible for the liver to respond to the action of remedies, we may employ small doses of Podophyllin as above named. In these cases I have used the tincture of leptandra and dioscorea, with the compound syrup of rhubarb and potassium, also nux vomica with hydrastin, as heretofore named.

“If from exuberant secretion of the bile, as evinced by bile in the feces, and sometimes by bilious diarrhea, the administration of leptandrin, dioscorea, and opium, with cups to the side, will be appropriate. If from congestion of the portal circle, manifested by bloated countenance, livid lips, and absence of bile in the feces, the treatment should be commenced with a saline purgative, the use of the hot foot-bath, and other means to determine to the skin, and saline diuretics. These means may be followed by agents that act directly on the liver, chionanthus deserving especial mention. Potassium chlorate, with extract of conium, sometimes answers an admirable purpose.

“If there is manifestly torpor of the liver, the jaundice being slight, the common compound Podophyllin pill may be used, and frequently with

the result of speedily removing the difficulty. When the cause is obscure, the indications should be met as they arise, all harsh and debilitating measures ' being studiously avoided."

Where the jaundice is due to mechanical causes, such as gallstones, tumors, etc., the treatment will be surgical.

Diet.—The diet is quite important in the treatment of jaundice. Fruits, most vegetables, soups, sweet milk and buttermilk, the alkaline waters, or what is equally beneficial, plenty of pure water, are to be recommended; while fats, sweets, pastries, and highly seasoned food should be avoided.

The patient should bathe daily, followed by brisk rubbing, and one or two Turkish baths per week will greatly aid the cure.

INFANTILE JAUNDICE.

Synonym.—Icterus Neonatorum.

Etiology.—It is not positively known what causes give rise to temporary or evanescent icterus in the new-born. Some have attributed it to a reduction of blood-pressure in the hepatic capillaries due to arrest of the umbilical circulation, while others attribute it to stasis in the smaller bile-ducts, which are compressed by the distended radicles of the portal vein.

The severe form of jaundice may be due to congenital closure or absence of the common or hepatic duct, to hepatic syphilis of congenital form, or to septic infection due to phlebitis or the umbilical vein.

Symptoms.—Jaundice is quite common in the new-born, affecting boys more than girls, and is said to occur more frequently in children born after chloroform narcosis of the mother, though an experience of twenty-five years does not confirm this view.

It generally makes its appearance on the second or third day, the skin becoming of a yellowish hue of various shades. The child may be quite drowsy for several days, although otherwise there seems to be but little functional disturbance, the child nursing as usual and digesting what is

taken into the stomach. The urine is highly colored, staining the napkin and clothing with which it comes in contact. After the bow^els are emptied of the meconium, the feces become colorless, as in older patients. The discoloration continues from one to three or four weeks, usually disappearing the second week.

In the severe form, the icteric hue may not appear for several days, but gradually increases in intensity, the skin assuming a bronze or yellowish-green color. The abdomen becomes full and tumid, owing to congestion of the liver and spleen. Although the child nurses well for a time, it is soon apparent that digestion and assimilation are impaired, the child assuming an aged and wrinkled appearance. Hemorrhage from the cord may occur, which early terminates the life of the little patient.

When due to syphilis, there are the usual symptoms that accompany this affection; namely, snuffles, skin eruptions, fissures at the angles of the mouth, and enlarged liver and spleen.

Prognosis.—The mild or simple form is favorable, usually terminating in ten days to two weeks. The severe form, however, is generally grave, the disease terminating fatally.

Treatment.—But little treatment is necessary. Chionanthus will clear up the skin a little earlier than if the condition is left to nature, and for this reason should be used.

When due to syphilis, echinacea will be our best agent.

MALIGNANT JAUNDICE.

Synonyms.—Acute Yellow Atrophy of the Liver; Icterus Gravis.

Definition.—A grave form of jaundice characterized by necrosis of the hepatic cells and atrophy of the liver. Marked cerebral symptoms accompany this form of jaundice.

Etiology.—This is a rare disease, but seldom seen in this country and in Europe. It occurs more often in women than in men, and between the ages of twenty and thirty, though it has been found in children.

Pregnancy predisposes to this form of icterus, and it has been known to follow fright or profound mental impressions.

The exciting cause is not known, but from the rapid and extensive destruction of hepatic cells, a toxin of a virulent type is, in all probability, responsible for the disease.

Pathology.—The liver shows marked atrophy, being not more than two-thirds or one-half of the normal size, is thin, flabby, and the capsule wrinkled. On making a section, a yellow or 'reddish-yellow surface is presented. The hepatic cells are found in every stage of necrosis, from those in which the process is just begun to those completely destroyed. When the cells are entirely destroyed, there may be seen a fatty, granular debris, in which pigment cells and crystals of leucin and tyrosin are found.

There is usually granular degeneration of the kidneys, and fatty degeneration of the heart is quite common. Most of the organs are bile-stained, and hemorrhages are frequent. The spleen is found enlarged.

The bile-ducts and gall-bladder are found empty.

Symptoms.—The disease usually begins as though it were a case of catarrhal jaundice, gastro-duodenal symptoms being the most prominent. This may continue for but a few days, or for two or three weeks, during which time the skin has assumed an intense icteric hue. Finally vomiting of an intractable form develops, and not infrequently blood is ejected with the vomitus.

Cerebral symptoms now develop; there is intense headache, trembling of the muscles, delirium, and sometimes convulsions. The icteric hue now rapidly deepens, the patient becomes dull and drowsy, and typhoid symptoms develop. The tongue becomes dry and brown, with sordes on the teeth and lips; hemorrhages occur from mucous surfaces and in the skin, and the delirium assumes the typhoid type. The disease may run an afebrile course, although usually attended by fever.

As no bile enters the intestines, the stools are light or putty-colored. The urine is bile-stained, and contains tube casts, leucin and tyrosin.

Jaundice.—After the first few weeks, the disease presents symptoms

that are characteristic; namely, persistent vomiting, hemorrhages, severe headache, delirium, and frequently convulsions, atrophy of the liver, and the presence of leucin and tyrosin in the urine. While cerebral symptoms may appear in any severe form of jaundice, and although the clinical symptoms of hypertrophic cirrhosis are almost identical with that of icterus gravis, yet the absence of leucin and tyrosin in the urine will enable one to make the differential diagnosis.

Prognosis.—This is a disease that has usually proved fatal; therefore the prognosis is not favorable.

Treatment.—The disease is so rare in our country that Eclectic remedies have been but little used. Should one meet the disease, we would try our antiseptics. Echinacea and baptisia would be among our first remedies tried, in the hope that the sepsis might be overcome and the toxins neutralized. Other remedies would be tried as the condition would indicate.

VASCULAR LESIONS OF THE HEPATIC CIRCULATION.

HYPEREMIA.

Synonym.—Congestion of the Liver.

Definition.—An excess of blood in the liver; this disease is usually of short duration.

Etiology.—The physiological hyperemia that occurs during digestion should hardly be considered in this connection, except in high livers, who habitually overeat and overdrink, in which case it frequently leads to functional derangement, and, in case of too free indulgence of alcohol, may lead to structural changes. It may occur as a result of certain infectious fevers, especially dysentery, malaria, yellow fever, enteric fever, and Weil's disease. It has followed suppressed menstruation.

Symptoms.—The symptoms are not very characteristic, usually those of gastro-intestinal catarrh. There is a sense of fullness in the right hypochondriac region, and sometimes tenderness on pressure. The tongue is coated; there is a bad taste in the mouth, with nausea, and

sometimes vomiting. There is usually headache. The skin is of a brown or muddy color, and sometimes there is slight jaundice. Constipation is the rule, and the patient is irritable or despondent; dizziness and mental depression are common.

Diagnosis.—This can only be made after a careful study of the case.

Prognosis.—This is favorable; the condition is not dangerous, although it may pass into the passive form, and sometimes results in structural changes.

Treatment.—The diet must be light and nutritious. Rich and highly seasoned food must be prohibited, and alcohol positively forbidden. A milk diet is perhaps the best. The bowels should be kept open. Podophyllin is just as effective to-day as it was when used by the fathers, if the indications for its use, full tissues, full tongue, with dirty, moist coating, from base to tip, and a dirty, muddy complexion, and more or less headache are present. Of the second trituration, three grains every three hours will give good results, and, if the patient does not object to its harsh action, from a fourth to a half of a grain of podophyllin may be given. In place of this, the patient may visit some one of the many mineral springs, drinking freely of its waters.

PASSIVE HYPEREMIA.

Synonyms.—Passive Congestion of the Liver; Nutmeg Liver; Cyanotic Liver.

Definition.—Enlargement of the liver due to an increase of venous blood.

Etiology.—Increased pressure in the sublobular branches of the hepatic veins causes an engorgement of venous blood, and is most frequently due to chronic cardiac lesions, especially those affecting the right heart, the blood being dammed back in the inferior vena cava and hepatic veins. This retardation of the blood also occurs in pulmonary lesions, such as chronic interstitial pneumonia, pleural effusions, and intrathoracic tumors.

Pathology.—The liver is enlarged, smooth, and of a dark-red color. A

section reveals an engorgement of the hepatic vessels; these, compressing the hepatic cells, produce atrophy of many of them, while brown pigment is deposited in the lobules; this gives the liver a mottled appearance, which has given to this disease the title nutmeg liver. The sluggish circulation favors fatty infiltration. When of long standing, connective tissue formation occurs about the intralobular veins.

Symptoms.—These depend largely upon the primary lesions giving rise to it. In addition to the cardiac or pulmonary symptoms, there will be a sense of fullness and tenderness in the right hypochondriac region. Gastro-intestinal catarrh is usually present, and hematemesis may occur. There is usually more or less jaundice. Owing to portal obstruction, ascites occurs, followed later by general dropsy. The stools are light or clay colored, and the urine is colored by bile. On palpation, the liver is found enlarged and tender, sometimes extending several inches below the costal margin.

Treatment.—This is directed largely to removing the cause, or, where that is impossible, to modifying its effects. Thus hygienic and dietary measures must be carried out, even although it is due to valvular lesions; but we will also use digitalis, cactus, convallaria, and other cardiac remedies. The bowels should be kept open, which is better accomplished with the salines and vegetable cathartics. Podophyllin, polymnia, chionanthus, and like remedies, influence the liver favorably, and will be used. Where there is respiratory trouble, lobelia, bryonia, and asclepias are to be given.

DISEASES OF THE PORTAL VEIN.

THROMBOSIS.

Etiology.—Thrombosis of the portal vein is quite rare, and may be preceded by syphilis of the liver, cirrhosis, cancer, pressure by tumors, perforation of the vein by gall-stones, and peritonitis, where the gastro-hepatic is involved.

Pathology.—The clot which at first is of a yellowish-gray color, may suppurate, or it may become organized into connective tissue, the vein becoming like a fibrous cord, and is known as adhesive pylephlebitis adhesiva. Occasionally the clot becomes channeled, the circulation

becomes re-established, and a cure may result.

Symptoms.—Unless the occlusion be complete, the symptoms are negative, or may resemble those of cirrhosis. Where there is complete obstruction, ascites rapidly develops, there is swelling of the spleen, and hemorrhage from the nose, stomach, and bowels.

Diagnosis.—This is extremely difficult, and often only made positive during an autopsy. Perhaps the most suggestive symptom is rapid engorgement of the portal system, and quick development of ascites.

Prognosis.—This is always grave, although some recover.

Treatment.—This is not very satisfactory, and usually only gives temporary relief. It is entirely symptomatic, meeting the conditions as they arise. Fluids should be used sparingly, and when ascites is marked, paracentesis should be performed. The diet should largely consist of fruits and vegetables.

SUPPURATIVE PYLEPHLEBITIS.

Purulent inflammation of the portal vein or its branches, due to the breaking down of a thrombus, may result from appendicitis with abscess, ulceration of the bowels, peptic abscess, abscess of the spleen, septic infection by way of the umbilical cord in the new-born, and by foreign bodies penetrating the Intestines, and later the portal vein.

There is enlargement of the liver and spleen, with marked tenderness in the right hypochondrium. There is more or less jaundice, the tongue is heavily coated, and nausea and vomiting are not infrequent. The fever is of an irregular type, with night-sweats. The evidences of septicemia are pronounced.

The diagnosis is made by grouping the clinical symptoms. The prognosis is unfavorable, and the treatment, palliative.

Affections of the hepatic vein are very rare, although they may occur in chronic enlargement of the heart.

Enlargement of the hepatic artery sometimes occurs in cases of cirrhosis

of the liver, although extremely rare.

CIRRHOSIS OF THE LIVER.

Synonyms.—Interstitial Hepatitis; Gindrinker's Liver, Sclerosis of the Liver; Nutmeg Liver; Hobnailed Liver.

Definition.—A chronic disease of the liver, characterized by an increase in its connective tissue, a reduction in the size of the organ, and a degeneration of the parenchymatous constituents.

Etiology.—Fibrous cirrhosis is due to irritants of various kinds carried to the liver by the blood-vessels, especially the portal vein, the bile-ducts, or by way of the peritoneal capsule.

In the great majority of cases, the disease is due to alcohol; in fact, more cases are due to this cause than all other irritants combined; hence the term, gindrinker's or drunkard's liver. The time required for the development of the disease depends upon the quantity and strength of the alcohol digested.

Syphilis, so often contracted as the result of drinking, also holds a prominent place as a causal agent.

Highly spiced and very rich foods, ptomaines, lead, arsenic, phosphorus, and antimony are also considered as factors in producing the disease. Irritants due to the infectious fevers, especially scarlet fever, typhus fever, dysentery, cholera, and chronic malaria, are occasionally responsible for the disease.

Cirrhosis may result from chronic obstruction of the bile-ducts, due to gall-stones, tuberculosis, or congenital causes.

Eichorst believes that cirrhosis may result from cardio-vascular changes, and constitutes the cardiac liver. The cause of the hypertrophic cirrhosis of Hanot is obscure. It is a comparatively rare affection, occurring most frequently in the male, and between the ages of twenty and thirty-five years.

Cirrhosis most frequently occurs between the ages of thirty and sixty

years, although it may be found in the extremes of life. Men are more liable than women to contract the disease, owing to greater dissipations.

Pathology.—Two conditions of drunkard's liver are found: the atrophic cirrhosis of Laennec and the fatty cirrhotic liver.

Atrophic Cirrhosis.—The liver is greatly reduced in volume, sometimes being no more than one-third the normal size. It is firm, hard, and cuts with great resistance. It is rough with granules or nodules, which vary in size from a small shot to that of a marble, which gives it the name hobnailed liver.

A cut surface reveals grayish-white bands of connective tissue, surrounding yellowish parenchymatous patches. The process of degeneration commences in the tissues surrounding the terminal branches of the portal vein, and gradually extends to the larger branches.

As the disease progresses, the hepatic cells and portal vein become more and more compressed, with an increased obstruction of the circulation. A cut surface reveals, at first, a pulpy mass, which is gradually replaced by connective tissue, with shrinking or atrophy of the organ.

Fatty Cirrhotic Liver.—In this form the liver is large, smooth, or but slightly granular, yellowish-white in color, and cuts with much resistance. The fat is greatly increased, and resembles somewhat a fatty liver. The connective tissue, as in atrophic cirrhosis, is greatly increased. In both forms degeneration of the hepatic cells and obstruction of the portal circulation are the chief characteristics.

The capsule of the liver, especially between the nodules, is thickened and opaque, and is frequently united to the peritoneum by fibrous bands.

The peritoneum is generally involved, being opaque, thickened, and sometimes infiltrated with blood pigment, and stained with bile. More or less fluid is found in the cavity.

The stomach and intestines show a catarrhal condition, and the spleen is enlarged.

The hypertrophic liver (Hanot) is greatly increased in size, sometimes weighing as much as four hundred grams. It is yellowish green in color, smooth or granular on the surface, is tough, and cuts with much resistance. The peritoneal covering is frequently adhered, and is much thickened. The liver cells are enlarged and contain more than one nucleus.

Large, round cells and fibroblasts are found in the intralobular portion of the organ. Syphilitic cirrhosis, either congenital or acquired, reveals a large, tough, resistant liver, resembling very much an amyloid liver. The microscope shows a great increase in the connective tissue, with areas in which are found many round and spindle cells. Gummata, varying in size from a small shot to a pigeon's egg, are also found.

In biliary cirrhosis, the liver is large, firm, and usually smooth. A cut section reveals a reddish-yellow surface. The bile-ducts are dilated, with frequently sclerotic thickening about them.

In Glissonian cirrhosis, as a result of peritonitis involving the perihepatic membrane, the capsule undergoes fibrous degeneration, becomes thick, hard, and resisting, and adheres to surrounding organs. As a result of this hypertrophy of the capsule, the liver, by pressure, becomes atrophied.

Symptoms.—*Atrophic Cirrhosis.*—Where the compensatory circulation is maintained, the disease may exist for months without any characteristic symptoms. The first noticeable, are often attributed to wrongs of digestion, rather than to diseases of the liver, and consist of anorexia, belching, full red tongue, bad taste in the mouth, vomiting, flatulency, constipation alternating with diarrhea, sensation of pressure in the epigastrium, and tenderness in the right hypochondrium—symptoms due to obstructed portal circulation.

As the disease progresses, all the above symptoms become aggravated, with occasional hemorrhage from the gastro-intestinal tract. When the hemorrhage occurs from the distended veins of the stomach or esophagus, it is vomited; and when from the intestines, it is passed from the rectum. These hemorrhages occur at irregular intervals, and may persist for months. Sometimes large quantities of blood are thus lost, though it seldom ever results fatally.

Hemorrhoids are quite common, and are due to passive congestion of the inferior hemorrhoidal veins.

The liver is at first enlarged, and may extend a handbreadth below the ribs. Later it atrophies, though to what extent can not be determined by palpation. The abdomen becomes puffy, and the superficial epigastric and internal mammary veins, enlarging, form the “caput medusa” about the umbilicus.

With the progress of the disease, emaciation becomes marked, the features are pinched, and the skin assumes a dirty or muddy hue, rather than the jaundiced. The spleen becomes greatly enlarged, owing to enormous congestion. As compensatory circulation fails, ascites develops, sometimes leading to enormous distention of the abdomen, and crowding of the diaphragm, which, in turn, gives rise to marked dyspnea, the result of pressure upon heart and lungs. As a result of ascitic pressure upon the inferior cava and ileac veins, and also enfeeblement of the general circulation, edema of the legs, feet, and external genitals occurs.

The urine is scanty, high-colored, and contains bile, and is loaded with urates, and rarely contains albumin and tube-casts. When albumin is found, it is usually due to fibrous changes in the kidney.

The temperature is usually normal, or subnormal, though there may be slight fever, the temperature registering 100° or 102°. Although the toxic agent has not yet been determined, a toxemia sometimes develops, attended by an active delirium or stupor, coma, and convulsions.

Fatty Cirrhosis.—The symptoms of fatty cirrhosis so closely resemble those of atrophic cirrhosis that, aside from the increased size of the liver, one is not able to differentiate the one from the other.

Hypertrophic Cirrhosis.—The early symptoms of this form do not differ materially from those of the forms already considered; viz., gastrointestinal; and it is only after the liver enlarges, grows painful, and jaundice becomes marked, that the symptoms become characteristic.

When the liver reaches its maximum size, it encroaches upon the adjoining parts, and is quite tender on palpation. Jaundice is a marked feature, and icterus gravis, attended by high fever and delirium, may

develop at any time during the disease.

The spleen is greatly enlarged, and, when very painful, is due to a peripleuritis arising. The urine is quite scanty, concentrated, and of a high specific gravity, and contains bile pigment. Ascites does not occur. Hemorrhages from various parts of the body occur, especially from the mucous surfaces. The disease runs from three to ten years, the patient finally dying, with symptoms of icterus gravis, from extreme cachexia, or from hemorrhage.

Syphilitic cirrhosis, aside from the history of infection, has similar symptoms to the atrophic form, while capsular cirrhosis has no characteristic symptoms.

Biliary Cirrhosis.—Perhaps the most characteristic symptom is the rapidity with which jaundice appears, and frequent attacks of hepatic colic. If due to gall-stones, and their passage is affected, the jaundice disappears. Where the liver remains enlarged, the symptoms are the same as those of ordinary cirrhosis, with an exaggerated jaundice and ascites.

Diagnosis.—The history of alcoholic indulgence, enlarged abdomen, ascites, and hemorrhage from stomach and bowels, would give a comparatively positive diagnosis, while marked difference in the size of the liver would suggest the variety, whether fatty or atrophic. If there be a history of syphilis, and syphilitic lesions are known in other organs, and if the liver be enlarged, hard, and irregular, this form would be recognized.

The hypertrophic form would be suggested by its chronicity, absence of ascites, marked jaundice, hemorrhages from various parts, and enlarged liver-and spleen.

Prognosis.—This is generally unfavorable. The absence of characteristic symptoms during the early stage renders an early diagnosis difficult, if not impossible, and the process of degeneration has proceeded so far, in most cases, that a permanent cure is the exception. Early treatment may, however, stay the progress of the disease, and render the patient comparatively comfortable for years.

Treatment.—Alcohol must positively be prohibited, and all highly

seasoned food restricted. The diet should consist of the blandest kinds of food; such as milk, wheys, broths, the more easily digested cereals, and fruits.

To relieve the nausea and vomiting, nux vomica, hydrastin, rhus tox., ipecac, bismuth subnitrate, and like remedies, will be found useful. Where the tongue is broad and coated with a moist, dirty yellow coating, and there are full tissues, Podophyllin will be useful.

Where the skin is sallow and the tissues sodden, chelidonium .will be indicated.

Chionanthus, from ten to twenty drop doses, will be called for where the jaundice is pronounced.

The bowels should be kept in a soluble condition, and some one of the many saline waters may be used.

Apocynum will be suggested by dropsical effusions. When the abdomen becomes filled with fluid, temporary relief will be afforded by resorting to paracentesis abdominalis.

Syphilitic cirrhosis will call for echinacea, phytolacca, rumex, iris, corydalis, berberis, Donovan's solution of arsenic, and iodide of potassium.

ABSCESS OF THE LIVER.

Synonyms.—Suppurative Hepatitis; Hepatic Abscess.

Definition.—A circumscribed collection of pus in the substance of the liver.

Etiology.—Abscess of the liver results from the introduction into its substance of some irritant, usually infectious. It may enter directly from an injury, through the blood-vessels, and by way of the bile-ducts. The large, single abscess, commonly known as the tropical abscess, because found in the hot climates, may occur idiopathically, although more frequently it is the result of dysentery. It occurs quite frequently among Europeans sojourning in India, who are addicted to the drink habit, and

over-cat of rich, highly spiced foods. In this country, it occurs in the Southern States. The researches of Kartulis, Councilman, and Lafleur point strongly to the ameba coli as the causal agent, notwithstanding the fact that the ameba may be present, the feces well formed, no evidence of dysentery, and yet well-marked signs of hepatic abscess.

The frequency with which abscess follows injuries of the abdomen would suggest traumatism as a cause. Blows over the liver occur most often in boxers and railroad brakemen, and this class are more frequently affected. Injuries to the head have also been followed by abscess of the liver. Following the blow a toxin is generated and carried to the liver, which acts as the irritant.

Embolism of the portal vein or hepatic artery is a common cause of abscess of the liver, and may arise from a general pyernia or suppurative process in the region of the liver. In this way abscesses may follow typhoid fever, appendicitis, dysentery, piles, and pelvic abscess, the infection being through the portal vein, and through the hepatic artery, in ulcerative endocarditis and gangrene of the lung.

Suppurative cholangitis; suppuration of the bile-ducts, due to gall-stones; parasites, such as echinococci, lumbrici, distomi, or foreign bodies, nails, pins, needles, fishbones, etc., may give rise to abscess of the liver.

Pathology.—*Large, Solitary, or Tropical Abscess.*—These abscesses, while generally single, are occasionally multiple, and often coalesce, forming one immense ulcer, the size of a child's head, and may contain several quarts of pus.

The liver is generally enlarged, the abscess electing the right lobe, and the convex side rather than the concave. Where the abscess is of long standing, there is connective tissue change in the neighboring parts, so that it becomes thick, tough, and somewhat cartilaginous.

The pus varies in character and may be grayish, mucoid, creamy, and often of a reddish-brown color. It may be sterile or rich in staphylococci or amebae coli.

In traumatic abscesses, the pus is more often sterile, is yellow, of a creamy consistency, or thin, icherous, and reddish-brown.

The abscess develops in the direction of the least resistance, working its way to the surface, and penetrates parts showing the least obstruction.

“Of three hundred cases reported by Waring, fifty-six per cent remained intact; sixteen per cent opened by operation; nine per cent ruptured through the lung; five per cent perforated the pleura; three per cent entered the colon. There are other instances where the abscesses entered into the hepatic and bile vessels, and into the gall-bladder, while Flexner has reported two cases of perforation into the inferior vena cava.” (Osler.)

Nature sometime sets up an adhesive peritonitis, thus waning off the pus, which opens through the abdominal wall.

Multiple Pyemic or Embolic Abscesses.—When the abscess-producing material is carried to the liver by the portal vein, multiple abscesses usually arise in the liver, while the rest of the body remains free; while, if brought by the arteries, various other organs are also involved in the abscess formation. In multiple abscess, the liver is enlarged, smooth, and may present a normal appearance. At other times, small, white or yellowish-white spots appear beneath the capsule, showing the ulcer spots. On making a section, numerous small abscesses, varying in size from a pinhead to a California cherry, are seen, and contain pus of various quality, sometimes laudable, and again fetid, and of a reddish-brown color, due to staining from the bile, and various cocci are found in its contents. On probing these abscesses, they are found to open into the portal vein or its branches. In some cases the entire portal system within the liver may be involved. Occasionally suppurative cholangitis occurs, usually the result of obstruction from gall-stones, the ducts and gall-bladder containing pus.

Symptoms.—They vary greatly, and may be so slight as to cause no suspicion of the true nature of the lesion till it is revealed by a post-mortem, showing death by a rupture of the organ, or by passing pus through the bowel or bronchi. Small abscesses may give rise to no other symptoms than pyemia.

Usually the forming stage is attended by headache, loss of appetite, and general malaise, with more or less chilly sensations. The temperature for a time may be subnormal, but with a well-marked rigor; the

temperature runs up to 103° or 104°. Like septic fever in general, it is irregular, and may be either of an intermittent or remittent type.

Night-sweats are a common feature. In chronic cases there may be no fever, the temperature often being subnormal. The pain is located in the region of the liver, radiating to the back and right shoulder. When deep-seated, it is of a boring character, but when near to the surface, it is sharp and lancinating. With the advance of the disease, the enlargement of the liver crowds the diaphragm, irritating the right lung, and a hard, dry cough results, unless there is perforation of the lung, when there will be expectoration of a reddish-brown pus, resembling anchovy sauce.

Digestion is impaired, the tongue is covered from base to tip with a dirty, yellow coating. There is nausea and occasionally vomiting. Constipation alternates with diarrhea. As the result of faulty nutrition, the patient becomes emaciated, the skin is jaundiced or of a muddy color. With the further progress of the disease, typhoid symptoms appear, the tongue becomes dark-brown or black, is dry, sordes appear on the teeth and lips, the mind wanders, typhomania develops, and sometimes convulsions occur.

Physical Signs.—Inspection reveals marked fullness in the right hypochondrium, and if the abscess is located in the anterior portion of the right lobe, there will be a bulging of the ribs, the distention extending several inches below the costal margin.

Palpation reveals a large, round, hard tumor, and in some cases fluctuation is noted.

Percussion.—There is increased dullness in all directions, but more pronounced upwards and to the right, in severe cases reaching as high as the fifth rib in front, and the scapula in the back. This extensive dullness upwards enables one to differentiate abscess from cancer, dullness in the latter case being downward.

The clinical symptoms of multiple abscess can not be separated from the above. The liver is enlarged and tender, and the skin more or less jaundiced.

Diagnosis.—In the early stage it is almost impossible to make a positive

diagnosis, but when well advanced, the true nature of the disease is comparatively easy to discern. The enlargement of the liver, with pain and tenderness on pressure and fluctuation when superficial, the icteric or muddy color, emaciation, hectic fever, and night-sweats, can hardly be mistaken.

It is sometimes confounded with intermittent or remittent fever, but appropriate treatment soon relieves the latter, while the former is not benefited by remedies that overcome malarial fever. When in doubt, the aspirating needle should be used, and, if pus be found, the true nature is revealed.

Prognosis.—In pyemic or multiple abscess the prognosis is almost invariably unfavorable, and the single abscess is also grave, the mortality ranging from fifty to sixty per cent. Where the abscess is superficial, or when early recognized and promptly evacuated, the best results are obtained.

Treatment.—This is largely symptomatic, till the abscess points, when the treatment becomes surgical. The patient's strength should be maintained as far as possible, the stomach kept in good condition, the bowels not allowed to become constipated, the proper antiseptics administered, and the pain mitigated.

Echinacea, polymnia, Podophyllin, chionanthus, potassium chlorate, and muriatic acid will be the most prominent remedies indicated. The salines may be given if the bowels are constipated. The subnitrate or subgallate of bismuth when diarrhea prevails.

The diet should be nourishing but easily digested.

AMYLOID LIVER.

Synonyms.—Waxy Liver; Lardaceous Liver.

Definition.—A deposit of starchy-like material in the substance of the liver.

Etiology.—This is a part of a general and peculiar degeneration, in which the spleen and kidneys are frequently involved. It may be

congenital, although it is usually associated with prolonged suppurative processes, especially of a tubercular nature, and where the bones are involved. Next in frequency is syphilis, either hereditary or acquired. It is also found associated with chronic malaria, rickets, ulceration of the rectum, cancer, and other affections, characterized by depravity of the blood.

It occurs more frequently in men than women, and between the ages of twenty and forty, although it may occur at any age of life.

Pathology.—The organ is of exaggerated size, sometimes double that of health, is symmetrical, smooth, and edges rounded. The color is pale yellow or mottled. On section, the liver is found tough and resisting, and, when treated with an iodine solution, stains a mahogany-brown color. The capsule is tense, smooth, and glistening.

Symptoms.—There are no characteristic symptoms of this form of degeneration. There is no jaundice, although the stools may be light or clay-colored. The patient is pale or waxy, there is anemia, and, in the advanced stage, dropsy.

Digestion is impaired; there is loss of appetite, furred tongue, eructation of gas, nausea, and sometimes vomiting. Constipation is the rule early in the disease, and diarrhea later. The urine is scanty, high colored, and contains albumin and waxy tube-casts, due to degeneration of the kidneys. There is usually but little, if any, pain, and no fever.

The physical examination reveals enlargement of the liver to the extent of bulging in the right hypochondrium. The edges are sharply denned. There is generally enlargement of the spleen in most cases, due to the same degeneration.

Diagnosis.—The history of the patient previous to the enlargement of the liver is of great diagnostic value; this, with enlargement of the organ, absence of pain, and tenderness, general anemia with dropsy, and increase in size of the spleen, and albuminuria, renders the diagnosis comparatively easy.

Prognosis.—This is unfavorable, the disease extending over a period of months or years, but always progressive. Death results from anemia, kidney complications, pneumonia, dysentery, or exhaustion. Dropsy is

usually marked at death.

Treatment.—In the treatment of amyloid liver, we are to remember that back of the disease is a depraved blood from syphilis, suppurative processes, malaria, etc., and that only in so far as we are able to correct these wrongs will we be able to stay the process of degeneration. Recognized late in the disease, we have no specific for the degenerated condition, and our efforts are directed to correcting the wrongs of the blood. In this way we prolong the patient's life, but a permanent cure is not to be encouraged.

Suppurative bone lesions are to be corrected, when existing,—anti-syphilitics, such as echinacea, Donovan's solution, stillingia, corydalis, etc., when due to syphilis, and quinia when due to malarial wrongs. Having accomplished these ends, such remedies as echinacea, nux vomica, hydrastin, polymnia, stillingia, rumex, iris, phytolacca, etc., will be used.

A nutritious diet of nitrogenous articles, with a minimum amount of fat and plenty of fruit, will give the most favorable results. Exercise in the open air should form an important part in the treatment. Alcoholic stimulants should be avoided. Farinaceous, starchy foods, and sugar, should also be restricted.

FATTY LIVER.

Synonym.—Steatosis of the Liver.

Definition.—The term fatty liver may be applied to two conditions,—fatty infiltration and fatty degeneration. In fatty infiltration, there is an increased amount of fat in the normal cells, and is supposed to result from some constituent of the food, such as fat, or from carbohydrates. In fatty degeneration of the liver, the protoplasm or albuminates of the liver-cells are replaced by fat and the liver substance destroyed.

In infiltration, the fat varies, and in the normal liver is from three to five per cent, increasing after a full meal, particularly when the food is rich in the carbohydrates.

Etiology.—Aside from the physiological fatty liver, due to milk diet in infants, and the ingestion of a large quantity of carbohydrates, fatty liver is due to excessive use of alcohol and beer. Insufficient exercise, especially in hearty eaters, favors the accumulation of fat, owing to imperfect oxidation of the fatty particles ingested. Also imperfect oxidation due to tuberculosis of the lungs, pernicious anemia, and chlorosis.

It may be due to certain poisons, among which may be mentioned phosphorus, arsenic, copper, antimony, mercury, the aluminum salts, iodoform, carbolic acid, the mineral acids, and ptomaines from fish, oysters, etc. It may occur as the result of the infectious diseases, especially such as are followed or attended by long-continued pus formation, as puerperal fever, erysipelas, etc.; the poison arising from acute yellow atrophy; as a result of general obesity, the liver acting as a receptacle to the excess of fat.

Pathology.—In fatty infiltration, the liver is increased in size, sometimes weighing from twelve to fifteen pounds, yet of such low specific gravity as to float in water. It is smooth, with rounded edges, and of a light-yellow color. On section, it is dry, and leaves the knife oily. The protoplasm of the cell is crowded to one side by the oil-drops.

In fatty degeneration, the liver is smaller than normal, is smooth, of a light-yellow color, soft and easily torn. On section, the cells are found degenerated, and a yellowish-gray, or mottled, friable, oily substance, is presented to the eye,

Symptoms.—There are no characteristic symptoms attending this condition. Ascites and splenic enlargement are rare, and, when present, are due to complication. Jaundice is usually absent, for in advanced cases the bile is but little lessened in quantity.

The stools are light-colored, however, and constipation may alternate with diarrhea. When the liver is very much enlarged, there will be gastro-intestinal disturbances, with loss of appetite, flatulence, nausea, and sometimes vomiting; diarrhea, alternating with constipation, occurs, and the stools contain mucus.

There is a sense of fullness in the right hypochondrium, and the liver, on palpation, is found large, smooth, soft, and doughy, and extending

several inches below the costal ridge.

Course and Complications.—The disease runs a chronic course, depending largely upon the complications existing, which often include fatty degeneration of the kidneys and heart. Where the kidneys are involved, the urine is scanty, high-colored, and contains albumin, fat, or oil-casts, and crystals of cholesterin. When fatty degeneration of the heart complicates the disease, the pulse is irregular and feeble, and frequent attacks of vertigo and syncope occur. Later, edema of the extremities and general anasarca take place.

Diagnosis.—The enlargement of the liver, it being smooth, with rounded edges, and soft and doughy, would suggest its true character, especially if the patient has freely indulged in beer and alcohol, and been a high liver or eaten largely of the carbohydrates, and followed a sedentary life. The history of infectious diseases, or acute yellow atrophy, would also suggest fatty liver.

The absence of jaundice, ascites, and splenic enlargement, would also render the diagnosis more positive.

Prognosis.—This depends upon the condition. Fatty infiltration is not to be regarded as very serious; but fatty degeneration is a more grave lesion, especially when due to acute yellow atrophy or the more grave infectious, diseases.

Treatment.—This will be largely hygienic and dietary. The patient should take plenty of well-regulated exercise in the open air. He should abstain from alcohol, beer, and sweet wines. Fatty, farinaceous, and starchy foods are to be avoided, and the patient should take sparingly of fluids.

The diet should consist of albuminoid substances, such as lean meats, fish, vegetables, and fruits. Plain broths may be used sparingly. The saline alkaline waters may be used freely. Gastric complications will be treated as they arise, and will call for hydrastis, nux vomica, rhus tox., ipecac, etc.

NEW GROWTHS IN THE LIVER.

Under this head are included cancer, sarcoma, and adenoma in the malignant class; and fibroma, angioma, and cystoma in the benign class.

CARCINOMA OF THE LIVER.

Etiology.—Cancer of the liver, especially as a primary lesion, is very rare, and occurs between the ages of forty and sixty. Primary cancer occurs more frequently in the male than in the female, due, no doubt, to the greater frequency with which males are affected with cirrhosis, malaria, and alcoholism, factors that predispose to cancer. Secondary cancer, on the other hand, is found with greater frequency in women, being- secondary to cancer of the uterus, ovary, and breast.

Traumatism, infectious processes in general, parasites, and heredity are regarded as predisposing factors in cancer of the liver.

Primary carcinoma of the gall-bladder is frequently associated with chronic irritation and obstruction from gall-stones, and probably accounts for the greater frequency of this affection in women than in men, the female being more frequently troubled with gall-stones. The same causes predispose to cancer of the biliary passages.

Pathology.—Three forms are recognized in primary cancer:

(a) The *massive cancer*; (b) the *nodular cancer*; and (c) the *infiltration cancer*.

The *massive cancer* may cause enormous enlargement, and weigh as much as twenty-five pounds. Beginning in the liver as a round tumor, it rapidly develops into a hard mass, involving the parenchyma of the liver. The healthy tissue is not cir-rhotic. The capsule is not adherent to the peritoneal covering, although sometimes thickened.

Nodular Cancer does not show the enlargement of the above-mentioned variety, there being widespread cirrhosis, with contraction and induration. This variety resembles secondary cancer of the liver. The nodules vary in size and number, are gray-ish or yellowish, and distributed throughout the liver.

Infiltration Cancer.—In this form, cancerous masses are infiltrated throughout the parenchyma of the liver. The capsule is often thickened, and adheres to the peritoneum and other organs. The liver is uniformly enlarged.

Histologically, primary cancer cells do not differ from carcinoma of other parts, being epithelial in character, their shape being changed by pressure, some being polyhedral, others hexagonal. Giant cells are also found in the cancerous mass.

Secondary Carcinoma of the Liver.—This form is generally readily distinguished from the primary form by the enormous enlargement of the liver, and the presence of nodules projecting above the surface; also the tendency to degeneration of the nodule, causing its central contents to recede, and making many of the nodules umbilicated. The nodules, both on the surface and when cut, present a grayish-white or yellowish aspect.

So much of the organ may be involved that every trace of the parenchyma of the liver may disappear. Degeneration of the cancerous tissue may result in cavities or cysts, into which hemorrhages occur, and also into the gall-bladder and peritoneum. The hepatic cells atrophy, as the result of pressure of the cancerous mass. Cirrhosis is not an uncommon accompaniment, and areas of fatty degeneration are also found.

Histologically, secondary cancer does not differ from the primary form, save in the tendency to the various degenerations already mentioned. Cancer of the gall-bladder and bile passages may be primary or secondary, the latter often following cancer of the stomach, intestine, and pancreas.

Symptoms.—The symptoms of cancer of the liver vary, depending upon the location and stage of development. In the early stage, and when located in the interior of the liver, they are negative. When secondary to cancer of the stomach, intestine, rectum, uterus, ovary, etc., the symptoms are more pronounced than when the growth is primary.

Carcinomatous cachexia may be the first evidence of the lesion, and in

some cases remains the chief feature to the end. Enlargement of the liver is usually pronounced, and palpation reveals the hard, nodular character of the organ, especially if the growth be near the surface. With the greater involvement of the organ there will be disturbance of the portal circulation, and consequent gastro-intestinal disturbances, such as nausea, vomiting, and sometimes hematemesis.

Pain is a common symptom, at times of burning, boring character; at other times it is darting and lancinating; although usually located in the right hypochondrium, it may extend to the right shoulder and scapular region.

Jaundice is present in most cases at some stage of the disease. Where the portal circulation is seriously compressed, ascites develops, and, when very great, obscures the physical examination. The temperature is usually normal or subnormal during a greater part of the disease; but in the advanced development, the temperature rises, and in some cases reaches 105°. The fever at this time is irregular or intermittent.

Progressive emaciation is characteristic, and the skin becomes dry, wrinkled, and icteric. In some advanced cases, where there is marked toxemia, there may be severe headache and delirium, followed by coma.

Diagnosis.—Where the liver is greatly enlarged, and the surface is nodular, the diagnosis is comparatively easy; but in the smoother forms, and when deep seated, it may be mistaken for other hepatic lesions. If, however, there is the cancerous cachexia, emaciation, pain in right hypochondrium, extending to the right shoulder and scapular region, and ascites, the diagnosis is positive.

Prognosis.—It is always unfavorable, the disease being progressive, usually terminating in death within a year.

While we do not pretend to cure cancer, there are a few remedies that tend to retard the development, allay the worst features of gastric disturbance, and render the patient comfortable to some degree. Echinacea neutralizes to some extent the toxemia generated in carcinoma, and should be given during the course of the disease. Dr. Webster thinks that it also lessens the pain. The dose will be from five to twenty drops four times per day. Hydrastis has long been considered by the Homeopaths as influencing carcinoma. Eclectics can testify to its

influence in disorders of the stomach; and where there are gastric complications it should prove a valuable agent. Chelidonium and chionanthus influence hepatic tissue, and may assist in eliminating the bile and overcoming to some extent jaundice.

The diet should be nourishing, easily digested, generally fluid in form, and taken in small quantities. Milk, koumiss, whey, broths, and gruels will give the best results, although fruits and the more succulent vegetables, sometimes, can be taken. Anodynes will have to be used where the suffering becomes intense.

SARCOMA OF THE LIVER.

Sarcoma of the liver very rarely occurs in the primary form. When it does, it is usually in the form of nodules of various sizes, distributed throughout the liver. They may arise from the interstitial connective tissue of the organ, or from the connective tissue of the blood-vessels and bile-ducts. They are most frequently found in young subjects.

Secondary sarcomata are more frequently found, the primary lesion being in the skin, eye, kidney, anus, or rectum. The liver is infiltrated or studded with brown or black nodules, and when a section is made, presents a mottled or granite-like appearance. In rare cases the liver is infiltrated with dark, granular material, there being no nodules. The growth is composed of small round cells, giant cells, and spindle cells.

The symptoms are similar to those of cancer, and are due to obstruction, gastro-intestinal disturbance, edema and ascites being the most pronounced. Progressive emaciation is characteristic, although cachexia is not present. The absence of cachexia, and the fact that it occurs more frequently in the young, may enable one occasionally to differentiate this from cancer, although usually the true nature of the disease is only determined during an autopsy.

The prognosis, like that of cancer, is always unfavorable, and the treatment only palliative and similar to that of carcinoma.

FIBROMATA.

These small growths are occasionally found during an autopsy, when not suspected during life. They may be located near the outer surface, or in the deeper tissues. They are yellowish in color, hard and resisting on making a section. The symptoms are negative, and consequently a diagnosis is impossible during life.

Cavernous angiomas occur but rarely, and vary from the size of a pea to that of a walnut. They occur more frequently in men than in women, and in the aged rather than in the young. The tumors are V-shaped, with their base to the surface of the liver beneath the capsule. They are small, reddish bodies, and consist of a series of dilated vessels.

There are no symptoms to suggest their presence; hence the diagnosis can not be made during life, save in rare cases where the tumorous mass becomes large enough to cause obstruction, and an exploratory incision reveals its true nature.

CYSTOMA.

These are found in the liver in two classes, simple and multiple cysts. The simple form are usually solitary, and represent malformation, and are generally congenital.

SUPPURATIVE CHOLANGITIS.

This is rarer than the catarrhal form, and occurs more frequently in elderly people. It is a diffuse, purulent inflammation of the biliary passages, and usually results, in the aged, from gall-stones.

Etiology.—It is supposed to arise, in the majority of cases, from microbic infection, especially the bacillus coli communis, either alone, or combined with the staphylococcus albus or aureus, or with the streptococci. The ascarides may also enter the ducts from the bowel, and thus give rise to the disease.

Malignant growths of the ducts may also be responsible for the affection. The toxins developed during typhoid fever, dysentery, cholera,

malaria, pneumonia, and puerperal fever may also be considered as factors in the disease.

Pathology.—The inflammation may be confined to the common duct, the cystic duct, or both ducts and gall-bladder may be involved. The mucous membrane is thickened, the ducts dilated and filled with a mucopurulent fluid. The walls of the ducts in some cases show extensive ulceration, which may be perforated and give rise to local peritonitis.

Symptoms.—Jaundice is present, although this may have preceded the suppurative form, and of itself is not a characteristic symptom. The patient will suffer with chills or rigors, followed by an irregular fever and night-sweats. The fever will assume a remittent or intermittent form. The patient shows marked emaciation, is anemic, and becomes greatly debilitated. Tenderness is marked in the hepatic region.

Complications are liable to arise, such as endocarditis, peritonitis, purulent meningitis, pylephlebitis, septicemia, etc. There are digestive disturbances, such as nausea, vomiting, and diarrhea.

Diagnosis.—The form of the disease would be recognized by the symptoms characteristic of suppurative processes; viz., septic fever, night-sweats, and emaciation; the symptoms of peritonitis, pylephlebitis, and abscess being present in a number of cases.

Prognosis.—This is a very grave disease, and the prognosis is unfavorable.

GALL-STONES.

Synonym.—Biliary Calculi; Cholelithiasis.

Definition.—Concretions, which form in the biliary passages or gall-bladder.

Etiology.—It is not definitely known as to the positive cause or causes that give rise to gall-stones. They are found within the hepatic duct and the gall-bladder, and rarely in the cystic duct. They occur more frequently after the age of sixty, although they have been found in infancy and early life. According to Naunyn, they occur far more

frequently in women than in men, about four to one, especially in women who have borne children. Tight lacing, sedentary habits, constipation, and fatty and starchy food also predispose to gall-stones.

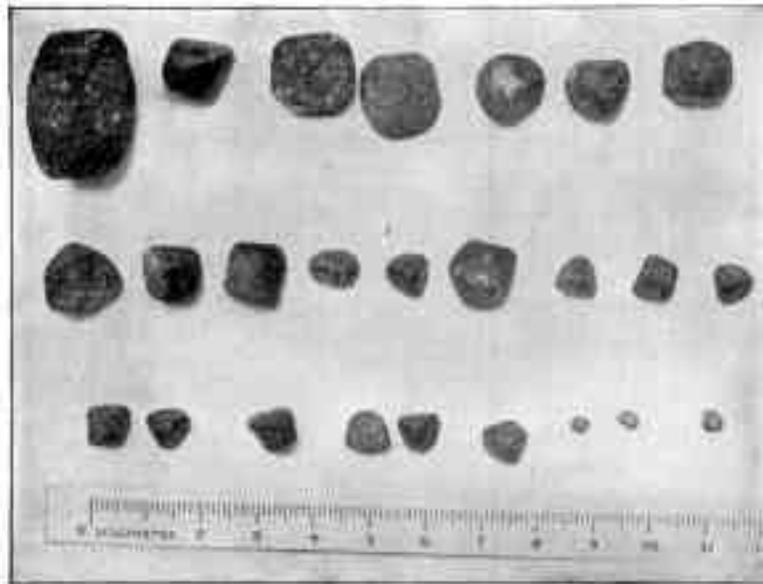


FIG. 27. GALL-STONES. (Musser.)

The chief constituents of gall-stones are cholesterin and pigment-lime precipitated from the bile, as the result of the decomposition of such salts as hold them in solution. The more recent theory is that they are the result of micro-organisms. The fact that the gall-bladder is the habitat for the colon bacilli, streptococci, staphylococci, pneumococci, and the typhoid bacilli, and that gall-stones are frequently associated with the infectious fevers, and the experiment of Gilbert and Fournier, who produced gall-stones in animals by injecting micro-organisms into the gall-bladder, give weight to the theory.

Composition and Appearance.—Gall-stones vary in size and number, shape, color, formation, and consistency. They are composed of cholesterin bile-pigment, especially bilirubin, the lime-salts, and rarely phosphorus, magnesia, with occasional traces of iron and copper. Their consistency depends upon their constituents; thus, when made up of cholesterin and mucus, they are soft, and may be cut like wax, while those in which the lime-salts are well represented are hard and brittle. The color varies from white, the cholesterin stones, to the yellow, dark-brown, or almost black, depending upon the amount of bile-pigment present.

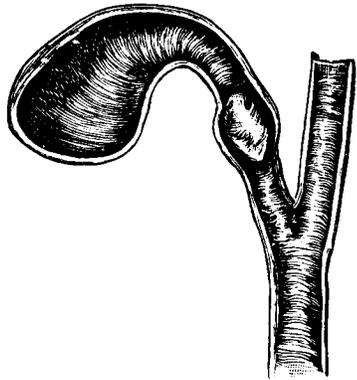


FIG. 28. GALL-STONE IN
CYSTIC DUCT.
(*Musser.*)

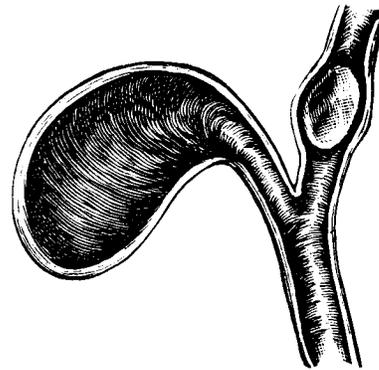


FIG. 29. GALL-STONE IN
HEPATIC DUCT.
(*Musser.*)

There may be but one stone, or there may be thousands, Otto recording a case where there were seven thousand eight hundred and two stones in a single case. The fewer the stones the larger they become, and where only one exists it may attain a size of four or five inches in length. The single stone is usually found in the gall-bladder, while the smaller ones may be found anywhere in the biliary tract, even to the minutest bile-duct. The minute stones are sometimes called gall-sand, and no doubt the great number recorded by Otto were of this kind.

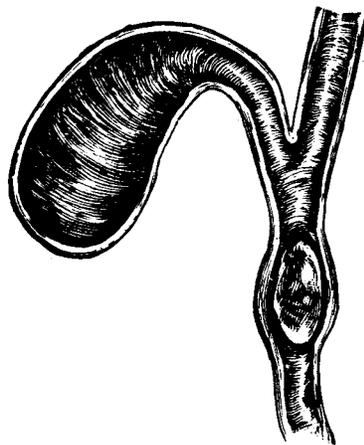


FIG. 30. GALL-STONE IN
COMMON DUCT.
(*Musser.*)

Their shape depends upon their consistency as well as number. When soft, they may be flattened, and when hard, they may contain facets when crowded together; others are oblong, oval, or egg-shaped, depending upon pressure against each other. On section, the stone often shows a nucleus of cholesterin, the remainder being made up of

concentric layers, the outer layers containing the various salts, being brown and hard.

The ducts, where the stone is located, may be dilated or saccular, and the mucous membrane smooth; or, if inflammation has been set up, it is thickened or ulcerated. In the latter case, adhesions to other parts take place. Perforation may occur into the peritoneal cavity or into other organs, and fistulous tracts may be established into the bowel, kidney, ureter, stomach, bronchi, or abdominal wall, the stones being discharged in this way. Suppurative inflammation may result in any of the ducts where the calculi may be located, empyema resulting.

Symptoms.—Gall-stones may be present for a long time in the gall-bladder, and finally pass out into the bowel without any symptoms, the presence of the stones in the stool being the first knowledge of there having been biliary calculi. A case of this kind came under my notice where the patient passed a handful of stones the size of filberts. Occasionally there will be an uneasy sensation in the right hypochondriac region, especially on change of position, when the stones remain in the gall-bladder; generally, however, the first evidence of hepatic calculi is when the stone starts on its journey for the bowel, and manifests itself in a sudden, intense, and lancinating pain in or near the region of the gall-bladder—*hepatic colic*.

The pain, beginning in the right hypochondrium or epigastrium, radiates in every direction, especially upwards in the right thorax, extending to the back and right shoulder. The attack occurs most frequently in the after part of the day or about midnight. It may last but a few minutes and cease, or for hours, days, and even weeks. As soon as the stone reaches the intestine the pain suddenly ceases. During the paroxysm of pain the patient may roll on the floor, flex the right limb, and grasp the abdominal wall for relief. The excruciating pain causes him to cry out with the suffering, the face becomes pallid, and frequently a cold sweat bathes the patient. Vomiting of bile is a common symptom.

The pulse is slow and feeble, or small and rapid. Rigors are often present, followed by fever, the temperature rising to 102° or 103°, and in rare cases going to 104° or 105°. The pain is inter.mittent in character, subsiding for a few minutes, only to appear with apparent redoubled force.

In from eight to twenty-four hours jaundice makes its appearance, although it does not occur in all cases. When the paroxysms have been unusually severe, the patient is completely exhausted at their termination, although the strength is rapidly renewed.

During an attack the liver is somewhat enlarged, and may be felt several inches below the costal line. There is tenderness in this region. In some cases there is enlargement of the spleen. Where the abdominal walls are thin, the presence of calculi can sometimes be determined by palpation.

Dropsy of the gall-bladder—*hydrop vesicæ felleæ*—may arise when the stone lodges in the cystic duct; giving rise to chronic obstruction.

Empyemia of the gall-bladder is a rare complication, the organ becoming greatly distended with pus.

In very rare cases, rupture of the duct occurs, followed by fatal peritonitis.

Diagnosis.—This is comparatively easy, the sudden paroxysms of pain in the epigastric region extending to the right shoulder, vomiting, great prostration, slow pulse, clammy skin, and jaundice, make a picture that can scarcely be mistaken for appendicitis, renal, or lead colic. The positive diagnosis is, of course, made when the stone is passed in the stools, which should carefully be washed through a sieve.

Prognosis.—The prognosis of the individual attack is usually favorable, although death has occurred in a first paroxysm, where the vitality was low, the result of fatty heart. Cerebral hemorrhage, the result of an attack, has also proved fatal, while a local peritonitis, the result of perforation of the duct, has terminated fatally. Empyemia of the gall-bladder, attended by septic fever, carcinoma, and cardiac degeneration, render the prognosis very grave.

Treatment.—Our first object is to give relief to the excruciating pains of the distressed patient. This will be accomplished by inhalations of chloroform, and the hypodermic use of morphine. Most benefit will result from hot fomentations or the sitz-bath, or the old alcohol sweat. While the paroxysm is on, relief may be had by placing a napkin,

moistened with chloroform, over the painful locality; but care must be used, and the cloth removed every few seconds, or the part will be burned.

Internally, large doses of dioscorea in hot water affords some relief; say dioscorea fifteen or twenty drops in a fourth of a cup of hot water every hour. The earlier Eclectics prescribed lobelia and asclepias in infusion, till diaphoresis and relaxation were fully established; although unpleasant, it is still good treatment.

As soon as the stone passes into the intestine, a full dose of antibilious physic and cream of tartar should be given, to remove, not only the calculi, but accumulated bile and fecal matter. Following an attack, remedies should carefully be selected to prevent further formations of the concretions, if possible.

Chionanthus, chelidonium, leptandrin, hydrastin, and podophyllin, as indicated, should be given for several weeks. The sodium salts should also be given freely. Olive-oil, an ounce, night and morning, is an old remedy, and may do some good. Sodium phosphate and Podophyllin are not to be forgotten, as they are among our most reliable agents in this affection.

A very important part of the after treatment is the hygienic and dietetic. The patient should take regular exercise daily in the open air; horseback-riding is preferable, where the patient is able to profit by such advice.

The diet should be largely vegetarian, although lean meats and fish may be allowed. All starchy and fatty foods, as well as sugar and pastries, should be avoided. Green vegetables, fruits, and skimmed milk, whey, 'or buttermilk should be the chief diet.

The bowels should never be allowed to become constipated, and if the soda salts are taken night and morning, there will be no danger from this source. Where the stone becomes permanently lodged and no relief from pain or soreness follows appropriate treatment, and when a septic fever with jaundice arises, which tells of pus in the gall-bladder, the case should be placed in the hands of the surgeon for operative treatment.

IX. DISEASES OF THE SPLEEN.

DISLOCATION OF THE SPLEEN.

Synonym,—Floating Spleen.

Definition.—The term dislocated spleen, is applied to the organ when, from some one or more of the various causes, it moves from its natural moorings, but remains fixed; while the term floating spleen is applied to a dislocated spleen that is movable.

Etiology.—The condition may be congenital or acquired. It may be due to an abnormal length, to stretching or tearing its ligaments by increased weight of the organ, by tight lacing, to traumatism, or to relaxation and stretching of the abdominal walls, so common in pregnant women.

Pathology.—The dislocated spleen has been found in various parts of the abdomen and pelvis, the most frequent place being the left iliac region, against the crest of the ilium; when in this position, the left flexure of the colon occupies the vacated space.

The spleen is generally greatly hypertrophied, especially when the displacement is due to engorgement from malaria or leukemia. Where there is impaired arterial circulation- the nutrition of the organ is deficient, giving rise to atrophy of the spleen, a rare condition.

Symptoms.—The symptoms are rather vague and are mostly due to pressure upon surrounding organs; thus where adhesions to the bladder or rectum have taken place, there will be tenesmus of these parts. If the pressure be upon the spinal nerves at their point of exit from the spinal column, there will be perverted sensation and sometimes paralysis.

As the result of the dislocation, a coil of intestine may be compressed, giving rise to symptoms of ileus, or the same symptoms may result from the twisting of the pedicle of the spleen.

Diagnosis.—The diagnosis of floating spleen is determined by the absence of the organ from its natural position. This may be determined by percussion. If the organ be absent, a tympanic sound will be elicited from the left flexure of the colon, which has taken the place of the

absent organ. To make it more positive, the colon should be filled with water, when dullness will be elicited, and, after allowing the water to run off, the tympanic sound returns.

Where the abdominal walls are thin and the spleen hypertrophied, the organ may be outlined in the left iliac region. The diagnosis, however, is difficult and many times is not made during life.

Prognosis.—As to cure unfavorable, though the life may be but little endangered. Should twisting of the pedicle occur, strangulation and necrosis may occur, resulting in death.

Treatment.—Where possible, the spleen is to be returned to its proper place, and a pad and bandage used, though it is extremely difficult to retain the organ in place by tills method, and splenopexy may have to be resorted to in order to securely anchor it.

Where the dislocation has been due to malarial engorgement or hypertrophy, the after treatment will consist in relieving the congestion. For this purpose polymnia uvedalia will be used internally and locally. Of the specific tincture, one or two drams will be added to four ounces of water, and a teaspoonful given every three or four hours. As a local application we will use the uvedalia ointment, thoroughly rubbing it over the enlarged organ, and, with a flannel cloth spread over it, pass a smoothing iron over it as hot as can be borne.

Where splenopexy-fixation is a failure, splenectomy may be tried as a last resort. Of forty cases of splenectomy recorded by Vulpius, thirteen died, giving a mortality of thirty-two and a half per cent.

SPLENIC HYPEREMIA.

Acute or Active Hyperemia.—This may arise from the acute infectious diseases, the engorgement being known as the *acute splenic tumor*. It may be due to inflammation or trauma, and occasionally seen in amenorrhea. Except when due to injuries (circumscribed hyperemia), the organ is uniformly enlarged, is of a dark-red color and much softened. Cell infiltration may take place. The capsule presents the same characteristics.

Chronic or Passive Hyperemia.—This may precede hypertrophy due to malaria or some mechanical obstruction to the portal circulation, like various growths, disease of the heart, liver, kidney, or lungs.

The spleen is increased in size, is of a dark-red color, firm in consistency, with a capsule partaking of the same characteristics.

Symptoms.—These may not be very pronounced, though a sense of fullness is experienced in the left hypochondriac region, with more or less tenderness on pressure. On palpation, the spleen is felt below the margin of the ribs. Percussion reveals increased dullness downwards and forwards in the left hypochondrium.

Prognosis.—This will depend upon the exciting cause.

Treatment.—This will be determined by the nature of the disease giving rise to the hyperemia. Where due to infection, the antiseptics will be most frequently indicated. If due to malaria, the antiperiodics, quinia and arsenic, will be important remedies as will the specific polymnia.

SPLENITIS.

Synonyms.—Acute Splenic Tumor; Acute Hyperplasia of the Spleen.

Definition.—An inflammation of the parenchyma of the spleen.

Etiology.—Splenitis is now generally regarded as a secondary disease, the infectious diseases ranking first as causal factors, especially the following: Typhoid, typhus, relapsing, malarial, small-pox, pneumonia, pyemia, and endocarditis. It more rarely attends tonsillitis, pharyngitis, bronchitis, and similar inflammatory diseases. By far the largest number of cases occur, however, from malaria, typhoid, and typhus fever, Collin having found it enlarged in every one of four hundred and ninety-one cases examined of malaria.

Pathology.—At first the spleen is simply hyperemic, red in color, of firm consistency, and the capsule more or less distended. “The malpighian bodies are usually obscure, and there may be visible areas of hemorrhagic extravasation. The size of the organ varies from a little

beyond the normal to the extremest grades of hypertrophy, instances occurring in which it is four, six, or ten times the normal size and weight.”

Microscopically, at this stage the blood-vessels are found over-distended, and the spaces within the splenic pulp contain masses of white and red blood corpuscles, and very soon degenerated erythrocytes in the form of fragments or of masses of pigment.

“In the later stages the spleen undergoes hyperplasia and degeneration, hemorrhagic extravasations are more abundant, and on microscopic examination, granular degeneration of the cells and fragmentation of the nuclei are observed, while large phag-ocytic cells containing pigment bodies or broken-down corpuscles may be abundant.” (Stengle.)

Symptoms.—There are but few subjective symptoms, and in most cases they are indefinite or absent altogether. Should perisplenitis occur, pain and tenderness will be present. Where there is great enlargement, there will be a sense of weight and heaviness in the left hypochondrium. From involvement of the capsule or from pressure, vomiting sometimes occurs. Cough, dyspnea, and palpitations of the heart may also be present from pressure symptoms.

Physical Signs.—*Palpation.*—With the patient half reclining, and the thighs flexed, place the fingers of the left hand below the ribs and the outer angle, and with the right hand make firm pressure over the posterior portion, when the lower border of the spleen may be readily felt. If the patient be instructed to breathe slowly and deeply, with the mouth open, the organ can be much more readily outlined.

Percussion.—Increased dullness will be present, but great care must be exercised that we do not mistake a loaded colon or enlarged kidney for an enlarged spleen.

Diagnosis.—This is made chiefly by palpation, being really the only reliable information that can be obtained.

Prognosis.—Save in the very rare case where rupture occurs, the prognosis will be favorable, the disease subsiding with the disappearance of the primary disease.

Treatment.—Generally, no additional treatment will be needed to that used for the primary lesion giving rise to it. Echinacea and other antiseptics will have been given as the symptoms have indicated. In addition, polymnia may be used. Locally, if pain be present, libradol or antiphlogistin may be used.

SUPPURATIVE SPLENITIS.

Synonym.—Abscess of the Spleen.

Etiology.—This is due to infection from pyogenic micro-organisms, and may be introduced through an extension of a sup-purative inflammation from a neighboring part, from the perforation of a gastric ulcer, from the lodgment of an infected thrombus, derived from an ulcerative endocarditis or other pyemic foci. It may also be due to the infectious fevers, especially typhoid, typhus, and relapsing fever. The micro-organisms may be introduced directly through a wound.

Pathology.—In most cases the abscesses are small and scattered throughout the organ, or there may be a single abscess varying in size from a walnut to one of enormous size, the degenerated organ appearing as an immense pus sac. The abscess may rupture into the stomach, the colon, the peritoneal cavity, or, perforating the diaphragm, empty into the pleura or lung.

Symptoms.—If the abscess be small and deeply seated, there may be an entire absence of symptoms; but where the abscess is very large, there will be pain in the affected organ, some tenderness, and more or less enlargement.

The irregular fever of septic conditions is present. Should the abscess rupture, the symptoms will depend upon where it empties,—into the peritoneum, colon, stomach, or, perforating the diaphragm, open into the pleura or lung.

Prognosis.—If the abscess be small, there may be but little danger, but when very large the case is grave and the prognosis must be guarded.

Treatment.—In the early stage, the use of the antiseptics will be called for; but when the abscess is large, and the irregular fever tells us of the

presence of pus, the treatment is purely surgical.

CHRONIC INFLAMMATION OF THE SPLEEN.

Synonym.—Chronic Hypertrophy.

Etiology.—This may follow acute splenitis, when it is due to infectious agents. The most frequent cause, however, is malaria, though syphilis and tuberculosis are important factors. Obstruction of the portal circulation by various hepatic diseases is also a common cause of chronic enlargement.

Pathology.—The organ varies greatly as to size, sometimes assuming an enormous bulk, Morro reporting a case where the spleen weighed fifty-five pounds. The surface is generally smooth, dark-colored, and firm in character. A cut section reveals hyperplasia of the stroma and the presence of connective tissue. In other cases the organ is a soft, pulpy mass of degenerated cells. When due to malaria (ague-cake), the organ is of a mottled appearance, or of a dark-red or almost black color.

Symptoms.—Hypertrophy of the spleen may exist for a long time without any subjective symptoms; in fact, may never give the patient any discomfort. When very large, there is a sense of weight and oppression in the left hypochondrium, and if there are firm attachments to the diaphragm or stomach, dyspnea, palpitation, and nausea and vomiting may occur. Where there is much pressure on the vena cava there will be enlargement of the superficial veins of the legs and abdomen, accompanied by more or less dropsy. Pain and tenderness are sometimes a marked feature. Severe colicky pains may result from pressure upon the colon.

Treatment.—The treatment depends largely upon the lesions giving rise to it. When due to obstruction of the portal circulation, remedies will be directed to relieve this condition, podophyllin, leptandra, chionanthus, chelidonium, polymnia, and carduus mariana will be used. If due to syphilis, berberis, corydalis, and the iodides will be given. If the result of malaria, quinia, arsenic, and polymnia will not disappoint. Any agent that will improve the general health—such as tonics, restoratives, etc.— may be administered.

SPLENIC INFARCTION.

Etiology.—This stands next to the kidney in the frequency with which embolism and infarction occur, it being found in from forty-five to fifty per cent of cases examined. The most frequent cause being ulcerative endocarditis; portions of the diseased valves or shreds of fibrinous deposits being carried into the circulation are deposited in the terminal arteries of the spleen.

Pathology.—There may be but a single infarct, though generally they are quite a number. In size they vary, sometimes being quite small, at other times involving the greater part of the organ. The infarct, which is wedge-shaped, has its apex towards the hilum and its base beneath the capsule.

At first the infarcts are of a dark-red color, quite hard, and resemble a hepatized lung; as the disease advances they grow lighter in color, and if the embolus be of an infective character, the infarct may undergo rapid softening, terminating in an abscess.

Symptoms.—Embolism may present little or no symptoms to call attention to the real condition. If, however, in the course of acute or chronic endocarditis the patient is seized with a chill, attended by pain in the left hypochondrium, the diagnosis would be quite certain.

Prognosis.—Where the infarcts are small, the prognosis is usually favorable.

Treatment.—The treatment would be along the line suggested for abscess of the spleen, and consists principally in the judicious selection of antiseptics.

X. DISEASES OF THE PANCREAS.

Since the pancreas is one of the most important glands concerned in metabolism, and since, by its secretion, all three groups of foodstuffs are changed into soluble absorbable substances, any pathological disturbance of the organ must necessarily be attended by grave injury to the various vital functions of the body. Yet, despite its importance, there is less clinical knowledge of this organ than any other of like

importance, and, heretofore, to make a positive diagnosis of pancreatic lesions was seldom attempted. Much has been learned during the past ten years, however, through the investigations of Fitz, Scerin, Seitz, Nimier, Korte, and Mayo Robsen, the treatise of Korte and Robsen throwing much light on a hitherto dark subject.

Through the courtesy of W. B. Saunders, I shall quote freely from Dr. L. Osler's Monograph, "Diseases of the Pancreas," found in Nothnagel's "Encyclopedia of Practical Medicine."

HEMORRHAGE.

Etiology.—1. Diseases of the blood-vessels—atheroma, fatty degeneration, alteration of the vessel-walls from alcoholism, syphilis, etc.—are to be regarded as the most frequent cause.

2. Fatty degeneration of the gland-cells and excessive fatty infiltration of the pancreas.

3. Fat necrosis.

4. Hemorrhage in pancreatic cysts.

5. Hemorrhages from the disintegration of neoplasms.

6. Hemorrhage from embolism of the pancreatic artery.

7. Trauma.

Pathology.— "The pancreas is dark-red or violet; the meshes of the interstitial tissue are filled with fresh or altered blood; the acini dull gray, usually diffused with blood-pigment. The hemorrhagic masses extend also into the vicinity of the gland, and especially into the retroperitoneal connective tissue. Moreover the whole gland appears softened and friable." (Klebs.)

"The pancreas, as a rule, is enlarged, and only exceptionally is of normal size." (Draper.)

"The hemorrhage may affect the whole organ, or only part of it. In the

most severe cases the tissue is completely disintegrated, a gangrenous, dark-red, discolored pulp displacing the pancreas." (Priner.)

Symptoms.—The disease may come on suddenly, while the patient is in apparently good health, by a sudden seizure of colicky pain in the upper part of the abdomen or lower left breast. The pain soon becomes excruciating, and is attended by nausea and vomiting, which soon becomes obstinate, but without affording any relief.

The pulse is small, rapid, and feeble, the surface cold, which becomes clammy as the patient grows worse. There is a painful and extremely anxious countenance; the patient is restless, followed by great prostration, syncope, and death, which usually takes place in from thirty minutes to twenty-four hours.

Diagnosis.—When a patient, who has previously enjoyed good health, is suddenly seized with intense pain in the epigastric region, attended by uncontrollable vomiting and rapid collapse, we may suspect hemorrhage of the pancreas.

Prognosis.—This is almost always unfavorable.

Treatment.—Stimulants, such as the hypodermic injection of strychnia, camphor and ether, or a pint or two of warm salt solution, will bring about a reaction if it is at all possible. To relieve pain, morphia should be given hypodermically.

ACUTE PANCREATITIS.

Synonym.—Acute Hemorrhagic Pancreatitis.

Etiology.—The disease occurs far more frequently in men than in women, possibly owing to greater dissipation among the male sex, since alcoholism figures as a prominent factor in producing the disease. The most frequent cause, however, is an extension of inflammation from the duodenum to the pancreas, through Wirsung's duct. Glycosuria, gallstones, trauma, acute tuberculosis, the infectious fevers, and hemorrhage, have each been credited as giving rise to pancreatitis.

Pathology.—The organ is enlarged, hyperemic, and deeply-stained

with blood, being of a reddish-brown or chocolate color. The gland may be firm and dense, or soft, pulpy, and friable. A cut section reveals a hemorrhagic infiltration of the interstitial tissue, the color being modified by fat tissues, which gives it a mottled appearance. "The infiltration may involve the peripancreatic tissue, the mesentery, mesocolon, omentum, and the sub-peritoneal fat tissue, as low as the brim of the pelvis." (Fitz.) "The fat necrosis of Balser may also be seen as opaque white specks, spots, or streaks."

Symptoms.—Although there may have been a history of aggravated dyspepsia preceding the disease, the onset is usually sudden, unexpected, and violent. The intense, agonizing pain is located in the epigastrium or beneath the left breast, and radiates to the back and shoulder, or downwards, involving the entire abdomen.

Accompanying the pain, there is retching, or more frequently persistent vomiting, which consists of bile, mucus, or dark blood, or all combined. Great prostration, with symptoms of collapse, are early features of the disease. Constipation is the rule. Tympanites is not uncommon, with marked tenderness in the epigastrium.

There is usually but little fever, and at times the temperature is subnormal. The pulse is small, feeble, and rapid, dyspnea is marked, and occasionally delirium is present. Hiccough is often an unpleasant symptom. In fatal cases, death usually takes place within forty-eight or seventy-two hours.

Diagnosis.—This is made with difficulty, and may be mistaken for intestinal obstruction or acute perforating peritonitis. The sudden seizure of excruciating pain in the epigastric region, of one in good health, which is attended by persistent vomiting, circumscribed swelling, and tenderness in the region of the pancreas, and tender spots over the abdomen, with symptoms of collapse, would suggest pancreatitis.

The previous history would throw some light on the case, especially in differentiating between peritonitis and pancreatitis, and the vomit would be different if clue to obstruction of the bowel.

Prognosis.—The disease generally terminates fatally, though recovery has taken place.

Treatment.—Our first effort will be made to relieve the pain. This will be accomplished by the hypodermic injection of morphia, and the local application of heat, or a cloth dampened with chloroform. Hypodermic injections of strychnia, camphor, and ether, or normal salt solution, will be used to prevent or overcome the symptoms of collapse. The subsequent treatment will be symptomatic, meeting the indications as they arise.

SUPPURATIVE PANCREATITIS.

Etiology.—The etiology is somewhat doubtful, though acute pancreatitis not terminating in death might be expected to result in the suppurative. Trauma, errors in diet, dissipation, and debauchery, are suggested as predisposing causes. An extension of infectious material from neighboring parts through the ducts would give rise to the suppurative form.

Pathology.—The organ is generally enlarged, and abscesses of various sizes may be found throughout the organ, or one large abscess may be found, with marked destruction of tissue. The suppurative process may extend to the peripancreatic tissue, or perforation into the stomach, duodenum, or peritoneum, may occur.

Fat necrosis is rare in suppurative pancreatitis; the spleen is but little enlarged, though abscess of the liver is not uncommon.

Symptoms.—The disease may be ushered in suddenly, as in the acute form, with intense pain in the epigastrium, vomiting, and more or less prostration. At the end of forty-eight or seventy-two hours, rigors occur, followed by fever of a septic type, and the tympanitic condition of the epigastrium may extend to the entire abdomen. Constipation may give way to diarrhea. Hiccough, followed by coma and death during the first week is the rule. Occasionally, however, the disease is prolonged for three or four weeks, the symptoms of septico-pyemia being present, the patient finally dying of exhaustion.

Diagnosis.—The diagnosis is generally made, only post-mortem, though the sudden onset, with intense pain in the epigastric region, vomiting and prostration, followed by pronounced evidence of sepsis,

would suggest the character of the disease.

Prognosis.—The disease almost invariably ends fatally. Should the diagnosis be made early, surgical interference might result favorably in a very few cases.

Treatment.—The treatment will be surgical and antiseptic. Echinacea would be an important remedy, though the sulphites, chlorates, and mineral acids would be indicated in many cases.

CHRONIC PANCREATITIS.

Owing to its association with diseases of the digestive apparatus and the insidious manner of its development, chronic fibrous pancreatitis is rarely ever diagnosed during life, hence it is of little clinical interest.

Etiology.—Among the causes giving rise to fibrous pancreatitis may be mentioned suppurative pancreatitis, terminating in induration; syphilis, especially when congenital; alcoholism; chronic inflammation of the pancreatic duct, frequently the result of extension of chronic gastroduodenal catarrh; obstruction of the duct of Wirsung by pancreatic calculi; disease of the vessels, such as arterio-sclerosis or cardiac lesions, and from an extension of chronic peritonitis.

Pathology.—The characteristic feature of this variety is the thickening and fibrous transformation of the interstitial tissue, with the destruction or obliteration of the secreting glandular substance. The entire gland may be involved, or only a portion, especially the head. The gland may be greatly increased in size, being double the weight of the normal organ, or there may be a shrinkage of the newly formed fibrous tissue, giving rise to atrophy. In either case there is induration of the gland, which resists the knife like cartilage.

In color, the gland may be normal, although it is more apt to be yellow, or grayish white.

Symptoms.—There are no characteristic symptoms of chronic pancreatitis. For weeks or months, the symptoms are those of catarrhal gastritis, and consist of loss of appetite, nausea, belching, heartburn, or water-brash, and a sense of fullness or weight in the epigastrium. As

these symptoms become more pronounced, emaciation, with its accompanying prostration, becomes a pronounced characteristic.

Pain, deep-seated and of a burning or boring character is experienced to the left of the epigastrium. Constipation, alternating with diarrhea, makes the bowels irregular. Ascites frequently occurs in the advanced stages, and jaundice is not uncommon,

A symptom that is regarded by some as characteristic is glycosuria. Enlargement of the spleen is not uncommon.

Diagnosis.—A positive diagnosis is only made post-mortem.

Prognosis.—This is necessarily grave as to a cure, although the patient may live for several years with a degenerated pancreas.

Treatment.—An important part of the treatment is dietetic. Since the pancreatic secretion is necessary to digestion of fats and starches, it naturally follows that this class of food should be restricted. Pancreatin administered after meals will be found useful. Phytolacca, iris versicolor, and Donovan's solution of arsenic will be found of some benefit.

The carbonated waters have been found useful in stimulating the secretion, and, if too much of the organ is not involved, will no doubt favorably influence the case.

CARCINOMA OF THE PANCREAS.

Etiology.—The disease occurs most frequently in men past forty years of age, although one case has been recorded in a child of two years, and in one at birth. While it may be primary, it is generally secondary. The primary cause is entirely unknown.

Pathology.—The scirrhus form is the one most commonly found, although the softer varieties are sometimes seen. The disease may be primary or secondary, usually the latter, and may involve any part of the organ, the head being the most common seat of the growth, which varies in size from that of a pigeon's egg to that of a child's head. Extension to adjacent organs frequently takes place, and adhesions to the stomach, colon, liver, intestine, spleen, gall-bladder, or peritoneum,

are not uncommon.

Where the head of the pancreas is principally involved, the obliteration of Wirsung's duct may give rise to retention-cysts, or, by occluding the common bile-duct, the gall-bladder becomes distended with colorless fluid.

Symptoms.—The symptoms vary according to the stage of the disease, the portion involved, the extent of the metastasis, and pressure effects. It is difficult to separate the symptoms of one stage from the other; hence, the symptoms are not sufficiently pronounced to make them characteristic.

Disturbances of digestion are generally first noticed. The patient has noticed that he has been losing flesh and strength, that the appetite is poor, and that there is distress after eating, a sense of fullness in the epigastrium, attended by heart-burn, eructation, nausea, and occasional vomiting. There is a deep-seated pain of a burning or boring character.

The patient becomes anemic, and has a cachectic appearance. The stools are greasy and sometimes bloody. A large amount of undigested muscular fibers in the stools, shows defective pancreatic digestion.

Where the head of the pancreas is chiefly involved, there is pressure upon the common bile-duct, with persistent jaundice. When the portal veins are compressed, ascites follows. The stools are very large, considering the amount of food taken, and should excite suspicion as to the nature of the disease. Should the inferior vena cava be compressed by the encroachment of the growth, dropsy of the lower extremities takes place, and should the intestine be involved, stenosis may follow, with irremediable constipation. The emaciation increases each day, cachexia becomes more pronounced, and the tumor mass may be felt through the thin abdominal walls.

The urine is generally albuminous, and glyco-uria is not uncommon.

Diagnosis.—Where a patient presents rapid emaciation, persistent jaundice, deep-seated epigastric pain, a tumor mass, muscular fibers in the stools without diarrhea, fatty stools, and albumin and sugar in the urine, cancer of the pancreas is rightly suspected.

Prognosis.—Carcinoma of the pancreas, like that of any of the viscera, is necessarily fatal.

Treatment.—This is only palliative. Narcotics will be used to the extent of giving relief. The pancreatic preparations will be given in the hopes of aiding digestion. The food will be of the most nourishing character, and that which is easily assimilated. Itching of the skin is one of the most annoying features, and demands attention.

“Washing the skin with dilute vinegar, a teacupful to a quart of the decoction of the bran of almonds, or weak carbolic acid solution, one to two per cent, or rubbing with fresh lemon-peel, or spraying with from one per cent to two per cent of salicyl-alcohol, or one per cent of menthol alcohol, is beneficial.” (Osler.)

Washing with as much hot water as can be borne will sometimes give relief. Where the itching persists despite these precautions, morphia, hypodermically, should be used to obtain relief.

PANCREATIC CYST.

Etiology.—The generally accepted theory as to the cause of pancreatic cysts is, that they are due to retention of the gland secretion, the outflow being prevented in various ways; thus the obstruction of Wirsung's duct may be from without, and may be due to an extension of catarrhal condition of the duodenum, or to duodenal tumors compressing the duct, or the pressure may arise from gall-stones in the common duct. Most frequently, however, it is from within, and is caused by chronic indolent pancreatitis, which compresses and occludes the main duct and its branches.

Concretions may also obstruct the ducts so as to cause retention of their secretion. Dr. Senn, after a number of experiments in ligating the duct in various animals, failed to produce a cyst by thus obstructing the flow, and he therefore believes that the cysts are due, not so much to the retention of the secretion as to its non-absorption, either by an admixture of pathologic non-absorbable substances or by a lessened activity of the absorbing vessels. Trauma should also be mentioned as a cause.

Pathology.— “Cysts of the pancreas may be divided into two orders, monocysts and polycysts, and vary in size and shape, the single being much larger than the multiple. They range from the size of an egg to that of a child's head, or even larger, and may contain as much as twenty quarts of fluid. The cyst wall is composed of dense, firm, fibrous connective tissue, poor in cells. The lining of its walls is smooth, shiny, and free from epithelium.

“The contents of the cyst is a viscid or watery alkaline fluid of a grayish or reddish-yellow color, and with a specific gravity of 1010 to 1024. The fluid contains leucocytes, red blood-corpuscles, fatty degenerated epithelial cells, free fat, and crystals of fatty acids and cholesterin. The cystic fluid generally presents some or all the characteristics of pancreatic juice; viz., the power to emulsify fat, to transform starch into glucose, and to digest albumin and fibrin.” (Fitz.)

Symptoms.—There may not be any symptoms preceding the appearance of the tumor, nor until it has reached considerable size, although usually there will be paroxysms of pain in the epigastrium or left chest, extending to the shoulder. Vomiting, belching, and diarrhea may attend these attacks. As the cysts increase in size, the patient loses flesh, and where the tumor is very large, emaciation is a marked feature. Fatty or greasy clay-colored and offensive stools, containing muscular fibers, are sometimes present. Very large cysts, owing to pressure on the liver, are accompanied sometimes by jaundice and ascites. Albumin and sugar, although not constant, were found in a number of cases.

Intestinal hemorrhage is not uncommon. When the tumor is very large, dyspnea occurs, due to pressure. The presence of the tumor mass is the most characteristic feature of a pancreatic cyst, and causes protrusion of the upper part of the abdomen, the enlargement being more to the left. The tumor is smooth, globular, resistant, not elastic, unless very large, and changing its position with the movements of the diaphragm. Fluctuation is readily obtained where the cyst contains large quantities of fluid.

Diagnosis.—This depends entirely upon the knowledge gained by physical examination.

The presence of a smooth, globular tumor in the epigastrium or left hypochondrium, with a resonant zone between the liver and spleen, would suggest pancreatic cyst. By inflating the stomach, the tumor is found behind and below this organ. On aspiration, an alkaline fluid is obtained that “emulsifies fat, saccharifies starch, and more rarely peptonizes albumin.”

When the cysts are enormous in size, they might be mistaken for ovarian cysts; but the history of the latter disease, showing a gradual enlargement from below upward, would suggest the difference between the cysts.

Prognosis.—The success that has attended operative treatment renders the prognosis quite favorable.

Treatment.—This is distinctly surgical, and consists in draining the cyst, or in extirpation.

PANCREATIC CALCULI.

Concretions in the pancreatic duct occur so rarely that they attract but little interest to the clinician. Out of fifteen hundred autopsies at the Johns Hopkins Hospital, only two cases were found.

They consist principally of carbonate of lime, are grayish-white in color, round in form, and vary in size from that of a small bird-shot to that of a bean. They may be round and smooth, or rough, with prickly spines.

A catarrhal condition of the pancreatic duct, with retained secretion, is the only recognized factor in producing their formation. There is dilatation of the duct, and at times cystic formations, and, in still rarer cases, the formation of abscesses, as the result of the concretions. They may perforate into the stomach, colon, or duodenum.

Atrophy of the pancreas usually follows their presence, and cancer is often associated with them.

There are no characteristic symptoms to suggest their presence, and although there may be sharp, lancinating pains, they will be confused with those due to hepatic colic. The presence of fat in the stools, sugar in

the urine, and pain in the left costal border rather than the right, would suggest calculi in the pancreas rather than in the liver.

The treatment would be surgical.

XI. DISEASES OF THE PERITONEUM.

ACUTE PERITONITIS.

Definition.—An acute inflammation of the peritoneum, either local or general.

ACUTE GENERAL PERITONITIS.

Etiology.—Though there are many possible causes giving rise to peritonitis, the most common and frequent mode of infection can be traced to one of two sources—gastro-intestinal, and the female genital organs.

Ulceration of the stomach or of the bowel, either due to typhoid fever, dysentery, appendicitis, intestinal obstruction or a high grade of enteritis, induces the disease.

A premature or a prolonged and difficult labor not infrequently leaves an infected genital tract, to be followed by metritis, endometritis, ovaritis, and peritonitis.

Disease of the bladder may also be responsible for this affection. Tubercular ulcerations and malignant affections not infrequently cause peritonitis, while abscesses of the liver, impaction of the hepatic ducts, nephritis, and splenitis are to be reckoned among the causes.

Penetrating wounds of the abdomen, or even surgical operations, open the way for the introduction of septic processes, and peritonitis follows. Pleuritis and endocarditis may give rise to the affection, through the lymph vessels of the diaphragm.

The micro-organisms most commonly associated with peritonitis are the streptococcus pyogenes, the bacillus coli communis, and the bacillus

tuberculosis, though a number of others are found. Chronic irritants may give rise to the disease, as where a perverted bile irritates serous surfaces, or the toxins produced from the various bacteria. The disease may be primary or secondary, though rarely the former.

Pathology.—Peritonitis, like pleuritis or pericarditis, manifests a variety of conditions, depending upon the form or type of the inflammation, and may be either dry, plastic, or fibrinous, sero-fibrinous, sero-purulent, or hemorrhagic.

If the inflammation is diffuse, we find the parietal layer of the peritoneum, -as well as the outer surfaces of the intestines, red, injected, and swollen, and the serous membrane clouded, due to the presence of a fibrinous exudate and to desquamation of the epithelium. As a result of this fibrinous exudate, adhesion takes place between coils of intestine, or between intestines and other viscera.

There is nearly always present more or less fluid in the abdominal cavity, which varies in character. It may be small in quantity and of a serous or sero-fibrinous character, though, if due to intestinal perforation or puerperal conditions, it is apt to be purulent in character.

Where the inflammation is severe and prolonged, the intestines share in the inflammation, with thickening of their walls.

In circumscribed or local peritonitis, adhesions limit the extent of the inflammation, and it is often known as adhesive peritonitis.

Symptoms.—Usually chilly sensations, or a marked rigor, announce the presence of peritonitis. At the same time the patient experiences severe abdominal pain; at first local, most frequently in the right side or in the pelvis, but it soon becomes general, involving the entire abdomen. The temperature rapidly reaches 103°, 104°, or 105° ; the pulse is small, frequent, and wiry, varying from 120 to 160 beats per minute. The respiration is shallow, hurried, and restricted to the thorax—thoracic breathing.

The tongue, at first white and pasty, soon becomes dry, and of a red or brown color. Hiccough is a common and distressing symptom. The position of the patient in bed is characteristic; he lies on his back, with his limbs flexed to relieve abdominal tension. The abdomen is

exquisitely sensitive, and often the weight of the bedclothes causes much suffering.

The abdomen is distended and drummy, sometimes enormously. Any movement of the body, such as coughing, sneezing, or even a full respiration, increases the sufferings of the patient.

Nausea and vomiting is an early symptom, the latter causing great pain. In the early stage of the disease, diarrhea is a frequent symptom, but soon gives way to obstinate constipation. Micturition is frequent, the urine being scanty and high-colored.

The appearance of the face is somewhat characteristic. There is an anxious look, the nose is pinched, the eyes somewhat sunken, and the nose and ears are inclined to be cool.

There is seldom delirium, save in the advanced stages, and occurs mostly in fatal cases, and in these it soon gives way to stupor, and finally coma.

Physical Signs.—*Inspection* reveals a marked distention of the abdomen, and palpation shows the abdomen rigid and extremely sensitive to the touch.

Percussion causes much suffering, and reveals marked tympany, the liver and spinal dullness being obliterated. If there be much effusion of fluid, there will be dullness in the most dependent portion of the abdomen, unless the gaseous distention be excessive, when the pressure of fluid may be hard to detect.

In fatal cases, the surface temperature usually drops, though, if the temperature be taken by rectum or vagina, it is very high; the respiration becomes feeble and shallow, the pulse small and thready; the patient sinks into a profound stupor, to be soon followed by death.

Where the attack is due to a perforation, the first symptoms are generally those of collapse, to be followed by those already mentioned.

Diagnosis.—This is not usually difficult. The continuous pain and tenderness of the abdomen, the marked distention, the marked increase in temperature, the frequent, wiry pulse, shallow, thoracic respiration,

hiccough, nausea, and vomiting, diarrhea, followed by constipation, the characteristic pinched and anxious expression, and symptoms of collapse, are pathognomonic, while a physical examination confirms the above, and relieves any doubt that may have existed.

Prognosis.—Acute general peritonitis is an extremely grave disease, and the prognosis should be very guarded. Death may occur within forty-eight or seventy-two hours, and most fatal cases within ten days. Great abdominal distention, with extreme tenderness, shallow, hurried breathing, small, wiry pulse, pinched features, and coldness of surface, suggest an unfavorable termination.

Treatment.—Although a grave disease, careful medication will succeed in restoring a good per cent of our cases. If we remember that we have an inflammation of serous tissues not unlike pleurisy or pericarditis, the treatment will be more successful.

Select the appropriate sedative,—*veratrum* if the pulse be full and strong, a rare case; or *aconite* where the pulse is small and rapid. To these we add the indicated remedy. The sharp, lancinating pain will call for *bryonia* as in pleurisy. Abdominal soreness will call for *dioscorea*. The wiry pulse, with inability to sleep, calls for *rhus tox*. Where the patient is restless, and there is cerebro-spinal irritation, gelsemium in full doses is an excellent remedy. Colocynth must not be forgotten for the sharp, spasmodic pain.

If the tongue be dry, red, or brown, with sordes on the teeth, hydrochloric acid will give the most satisfactory results; but where the tongue is moist and dirty, sodium sulphite will be the better remedy. For bad odors, potassium chlorate has no superior. If there be marked nausea and vomiting, small bits of ice in the mouth, or a little mint-water and bismuth, will frequently overcome it.

The abdomen will be so sensitive that only light-weight applications will be allowed. Cloths wrung out of hot or cold water should be given a trial; in most cases, the hot will give greater relief. Some cases will be benefited by the local use of lard and turpentine. One of the *best* of local applications is *libradol*. It not only possesses anodyne properties, but is a relaxant as well.

A fresh application should be made every twenty-four hours. If the

disease is due to puerperal conditions, uterine irrigation will be highly beneficial, if too much force be not used. Do not elevate the fountain higher than is necessary to allow the fluid to flow into the womb and out again. A weak solution of potassium permanganate will give good results.

Enemas of normal salt solution will be helpful. Where the distention of the bowel is excessive, tincture prickly-ash berries, two drams; turpentine, fifteen drops; and water four ounces, will be a good enema.

Albumen water or sherry whey, given in small quantities, is usually well received by the stomach. Where nourishment can not be taken by mouth peptonized milk and small quantities of salt solution should be given per rectum.

ACUTE LOCAL PERITONITIS.

The inflammatory condition may be confined to a portion covering a single organ or part, and is then known as local peritonitis. Thus we have pelvic peritonitis, due usually to diseases of the female genital organs, such as of the uterus, ovaries, or tubes. The causes leading up to this condition may be tubercular, gonorrhoeal or puerperal.

The symptoms are more of a local character, though there is necessarily some systemic disturbance. Thus the pain is local, and there is functional disturbance of the organ involved; at the same time the appetite is impaired, the tongue is furred, there is a slight elevation of temperature, though the fever is irregular and hectic in character.

Peritonitis, due to appendicitis, has been considered under the head of inflammation of the appendix.

Subphrenic peritonitis, the term applied when the disease is located near the diaphragm, is due to gastric ulceration, diseases of the liver, duodenum, or spleen.

The location of the pain directs the attention to the part or parts involved, and makes the diagnosis comparatively easy.

The treatment is not unlike that for general peritonitis, libradol or

turpentine stupes, as local measures, while internally the individual remedy will be used. Should there be pus present, surgical measures are to be resorted to.

CHRONIC PERITONITIS.

Definition.—Chronic inflammation of the peritoneum.

Etiology.—This form usually follows one or more attacks of acute peritonitis, the causes of which have been named under the acute form. Less frequently it may occur without a previous-attack, especially where there is a malignant, tubercular, or rheumatic diathesis.

Pathology.—*Adhesive Peritonitis.*—This usually follows the acute attack, the peritoneal layers frequently becoming inseparably glued together and very much thickened, while coils of intestine become attached to each other and to neighboring parts.

Proliferative Peritonitis.—In this variety there are few or no adhesions, but marked thickening of the peritoneum. This is apt to be associated with cirrhosis of the liver, stomach, or kidneys, and not infrequently is due to chronic alcoholism. Thickening of the omentum may sometimes give rise to a thick, hard cord or band running transversely across the upper part of the abdomen.

There may be effusion varying in character and quantity, and occupying the abdominal cavity at large, or confined to pockets due to adhesion.

Hemorrhagic Peritonitis.—Virchow first described this form of peritonitis, in which a new membrane of connective tissue covers the peritoneum, and in which extravasation of blood occurs from the newly developed open blood-vessels. It may follow frequent wounding of the peritoneum by paracentesis.

Chronic Tuberculous Peritonitis.—The thickening of the layers of the peritoneum, to all appearance, are similar to those forms already described; but on examination with the microscope, tubercular degeneration is found.

Localized peritonitis results in firm, fibrous adhesions, and is usually preceded by inflammation of some spinal part.

Symptoms.—Chronic peritonitis always develops insidiously, the symptoms in the earlier stages being more or less obscure, and of little clinical significance. Disorders of digestion are always present to some extent, and where adhesions restrict the common duct or portal vein, jaundice or ascites, or both, will be present.

Constipation is a common condition, save in tubercular peritonitis, when diarrhea prevails. There is nearly always pain or uneasiness in some portion of the abdomen.

The fever is of an irregular type, the tongue is furred, the face assumes an anxious or pinched look, emaciation follows, and there is nervous disturbances.

The abdomen is generally prominent, either distended with gas or effusion; frequently both are present.

Percussion reveals dullness, where ascitic fluid is present, or where adhesions are firm and thick; and resonance, where gas is present. Not infrequently a hard band can be outlined across the upper part of the abdomen, a roll of omentum being responsible for this condition.

Diagnosis.—A history of the case shows a former attack of acute peritonitis, or a gradual impairment of health, with disturbance of digestion and more or less abdominal pain. A physical examination generally reveals the true condition.

Prognosis.—When the disease is of long standing, with adhesions and thick fibrous bands, together with profuse effusion, the prognosis is unfavorable; but if seen in the early stages, and the environments of the patient are good, a favorable result may be anticipated.

Treatment.—In the treatment of chronic peritonitis, bryonia, colocynth, and dioscorea should be given a thorough trial. Bryonia stimulates the absorption of the inflammatory products, and also acts as a pain-reliever. The sharp colicky pain is benefited by colocynth, and soreness calls for dioscorea.

Iodide of arsenic, first trituration, will also be found useful. The chlorates and mineral acids will have their special indications. Where there is ascites, the distillate of apocynum will prove useful. Locally, much benefit will follow the use of the thapsia plaster.

The diet should be selected so as to avoid gas formation; sweets and excessively starchy foods should be discarded, and also coarse vegetables. The sanitary conditions should be the best, and, when possible, a change of climate often proves highly beneficial. Some cases will require the surgeon.

ASCITES.

Synonyms.—Dropsy of the Peritoneum; Abdominal Dropsy.

Definition.—An accumulation of serous fluid in the peritoneal cavity.

Etiology.—Any obstruction of the portal circulation is a possible cause of ascites, the most frequent being cirrhosis of the liver. Pressure from tumors or neighboring organs may also give rise to it. Peritonitis and valvular heart disease is also responsible for ascites, and chronic pulmonary affections may impair the portal circulation to the extent of producing it.

Pronounced anemia, as seen in malarial cachexia, purpura, chlorosis, Bright's disease, etc., also give rise to ascites.

Chylous ascites is due to an exudation from the lacteals, the result of malignant infiltration.

Tuberculosis of the peritoneum is also a factor in ascites. In rare instances, the fluid becomes milky in character, due to the presence of fat and not to the presence of chyle.

Pathology.—The peritoneum may be thinner than normal, and opaque; or it may simply present a blanched appearance, and some cases show little if any changes.

The quality and character of the fluid show great variation, from a few pints to several gallons, and from a straw or lemon tint to a brownish or

greenish hue. It may be blood-stained, and occasionally clean and transparent. It is usually watery in character, and though it may be viscid, is generally alkaline, with a specific gravity of from 1010 to 1015, and is rich in albumin.

Symptoms.—There is a sense of fullness or weight in the abdomen, increasing as the fluid increases. There is a distressed feeling, rather than pain. With an increase in the ascitic fluid, the liver is crowded upward and to the right, as well as the heart and lungs. This crowding upward of the diaphragm gives rise to more or less dyspnea, and the patient soon finds himself unable to lie down. Gastric disturbances are common, and constipation is the rule. Micturition is frequent, though the quantity voided is small and high-colored. General emaciation may be marked, notwithstanding the enlarged abdomen.

Physical Signs.—*Inspection* reveals the abdomen uniformly distended when the patient assumes the upright position, but when lying down there is bulging in the flanks and the upper part of the belly is flat. The skin is smooth, tense, and shiny, often presenting a waxy appearance. The superficial veins are generally distended.

Respiration is hurried and principally thoracic; the thorax is widened at the base, but appears much shorter than in health.

Percussion reveals dullness over the most dependent parts, and resonance at the upper portion; a change of position will give dullness wherever the fluid gravitates.

On placing the left hand flat upon one side of the abdomen, and striking the opposite side with the fingers, the fluctuating fluid is readily felt, and is a chief diagnostic symptom.

Diagnosis.—This is readily made by inspection, palpation, and percussion. We differentiate from ovarian cysts by the uniformity of the enlargement in ascites. In ovarian cysts, except those of enormous size, the enlargement is irregular, and there is nearly always a history of menstrual derangement, with an absence of cardiac or palpitating disturbances; while in ascites, there is usually a history of a disturbed liver, kidney, or heart.

Prognosis.—This depends largely upon the cause and length ' of time

the disease has existed.

Treatment.—In the use of diuretics and cathartics we must be careful in our selection, and not cause too great a depression or exhaustion. Fortunately our *Materia Medica* is rich in efficient vegetable diuretics, and a judicious selection will bring most gratifying results.

Apocynum.—This is a veritable Samson in the treatment of dropsy. Where the urine is scanty and high-colored, and the bowels are constipated, and where the heart's action is feeble, *apocynum* has no superior. Of the specific tincture, from fifteen to thirty drops are to be placed in four ounces of water, and a teaspoonful of this will be given every hour. If the system does not respond to the specific tincture, do not discard the remedy, but administer the distillate of *apocynum* (*apocandle*) in from thirty to sixty drop doses every three or four hours. Should the kidney and bowels fail to respond to this, then administer the decoction made with the ground root. This last form is the most efficient way to administer this valuable agent, but, unfortunately, it is so nauseating that many can not take enough of the remedy to get the best results. Of the decoction, we begin with five drops, gradually increasing the size of the dose until we reach the limit of toleration, which is usually thirty or forty drops.

Apis is also a good remedy where there is smarting or burning sensation in voiding water.

Aralia Hispida.—This is another valuable diuretic, and should not be overlooked in ascites. The best results are obtained from the infusion. It should be given every two or three hours.

Polytrichum Juniperum.—As a hydragogue diuretic, this is one of the best remedies and should be given in infusion.

Chimaphila is another good vegetable diuretic, and, like the remedies already mentioned, should, be used as an infusion, if the specific tincture fails to give the desired results.

Strophanthus frequently accomplishes more than any other-remedy, thirty drops to a half glass of water, a teaspoonful every hour.

Sometimes the system fails to respond' to these excellent agents, and we

think of the compound powder of jalap and the bitartrate of potassium, in dram doses every three, four, or five hours, until we get two, three, or four copious stools in twenty-four hours.

Elaterium in one-sixth or one-eighth grain doses, combined with potassium bitartrate, is also an efficient combination.

Sometimes there is such an enormous distention of the abdomen by the effused fluid, that the absorbents are unable to do their work till the pressure is taken off by tapping. After withdrawing the fluid, the same remedies that before were ineffective, now give good results.

Where the dropsy is due to malarial cachexia or splenic disturbances, appropriate remedies should be administered for the specific conditions.

Tonics and alteratives may also be necessary.

In some cases repeated tappings will be necessary, and for this operation the patient should assume the upright position, and the trocar made to enter the median line, midway between the bladder and the umbilicus, the bladder having previously been emptied.