

clamp. Good authority, however, pronounces touching carefully with *nitric acid* to be safe and successful.

Internal hemorrhoids ought, when operated upon, to be removed always by *ligature*. Excision is dangerous, and has several times been fatal by hemorrhage. Some prefer cauterization with nitric acid. In ligating hemorrhoids, it is best to apply a double ligature around the base of each tumor. Silk or hemp will answer; Bushe's needle-receiver is a good instrument for the application.

FISSURE OF THE ANUS.

This is a very painful and not uncommon affection, especially in middle life; perhaps most frequent in females. Neglected constipation and hemorrhoids, with relaxation of constitution and sedentary habits, are its principal causes.

Its symptoms are, at first, soreness or smarting at one point of the anus when at stool. This becomes afterwards very severe, with intense pain, burning, aching, and throbbing, and violent spasmodic constriction of the sphincter ani, lasting sometimes for hours.

Examination displays a lesion mostly of the mucous membrane only; though occasionally reaching even to the muscular fibres of the sphincter. In the beginning only a crack, it becomes at last an extended ulcer, and may exist on each side of the anus.

The stools are streaked with pus or blood, and often reduced in size by the spasm of the rectum; suggesting stricture of the rectum; for which this complaint has now and then been mistaken. The suffering of the patient in bad cases is extreme; pain being produced not only by defecation, but also by coughing, sneezing, stimulating food, or even by the sitting posture.

Treatment.—Most cases, even of long standing, may be cured without an operation. The fissure may be managed as an irritable ulcer, by the constant application of soothing unguents—as spermaceti or oxide of zinc ointment, lead cerate, unguentum belladonnæ, or lime-water with oiled silk dressing. The latter will be convenient only in the recumbent posture. Experience leads me to have especial confidence in *collodion* to which one-fiftieth of glycerin has been added to lessen its constricting effect. This may be painted upon the part with a camel's hair pencil, as in fissure of the nipple; it makes an excellent artificial cuticle. Glycerite of tannin [F. 205] will also be useful.

Obstinate cases may be treated with nitrate of silver or sulphate of copper, applied every day or two, lightly, to the surface. Where suffering is great, suppositories of opium and cocoa butter, or of belladonna, may be introduced after defecation. Washing with soap and water, twice daily, will be serviceable.

Should all such measures fail, Boyer's operation, as modified by Copeland and Brodie, should be resorted to. It is, incision through the ulcer, with a bistoury, either from within outwards, or from without inwards. It is only necessary to cut through the mucous membrane, not through the sphincter. Mild dressings must follow the incision; which will usually produce rapid recovery.

Dr. W. H. Vanburen's operation consists in the forced dilatation of the sphincter ani, by the two thumbs of the operator; so as to overcome the spasmodic contraction.

PROLAPSUS ANI.

Partial descent of the rectum without the anus is not rare in the adult, but is more common in children. Relaxation of the mucous membrane, or weakening of the anal muscles, may induce it; straining at stool is its usual immediate cause. Tropical countries afford its most numerous examples.

Treatment.—The protruded bowel must be replaced. Commonly, gentle pressure, with lard or oil, and *tact*, will succeed at once. If not, leeches and cooling applications must be applied to reduce congestion and swelling. Sometimes anæsthesia will be a needful aid; but not often.

Having effected the replacement, a pad and T bandage will maintain it for the time. The bowels must then be carefully regulated. For the rest, *preventive care* is the main thing. Children affected with prolapsus must not be allowed to strain. The chair or other seat used by them ought to be *high*, so as not to flex the thighs much upon the body. The more nearly erect the posture, the less force in bearing down.

Old prolapsus in the adult may not be curable without operation; although the air-dilated gum-elastic pessary will sometimes give relief. I refer for the *operation* to works on surgery.¹

AFFECTIONS OF THE LIVER.

ACUTE CONGESTION.

This, with deficient secretion of the bile, is very common, as the result of exposure to cold and wet in warm seasons or climates, of the chill or intermittent, or of excesses in diet. Its symptoms are, a sense of weight and slight or moderate pain in the right hypochondriac region and under the right shoulder-blade, constipation and lead-colored stools, nausea, a furred tongue, bitter taste in the mouth, a yellowish skin and conjunctiva, and headache or dizziness.

Treatment.—Two or three grains of blue mass² at bedtime, one, two, or three nights (two grains only if repeated.) When

¹ See Ashton on the Rectum, p. 157.

² It has been remarked already, that Prof. J. H. Bennett's experiments, appearing to show that mercurials, in healthy animals, rather diminish than increase the flow of bile from the liver, do not in the slightest degree affect the value of the evidence which has established the usefulness of blue pill and calomel in acute or subacute hepatic disorders. It is only the *explanation* of their remedial action that can be thus brought into question; *not the facts* which prove it. Some experiments, moreover, have differed in their results from Bennett's; and we cannot argue with *certainty* from the case of dogs in the state of health to that of men in a condition of illness. See remarks of Dr. Da Costa upon a case in which increase of bile after calomel appeared to be proved. Proceedings of Pathol. Society of Philadelphia, July, 1869.

Röhrig, with an improved method of experimentation, approved by Stricker, showed (1872-3) that, in dogs, the secretion of bile is augmented by any cause of determination of blood to the liver. Several kinds of cathartics had this effect; salines, rhubarb, calomel, and castor oil.

decided constipation exists, one purging dose in the morning, of sulphate or citrate of magnesium, or of magnesia. Then ten or fifteen grains of bicarbonate of sodium twice daily with light diet.

CHRONIC CONGESTION OF THE LIVER.

A number of attacks of temporary hepatic congestion, or of hepatitis, or prolonged dyspepsia, or intermittent or remittent fever, may induce a chronic hyperæmia of the liver, with variable disturbance of function. Pain in the right side and shoulder, with sallowness of complexion, constipation, and lowness of spirits, are the principal symptoms.

Treatment.—Supposing blue mass to have been temporarily and sufficiently used, as the leading remedy (so established by ample *clinical* proof, notwithstanding the bearing of a *portion* of the physiological experimentation on the subject), nitro-muriatic acid may then be given, 3 or 4 drops twice or thrice daily, for two or three weeks successively. Or it may be used in a bath (℞vj—viij in each gallon of water). Taraxacum, 10 or 20 grains of the extract twice daily, or a wineglassful, as often, of the decoction of the root, or the fresh leaves in spring or summer, eaten as greens, may follow. Leptandrin (dose, gr. j—ij) is believed to be mildly cholagogue and safe. So is the resin of podophyllum, in small doses. Ordinary laxatives, as rhubarb, etc., may be used to regulate the bowels. Care of the skin, by bathing, proper clothing, and, if chilly, friction with hair gloves or a rough towel (salt-bathing will be very good) is important. Exercise in the open air, not violent, should be had every day. Change of air, mineral waters, or sea-bathing, may be advised.

HEPATITIS.

The most common form of inflammation affecting the liver is what some writers call "gastro-hepatic catarrh;" considered on a previous page. There is reason to believe the duodenum, stomach, gall-duct, and liver, to be all, in variable degree, involved in such attacks.

Hepatitis may also be *traumatic*. Whether so or *idiopathic*, either the parenchymatous tissue, Glisson's capsule, the biliary ducts, or the portal vein, or all together, may be the seat of inflammation.

Some of the symptoms are nearly the same in all cases, and are in part the same as in acute congestion of the liver; but the pain in the side is greater, with some tenderness on pressure; there is fever, often vomiting, and sometimes diarrhœa.

In inflammation of the capsule (*perihepatitis*) the tenderness on pressure, movement, or deep inspiration, is considerable; the fever, slight or absent; and there is no jaundice. This may sometimes be confounded with *diaphragmatic pleurisy*; but there is, in the latter complaint, more severe pain, with cough, dyspnœa, and hiccough.

Inflammation of the portal vein may proceed to suppuration. Then the symptoms are scarcely distinguishable from those of hepatitis with abscess, to which attention will be given presently.

When inflammation is chiefly confined to the gall-bladder and ducts, the points of diagnosis are the comparative absence of fever and the considerable degree of jaundice.

Abscess of the Liver.—Although much most common in tropical climates, this may be met with anywhere. Besides the usual symptoms of hepatitis, when pus is forming, we find rigors recurring sometimes almost as regularly as in intermittent, a very rapid pulse, prostration, copious perspirations, and loss of flesh. In a considerable number of cases, however (13 per cent., according to Louis), the disorder is latent, being made known only by the consequences of suppuration.

The greatest danger attends the escape of pus from the abscess. This occurs spontaneously either through the diaphragm by the lungs, into the stomach, or intestinal canal, into the peritoneal cavity, or, in a minority of cases, through the skin. Any of these may be followed by recovery, except the escape into the cavity of the peritoneum. In this instance death is almost certain.

The *causes* of abscess of the liver, besides the predisposition belonging to hot climates, are: 1. Blows or wounds; 2. Inflammation of the portal vein, with transfer and deposit of pus, or *thrombosis* from some other vein, as the hemorrhoidal; 3. Dysenteric ulceration; 4. Inflammation and suppuration of the gall-bladder or gall-ducts.

Treatment of Acute Hepatitis.—A highly febrile case in a vigorous subject may be treated by early venesection. Otherwise, leeches to the right hypochondrium will be suitable. All mercurials should be avoided. Saline cathartics are proper, with rest in bed, low diet, and cooling drinks. A blister may follow leeches or cupping.

In the hepatitis frequently occurring, and sometimes fatal, in India, Dr. W. Stewart¹ considers *chloride of ammonium* almost a "specific" remedy.

The most serious question occurs when suppuration is known or believed to have taken place. Can we prevent or lessen the dangers of the discharge of the **abscess**? Nature in many cases makes this secure, by adhesion of the liver to the stomach or bowel, so as to allow of the direct flow of the pus into the canal. In other instances deep-seated fluctuation may be felt below the edge of the ribs. Possibly this might be a *dilated gall-bladder*, or *hydatids* of the liver. But if sure that it is an abscess, ought we to open it? The most prudent answer is, not unless we are confident that only the skin intervenes between the pus and the exterior. A very judicious medium between this and bolder practice has been proposed by Dr. Graves: to make an incision about four inches long right over the centre of the tumor, but reaching through the muscle to *within a few lines of the peritoneum*. This, even when the matter is deeply seated, is shown by experience to favor and hasten essentially its escape, without the dangers of a peritoneal incision. Even *acupuncture*, or the use of the exploratory needle-trocar, will be both less safe and less beneficial than this

¹ Medical Press and Circular, Aug. 30, 1871.

plan. Dr. C. Murchison approves of making an opening in all cases in which there is a visible fluctuating tumor.

It seems probable that Dieulafoy's aspirator will contribute to the ease and safety of the management of such cases.

After the discharge of the abscess, convalescence may be expected; it is sometimes rapid, but may require a month or two.

JAUNDICE.

Icterus, or jaundice, is a morbid yellowness of the skin, eye, and other parts. It has no uniform pathology, causation, or concurrent symptoms; but is itself so marked an occurrence as to deserve special study. Sometimes it is even epidemic, as in the U. S. army in malarial districts during the late war; to the extent of over 10,000 cases in a single year.

Varieties.—As to degree—*yellow, green and black jaundice*. As to causation, jaundice from *suppression* and from *reabsorption* of bile; and *icterus neonatorum*, jaundice of young infants, of still different origin.

Symptoms.—In ordinary acute cases of jaundice, either suddenly or after some days of *malaise*, the whites of the eyes first become tinged with yellow; next, the roots of the nails, the face, neck, trunk, and limbs. The urine is of a porter color, stains linen yellow, and becomes green on the addition of nitric acid. At the same time the stools are slate or lead-colored, or almost white. The mouth has a bitter taste, and the patient suffers with lowness of spirits and indisposition for exertion.

Pathology and Causation.—Many affections of the liver may induce jaundice, although in some of the most serious of them it may be absent. Most distinctly it is traceable in different cases to the non-removal of the biliary coloring matter, as well as of cholesterolin, from the blood by the liver—other organs, especially the skin, then receiving it—or to obstruction preventing its transit, after secretion, through the intestinal canal, in which case it is reabsorbed into the blood, and then thrown out elsewhere. Virchow recognizes a form of jaundice as "*hæmatogenic*," that is, originating in the blood. The common view, that some cases of jaundice depend directly upon suppression of the removal of bile pigment from the blood by the liver, has had doubt cast upon it by Murchison¹ and others. It is even doubtful whether biliary pigment really exists pre-formed in the blood; especially as extirpation of the liver in animals is not followed by jaundice, and in a number of cases of destructive disease of the liver jaundice is absent. Bence Jones asserts² that at all times a certain amount of bile is transfused through the coats of the *gall-bladder* into the blood; in health soon to undergo oxidation, but not so when the balance of blood-change is disturbed.

The remote causes of jaundice of greatest frequency are malaria, exposure to cold and damp in hot weather, pregnancy, and violent mental emotion.

¹ Clinical Lectures on Diseases of the Liver, etc., 1868.

² St. George's Hospital Reports, 1866.

Diagnosis.—In either form of jaundice we have the yellow conjunctiva and skin, or serum, if a blister be applied, or blood drawn; in both the stools are without color, and the urine yellow or yellowish-brown. But, as Harley first pointed out, in jaundice from *suppression* the biliary acids have not been formed, and we find only the bile pigment in the urine, while in jaundice from *reabsorption*, that fluid contains *both*.

Harley's test is as follows: "To a couple of drachms of the suspected urine add a small fragment of loaf sugar, and afterwards pour slowly into the test-tube about a drachm of strong sulphuric acid. This should be done so as not to mix the two liquids. If biliary acids are present, there will be observed at the line of contact of the acid and urine, after standing for a few minutes, a *deep purple hue*."

After a time, in cases in which the secretory powers of the liver become impaired, the biliary acids disappear, and then, *tyrosin* and *leucin* are found in the urine. To detect these, evaporate slowly an ounce of the urine to the consistence of syrup, and put it away to crystallize. Tyrosin is known by fine *stellate groups* of needles under the microscope. Leucin, by flat circular crystalline disks, soluble in water but not in ether.

Nothnägel¹ has pointed out that in intense jaundice (*icterus catarrhalis*), along with the biliary acids, *renal tube-casts* appear in the urine.

Prognosis.—Acute jaundice is not very often fatal. In the U. S. Army, of 10,929 cases only 40 died. When it lasts a month or two, however, as well as when acute yellow atrophy of the liver exists, there is always danger connected with its organic cause. The jaundice of young infants is of short duration, and almost never of serious consequence.

Treatment.—When supposed to be temporary and functional, the great object must be to restore the action of the liver. As observed already, the large accumulation of clinical experience, sustained by some though not by all of the physiological experiments made by vivisectors, compels the belief that calomel and blue mass and other mercurials are *cholagogues*. If they be not so *always* in trials upon animals in *health*, they have proved so *generally* in human beings in cases of torpor of the liver. If *obstruction* be the trouble, their action is more doubtful, necessarily. But even then they may promote the solution of a recent gall-stone, if they render the bile more copious and liquid.

Heberden long since advocated the administration of *ether* as a solvent of biliary calculi. In obstructive jaundice, the abundant imbibition of water is reasonably indicated, to favor fluidity of the secretions.

Moderate doses of calomel or blue pill may be urged, then, generally, during the first week or more of treatment. These may be aided by saline purgatives, as sulphate or citrate of magnesium, Rochelle salts, or cream of tartar. After them, small doses of *resina podophylli* may be tried, if required by persistence of the

¹ Deutsches Archiv für Clin. Med., Oct., 1873.

disease; or, if the bowels will not bear purging, extract of taraxacum. Bicarbonate of sodium, taken before meals, is mildly cholagogue. But in a case of some weeks' duration, slow to recover, nitro-muriatic acid, 3 to 4 drops twice or thrice daily, will often hasten recovery very much. This occurred under my observation in a number of cases of malarial jaundice from the Army of the Potomac in 1862. Some facts are recorded tending to afford hope in the use of *chloride of ammonium* in jaundice and some other hepatic affections.

ACUTE YELLOW ATROPHY.

This is a generally fatal affection, seen most frequently in those who have been intemperate, or injured by venereal excesses, or who have been exposed to malaria.

Symptoms.—Beginning like ordinary jaundice, with nausea, constipation, and headache, the skin becomes intensely yellow ("black jaundice"); vomiting comes on, the pulse is rapid, though variable, and delirium occurs. Then, with fever, and often pain in the side, the stomach and head are more and more disturbed. Vomiting of altered blood takes place; not unfrequently also hemorrhage from the bowels. Petechiæ appear on the skin. Prostration, tremors or convulsions, and *coma* end the history, usually in less than a week.

Secretions.—Marked *deficiency of urea* in the urine, and the presence of *leucin* and *tyrosin* in that excretion, have been remarked.

Morbid Anatomy and Pathology.—The liver after death is *flattened out* and diminished to perhaps less than half its normal size. Its cut surface has a yellow color like rhubarb; the blood-vessels are empty. The lobules are not distinctly marked, many of the secreting cells being destroyed; in their place are masses or spots of dark bile-pigment, fat, and hæmatin. Zenker¹ attributes the extremely fatty character of the liver contents, in many cases, to the detritus of broken-down cells. The kidneys are often found in a state of partial degeneration.

Evidently atrophy, with cessation of the functional action of the liver, is here the cardinal fact. Is it preceded by a violent and destructive inflammatory process? Some of the symptoms would point to this. Yet, in the absence of autopsic evidence, uncommon as primary rapid atrophy seems to be in any organ, the precedence of inflammation must not be taken for granted. Grainger Stewart believes it to be primarily a blood disease. The cause of death seems to be cholæmic poisoning. The resemblance of the history (and, to some extent, the morbid anatomy) of this affection to that of chronic poisoning by phosphorus, has been pointed out.²

Diagnosis.—From acute hepatitis this complaint is distinguished by the greater amount of jaundice, the occurrence of hemorrhage

¹ Schmidt's Jahrbücher, No. 10, 1873.

² See a paper by Dr. J. Homans, Am. Journal of Med. Sciences, July, 1868, p. 53; and one by Dr. W. Pepper, in the same Journal, April, 1869, p. 347; also an account of experiments by Voit, Med. Times and Gaz., November 4, 1871.

from the stomach or bowels, the severe headache and stupor; but, most of all, by the *diminution of dulness on percussion* over the hepatic region, in connection with symptoms showing violent disorder of the liver. The urine will also be found after evaporation to contain *tyrosin* and *leucin*; sometimes in crystalline deposits.

Treatment.—Unless, in the earliest stage, we are warranted in endeavoring to promote the "unloading of the portal circle" by mild purgatives, it is difficult to see any hopeful indication for treatment in this affection, other than palliation of fever, if there be such, by diaphoretics, aiding the depuration of the blood by diuretics and laxatives, and prolonging life by appropriate *support*. It is doubtful whether recovery ever takes place from acute yellow atrophy of the liver.

PIGMENT LIVER.

Frerichs, Meigs,¹ and others have found after death from remittent fever, or in patients dying from other diseases after exposure to malarial influence, a peculiar condition of the liver. It is steel-gray, or blackish, or chocolate-colored; presenting brown insulated figures upon a dark ground. This change of color is due to the accumulation of pigmentary deposit in the bloodvessels.

The spleen is somewhat similarly altered; and so, to a less extent, are the brain and kidneys. The blood is deficient in corpuscles, and contains many floating particles or masses of pigment.

Diagnosis.—During life, examination of a few drops of blood will, in some cases at least, display the abundance of free pigment. The skin is sallow or dull yellow. Enlargement of the spleen, anasarca, albuminuria, diarrhœa or intestinal hemorrhage, and delirium or a tendency to stupor, may occur. There is but little jaundice.

Pathology.—The scientific interest of this affection turns chiefly upon the proof it affords of the effect of malarial poison in disorganizing the blood-corpuscles. This is in accordance also with the remarkable and important influence, in *chronic* malarial disease (as obstinate intermittent), of *iron*, as a remedy.

Treatment.—The discovery of pigmentary degeneration or deposit in the blood, or the supposition of its occurrence in the liver or other organs, does not afford any new or special indication for treatment, beyond what the other conditions of the case present. The malarial poison is to be antagonized, and the system is to be aided in restoring the disturbed organs and functions to their normal balance; the appropriate means for which ends will be considered under other heads.

CIRRHOSIS.

Synonyms.—*Hob-nailed liver*, *gin-liver*.
Anatomy and Pathology.—In its commencement or first stage, cirrhosis is attended by some increase in the bulk of the liver;

¹ Meigs and Rhoads, Pennsylvania Hospital Reports, vol. i. 1868.

with increase also of its firmness. When the disease is more advanced, the organ lessens in size, especially the left lobe; the induration becomes aggravated. Knobs or granulations (nutmeg liver) project all over its surface. The capsule of the liver is always thickened.

The character of these alterations is believed to be due to the new formation of connective tissue, in the ramifications, through the gland, of Glisson's capsule. Bands of this material constrict the lobules, obstructing the bloodvessels and bile-ducts, as well as the gland-cells. Thus divers effects are produced. Commonly the subdivisions of the portal vein are diminished in size, or obliterated; those of the hepatic artery enlarged; and those of the hepatic vein unchanged. The biliary ducts are at first distended by partial obstruction, causing repletion of the cells; afterwards both cells and ducts may be in considerable part destroyed. The color of the granulations is dark or pale yellow. Along with these changes, in many but not in all cases, fatty or waxy degeneration of the liver-structure ensues.

Inflammation of the capsule of Glisson and its interstitial ramifications has been considered by most pathologists to be the primary element of cirrhosis. Without feeling at all certain of the correctness of this view, I am unable to suggest any other to take its place, without entering upon a discussion too complex for our present purpose. The principal doubt is, in regard to the change which occurs being properly designated as an inflammation.

Symptoms.—Nausea and indigestion, with a furred tongue and slight yellowness of the skin and eyes, are the earliest (of course not pathognomonic) manifestations of this disease. Afterwards, mostly with slow progress, come constipation, vomiting, emaciation, debility, ascites, with or without general dropsy, and enlargement of the superficial abdominal veins. This last sign is especially significant of obstruction of the hepatic circulation. Towards the close of life, hemorrhage from the stomach or bowels, delirium, coma, or convulsions are apt to occur.

Diagnosis.—From acute congestive or inflammatory affections of the liver the slow progress of cirrhosis readily separates it. From fatty and waxy liver, and from cancer, it is distinguishable, though not always with ease, by the continued enlargement of the organ in those affections; while they are also less constantly attended by dropsy and enlargement of the abdominal veins. The spleen is often enlarged in cases of cirrhosis. This, however, occurs also when the portal vein is inflamed or obstructed, either by coagula or by pressure. There is, in that case, apt to be compression of the bile-ducts, producing decided jaundice, with clay or slate-colored stools. Chronic peritonitis is sometimes difficult to diagnose from cirrhosis; but in the former there is more abdominal tenderness, and less enlargement of the superficial veins.

Prognosis.—Recovery from cirrhosis of the liver is not to be expected; but its duration varies greatly, and may be favorably modified by regimen and treatment.

Causation.—Although malarial influence and syphilis may predispose to it, the special cause of cirrhosis is believed to be alco-

holic poisoning. It is one of the most common results of continued intemperance.

Treatment.—Having the hope only of palliation and delay, we must, most of all, prevent the persistent action of the cause, by enforcing abstinence from spirituous liquors. Nourishing diet is at the same time very important. Milk, if well digested by the patient, meat, or concentrated liquid animal food, as beef-tea, chicken-broth, etc., will be suitable. The secretions must be attended to. Saline laxatives, especially the bitartrate of potassium, will often be useful. Bitters or other stomachics may be called for to relieve nausea and strengthen digestion. Dropsy may sometimes require tapping. Habershon¹ advises that this be done early, rather than to trouble the patient with long-continued medication for the removal or diminution of accumulated fluid.

FATTY LIVER.

This form of degeneration is not uncommon in intemperate persons or in those suffering from prolonged debility, as in phthisis. Perhaps its association with the latter disease is the most frequent.

In its **diagnosis**, beyond the fact of enlargement of the liver with smooth margin and surface, in an enfeebled constitution, unaffected by the symptoms of other hepatic disorders, unless it be slight jaundice, there is nothing positive. The change may go on undiscovered even by a careful observer, until after death.

Anatomically, the liver-cells are gorged with oil; their nuclei being destroyed or obscured. With enlargement, the whole organ presents a pale and flabby as well as greasy aspect; and the latter property is obvious to the touch.

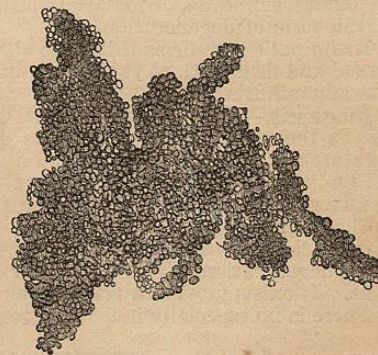
There is no **treatment** especially appropriate to this affection, other than what the constitutional state will point out.

WAXY LIVER.

Synonyms.—*Amyloid*, *lardaceous*, *colloid* degeneration of the liver.

This is often an accompaniment of fatty degeneration; but also occurs quite frequently without it.

Fig. 76.



Fatty degeneration of liver.

¹ On the Pathology and Treatment of some Diseases of the Liver; London, 1872.

Anatomy and Pathology.—The waxy liver is pale or mottled in hue, and, when cut, smooth, hard, and dry. It is heavier than natural. The degeneration probably begins in the lobular ramifications of the hepatic artery, and extends to the secreting cells. Under the microscope these are found to have a pearly look, and to have lost their cell-walls and nuclei. The acini or lobules remain very distinctly marked out.

Fatty degeneration may coexist with the waxy; and hence they have been confounded together. The weight of the liver is modified (made lighter) by the presence of fatty degeneration.

The term *amyloid* has been applied to the waxy or colloid change because of a starch-like chemical reaction of the degenerated material; which becomes mahogany red (instead of yellow) with a solution of iodine. It is hardly to be said that the chemical discussion on this point has yet ended.

Symptoms and Physical Signs.—Anæmia, emaciation, and dropsy (with often vomiting or diarrhœa, but little or no jaundice), unexplained by other local or general causes, and occurring in a scrofulous, syphilitic, or malarial diathesis, may justify a suspicion of this form of degeneration.

Examination confirms this if we also find the liver uniformly enlarged and firm, with at the same time enlargement of the spleen and albuminuria.

Diagnosis.—Fatty liver does not exhibit so much increase in size as the waxy, and the latter is of a softer consistence upon pressure; splenic enlargement and albuminuria less often attend it; and the same is true of dropsy. Syphilitic inflammation of the liver differs from it in presenting prominent nodules upon the surface of the organ.

Causation.—Syphilis is the most common predisposing cause of waxy degeneration. The tubercular constitution probably comes next. It exists most frequently in males.

There is no especially indicated **treatment** for this affection.

SYPHILITIC LIVER.

Among the organic affections now recognized as displaying locally the effects of the syphilitic diathesis, is a form of chronic hepatic inflammatory degeneration; that is, inflammation followed by a specific organic change of structure.

Anatomically, the liver is somewhat enlarged; with an uneven surface, from cicatrices alternating with nodules. This unevenness may be felt upon palpation through the wall of the abdomen. The patient is pale, but not jaundiced; and dropsy is not present as a symptom, unless from other organic causes.

In **diagnosis,** syphilitic liver is to be distinguished from *cancer* of the liver by the smaller size and softer consistence of the projecting nodules in the former, the absence of tenderness on pressure, and the presence of the signs of general syphilis; as the marks of cicatrized ulcers in the throat, copper-colored blotches upon the skin, or nodes upon the bones.

CANCER OF THE LIVER.

Mostly in middle life, but occasionally even in the young, cancer of the liver occurs, and has a more rapid progress than most cancers. The *symptoms* are, pain in the right side and shoulder, with tenderness in the right hypochondriac region, disorder of the stomach and bowels, rigidity of the abdominal muscles (especially the *rectus*), debility, emaciation, a cachectic aspect, and ascites or general dropsy. Sometimes, however, there is a remarkable absence of pain and of other symptoms, until a comparatively short period before death.¹ There is usually little or no jaundice.

Physical exploration shows dulness on percussion below and above the usual limits of the liver; and on palpation, irregular prominences, hard in most cases, but sometimes, in encephaloid cancer, soft and elastic. The enlargement may become very extensive, and then all the effects of pressure upon the portal vein, etc., are observed.

Dr. Huger, of Alabama, reports a case in which a cancerous liver was found after death to weigh 15 pounds 10½ oz. avoidupois. (Charleston Med. Journal, April, 1874.)

This disease is always fatal; affording no room for other than merely palliative treatment. Its duration is often less than six months; seldom more than a year.

HYDATIDS.

These are elastic tumors, consisting of *cysts*, developed around *echinococci*. The latter are the larvæ or immature progeny of a *tenia*; they are found not only in the liver,² but also in the brain, muscles, bones, ovary, uterus, kidneys, lungs, heart, spleen, etc. The sac or cyst grows slowly, and may exist for years without great disturbance of the health. If any symptoms occur, they are indigestion, debility, and dropsy.

Hydatids are discovered upon inspection and palpation; the liver being considerably enlarged, so as to press up the diaphragm and right lung, or to sink far down into the abdomen. On percussion, besides an irregular line of extended dulness, a peculiar jelly-like vibration is sometimes perceptible by the finger used to percuss upon. If the tumors be so near the surface and so evidently elastic as to warrant the operation of exploration with a grooved needle, the fluid drawn out will be very characteristic. It is colorless, of specific gravity not much above that of water (1007–1010), and free from albumen; it contains a large amount of chloride of sodium.

Sometimes the entozoa within the cyst die, and the sac collapses and disappears. In other cases it bursts and is discharged into the alimentary canal, the lungs, or externally through the abdominal walls. Slow recovery may then be anticipated. Danger always exists, however, that the hydatids may open into the pleu-

¹ See cases reported by Drs. Glynn and Carter, of Liverpool; Med. Times and Gazette, Dec. 13, 1873.

² Of 508 cases of hydatids, Cobbold and Davaine found the liver to be affected in 216.

ral or peritoneal cavity, producing pleurisy, or peritonitis. In a few instances suppurative inflammation occurs in the cyst.

In the **treatment** of hydatids some physicians have been disposed to confide in the supposed power of iodide of potassium, and of chlorate of potassium, taken internally, to cause the absorption of the fluid of the cyst, and thus destroy the parasite. But the evidence does not appear to me to be sufficient to justify such confidence.

Very large and superficial hydatids may, when the diagnosis is clear, be *tapped*, with at least temporary relief to the patient. Should this be safely done without cure, it may be repeated, and then a gum-elastic tube may be introduced and retained in the opening, so as by drainage to induce the shrinking of the cyst and thus the destruction of the *echinococcus*. Dr. Pavy reports success in one case with injection of male fern into a hydatid cyst of the liver; its anthelmintic or parasiticide power seeming to be thus shown. Skoda has reported the cure of a case of large hydatid in the *left* hypochondrium, by injections of solution of iodine, left in each time for thirteen minutes.

TUBERCLE OF THE LIVER.

Primary tuberculization of the liver is never met with. In patients dying with phthisis, not unfrequently miliary tubercular deposits are found scattered over the gland; they rarely soften, but sometimes small *vomices* are met with. It is of course necessary to be aware of the possible existence of such formations, in the consideration of the morbid anatomy of the liver.

DILATATION OF THE GALL-BLADDER.

This may be produced by obstruction of the gall-duct or the common bile-duct, or, more rarely, by a morbid formation of serous fluid within it, allied to a local dropsy. The diagnosis of this may be important, as it may be readily confounded with hepatic enlargement. It is to be distinguished from cancer by the great amount of jaundice (in most cases), the previous occurrence of gall-stone colic (also not invariable), and the more uniform and softer character of the swelling. From hydatids the same signs, except the softness of the tumor, are distinctive; and the latter grow much more slowly.

For the **treatment** of dilatation of the gall-bladder, the remedies suitable for obstruction of the biliary ducts will be appropriate. Surgical interference would, in any case, be very bold practice; unless, perhaps, by pneumatic aspiration.

Perforation of the gall-bladder or gall-duct now and then occurs, from prolonged obstruction and dilatation. This must prove fatal (as in a case referred to upon a previous page) by the production of peritonitis, from the escape of bile into the peritoneal cavity.

Gall-stones are alluded to under "Bilious Colic."

AFFECTIONS OF THE SPLEEN.

These are necessarily treated of at length in systematic treatises. It will be enough for our purpose to say a very few words of them. The spleen is commonly **enlarged** in *intermittent*, *remittent*, and *typhoid* fevers, and in *leucocythæmia*; sometimes, in pregnancy (Simpson.) **Rupture** of the spleen, causing death, has been several times reported. Such an affection (*i. e.*, rupture of the spleen) could scarcely be diagnosticated during life.

Enlargement of the spleen is readily ascertained by inspection and palpation. It often increases and diminishes, during and between the paroxysms of intermittent (ague-cake). Piorry asserts its *rapid* diminution under cinchonization. Other affections of the spleen (**inflammation**, **tubercle**, **hydatids**, etc.) are so generally difficult of diagnosis as to have chiefly a post-mortem interest; and they present no clearly recognized indications for treatment. A case has been reported¹ in which the spleen was removed entirely; yet the woman recovered and seemed to have good health.

AFFECTIONS OF THE KIDNEYS AND BLADDER.

CONGESTION.

Causation—Under exposure to cold, overdoses of cantharides or turpentine, or the disturbance belonging to different inflammatory and febrile complaints, *active* renal congestion may occur. *Passive* congestion is more common in heart-disease, or pulmonary obstruction, as by pleuritic effusion or emphysema, or when pressure impedes the circulation in the renal veins or ascending vena cava, as in pregnancy or abdominal tumors.

Symptoms.—Pain in the lumbar region, sometimes with tenderness on pressure on each side of the spine. Scanty urination, the fluid being high-colored, sometimes bloody, or containing albumen. Certain cases exhibit under the microscope fibrinous casts; epithelial cells are commonly met with.

Diagnosis.—It is only occasionally difficult to distinguish this condition from Bright's disease. Active congestion begins abruptly under a recognizable cause. Passive congestion shows a dependence upon some other organic affection, and, although variable, is not progressive. They are thus distinguishable from advancing and more or less permanent disease of the kidneys.

Treatment.—For active congestion, cupping the lumbar region is proper, abstracting blood in amount proportioned to the state of the patient. Purgation may follow, by castor oil or citrate or sulphate of magnesium. Then, the warm bath or hip-bath, continued for some time.

¹ London Med. Times and Gazette, Dec. 7, 1867. This is less extraordinary than Prof. G. Simon's case (Deutsche Klinik, April, 1870), in which he extracted successively the left ovary, the uterus, and the left kidney; and the patient recovered.