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THE CONCEPT OF ASSIMILATORY SYSTEM OF PAULESCU DATING FROM 1912

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VII – THE LIVER

SECTION II

PATHOLOGY

Hepatic disorders, or *hepatopathies*, as those of other organs, divide into several categories, according to their producing causes, namely:

1. hepatopathies caused by physical agents;
2. hepatopathies caused by chemical agents;
3. hepatopathies caused by biotic agents;
4. neoplasic hepatopathies;
5. hepatopathies of vascular origin;
6. hepatopathies of nervous origin.

These hepatic disorders are completed by affections of bile ducts, *colopathies*.

CHAPTER I

HEPATOPATHIES CAUSED BY PHYSICAL AGENTS

Liver traumas include two types of accidents: concussions and lesions.

ARTICLE I – LIVER CONCUSSIONS AND RUPTURES

Etiology and pathogenicity – These accidents are caused by shocks suffered in the region of the right hypochondrium (kicks, violent pressure, crushing, crushing of two carriages and, more rarely, fall from high buildings, serious pelvic concussion etc.).

The increase of liver volume and the decrease of the consistency of its parenchyma create a predisposition to such lesions; thus, the liver, congested in blood stasis or steatosed by alcoholic poisoning, will break more easily than the sclerosed organ of a wine drinker.

Men, who carry out more difficult activities, are more prone to such accidents than women.

Very young children and especially new born babies are prone to hepatic ruptures during obstetric maneuvers.

Pathologic anatomy – Liver concussions are due to usually reduced wear of the glandular parenchyma and are accompanied by blood spreading under the capsule.

Sometimes ruptures or rifts occur, of smaller or larger depth, with torn edges, full of blood. In this case, the central veins of the lobes are open; but the vessels contained in the portal spaces remain valid, which makes the hemorrhage more abundant.

Ruptures can occur at a smaller or higher depth and can affect the entire width of the organ; it also happens that the glandular tissue be absolutely crushed and hepatic fragments enter the veins forming cardiac and pulmonary embolisms.

These lesions heal by proliferation of the conjunctive tissue of the lesion edges, the neighbouring hepatic cells being damaged for a certain portion.

Liver ruptures are sometimes accompanied by lesions of the bile ducts and rupture of the gallbladder, especially if this reservoir is bloated. In this case, bile and blood drain in the abdominal cavity, which can generate peritonitis.

Symptomatology – The beginning of clinical phenomena translates into a condition of syncope, with collapse and slow pulse. These symptoms are followed by acute pain, originating in the hypochondrium which irradiates to the back,

towards the right shoulder; gastric intolerance; bilious vomiting; sometimes jaundice and hiccups.

When the hemorrhage is abundant, the result is excessive anemia, with dyspnea and pulse frequency.

When the rupture of bile ducts causes bile overflow, it collects in the right iliac fossa or the pelvis and, if it is not aseptic, it generates purulent peritonitis.

In mild cases, the overflown blood resorbs and healing occurs in several days. But if an important vessel is affected, death occurs through a syncope; if the liver is crushed the patient dies in the initial collapse.

Semiology – Setting a diagnosis is sometimes very difficult, since the liver often goes unnoticed in large traumas of the abdomen and only exploratory laparotomy can give a hint of the seriousness of the lesions. However, a few phenomena such as the place of cutaneous concussions, hepatic pain with irradiation towards the right shoulder and especially signs of intense hemorrhage assist in setting the diagnosis.

The prognosis depends on the scope of disorders and the complications that can occur (hemorrhages, peritonitis).

Treatment – Stimulating massages, injections with ether and caffeine, artificial serum shall be used against collapse. In the presence of continuous and abundant hemorrhage, laparotomy and rupture bandaging are necessary.

A 16 year old boy, whose abdomen was crossed over by a heavy truck, complained of pains in the lower part of the abdomen and the right shoulder. He was subject to a laparotomy which revealed that there was a collection of blood in the abdomen caused by a cracking of the lower surface of the right liver lobe, close to the anterior edge. He was bandaged and, 15 days later, healing was complete (TZEIDLER).

If there is also a rupture of bile ducts, the walls of the ducts must be sutured and aseptic washings of the abdominal cavity must be carried out.

ARTICLE II – HEPATIC LESIONS

Etiology and pathogenicity – Hepatic lesions are produced by instruments that sting or cut and by fire arms, during wars, duels, being often the consequence of attempted murders.

Usually, the liver is relatively protected by the margin of the ribs; but when it increases in volume, a large portion is exposed to the harmful agent. The gallbladder filled with bile and calculi is also more easily hurt.

Men are more exposed then women, given their occupations; children whose liver exceeds the costal margin are also exposed to such accidents.

Pathologic anatomy – The liver lesions caused by a sharp instrument (screw, thrill etc.) consist in removal of the parenchyma and hemorrhage which, most often, stops spontaneously, when important vessels are not affected. However, if the lesion was made with a dirty instrument, a hepatic abscess and even purulent peritonitis can occur.

Lesions caused by cutting instruments (swords, knives etc.) vary depending on the harmful agent and the force of the impulse they had at the time of the accident. Generally, the lesion is wide and deep, with clear edges; the blood streams more or less abundantly, depending on the importance of affected vessels and causes death almost immediately if a large blood vessel is opened (portal vein, as was the case of President Carnot). Bile duct lesions trigger bile overflow in the abdominal cavity. Fire arms cause lesions, variable with the volume and force of the projectile. These lesions have the form of a concussion, a ridge or a channel; sometimes, the bullet enters the parenchyma and remains in the liver, other times, it partially perforates and leaves a small and round entry orifice and a wide and rugged exit orifice. If the projectile is large, like a splinter, the liver can be crushed and then detached fragments of the gland aspired by cardiac contractions form pulmonary embolisms (ZENKER). Hemorrhages are fewer in this case, since lesions caused by clear weapons – which refers to the cauterization determined by the bullet in its trajectory; but consideration should be given to secondary hemorrhages caused by eschars. These liver lesions are usually accompanied by lesions of the gallbladder and bile ducts, rupture of important blood vessels, neighbouring organs, such as the stomach, the intestines and sometimes fractures of the ribs or spine. In some cases, since the projectile pushed forward more or less clean fragments of clothes, septic accidents occur which manifest as an abscess or peritonitis.

The blood and bile spread in the peritoneal cavity collect in the right iliac fossa; if these liquids are aseptic, they resorb themselves; if not, they cause lethal peritonitis.

Symptomatology – The initial phenomena of liver lesions consist of syncope, with more or less serious collapse, alteration of the face, frequency

and weakness of the pulse. In some cases, such disorders do not lead to the identification of hepatic lesions.

These phenomena are completed by a lesion of the abdominal wall, pains in the hypochondrium irradiating towards the right shoulder and more or less abundant hemorrhage which translates into pale skin, oozing of the ears, lipotomies etc. If the lesion affects an important blood vessel, the hemorrhage leads to sudden death and when the lesion is of average size, it can, under certain circumstances, continue until the patient dies.

It is the case of a 45 year old patient who was looked after by us for paludic aortitis, with crises of pectoral angina, cardiac insufficiency, right heart dilation, hyperemia and increase of the liver volume. This organ, whose anterior edge lowers up to the navel, generated intense pains which, one night, drew the patient to thrust in two places, in the epigastric region, a large knife with sharp blade. He rapidly lost consciousness and revealed in the epigastric region two small lesions 1 cm long and 1 mm wide, that bled very little. The face was slightly pale and the pulse almost normal. The patient, who regained consciousness under the influence of an ether injection, complained of pains in the epigastrium, which is calmed down with a morphine injection. For more than one hour, the pulse was fine and there did not seem to exist any liquid accumulation in the abdomen. The doctor on duty, considering the lesion was insignificant, thought that surgery could be postponed. The patient fell asleep; but towards the middle of the night, he woke up, stood up, then suddenly turned pale, fell to the ground and died. The necropsy revealed the existence of a considerable amount of blood between the liver and the anterior abdominal wall, where it formed a clot the size of a child's head. The liver, highly congested, weighed 2 kg and revealed, on the upper surface of the left lobe, close to the suspensor ligament, two small lesions covered by coagulated blood. They were less than 1 cm long; but one of them was 1 cm and a half deep and the other more than 3 cm deep. The other organs did not reveal anything worth mentioning.

In another case, the hepatic lesion bled for two hours after the accident (DALTON).

In a patient who received a knife blow, the blood was still running from the liver lesion when the surgery took place, which had occurred 11 hours before (ADLER).

The evolution of these accidents varies with the localization and size of the lesion. A lesion located close to the hilum or the posterior edge (ramification of the hepatic veins) produces more blood than another which occupies the upper surface or the anterior edge of the liver. If the lesion is wide and deep, the hemorrhage is abundant and the patient dies in a syncope; sometimes, his condition seems excellent and nothing suggests a liver lesion. It is important to know that, in certain situations, for instance during digestion or in the case of the stasic congestion of the organ, hemorrhage does not stop spontaneously and, in the absence of any intervention, death occurs.

Sometimes jaundice occurs and if the lesion is septic, the patient is seized by fever and prostration which persist until the abscess is opened.

Semiology – Liver lesions are diagnosed considering the place of the external lesion, its direction, depth, the draining liquids (bile), the pain irradiating towards the right shoulder, the abundance of the hemorrhage. In difficult cases, only laparotomy can completely clarify the issue.

The prognosis, very serious when an important blood vessel is affected, must always be reserved. The seriousness depends on the hemorrhage, the injury of bile ducts and septic accidents.

Treatment – The first indication is to stop the hemorrhage; for this, laparotomy must be carried out and the lesion must be sutured and bandaged. Foreign bodies must also be removed (remains of clothing, bullets etc.), the affected bile ducts must be sutured or bandaged and the peritoneum must be washed with aseptic water.

The pain is fought against with opiates, while collapse, with ether or caffeine injections.

In some cases, if surgery is difficult, prevention of hemorrhagic accidents should be sought by helping the blood coagulate more easily with subcutaneous gelatin serum injections (5 gr. for 200 ml NaCl solution 7 at 1000)[1].

The physician must take into account the low tendency of the hemorrhage to stop spontaneously and its continuity, which can develop into a syncope. Recent research has revealed that the ability of hepatic blood to coagulate is one of the most complex. During experiments on animals, one of us[2] noticed, contrary to LEHMANN's statement, that the hepatic blood coagulates; but when we examined comparatively the blood of the portal vein, that of hepatic veins and that of general

[1] Lancereaux şi Paulesco *Bull. de l'Acad. de Médecine*, 1897.

[2] Paulesco, *Archives de physiologie,* Paris, ianuarie 1897, p. 21.

circulation, we noted differences in coagulation depending on digestion stages. In dogs, after three days' fast, the coagulation rate of the hepatic and portal blood is almost equal to that of the blood in general circulation; while after a copious meals with meat, the coagulation rate of the hepatic blood and especially the blood of the portal vein is considerably delayed. Such research has its importance; it deserves at least to be considered in therapeutic indications and in the prognosis of liver lesions. Spontaneous hemostasis, very serious in humans, is even more serious if the accident occurs shortly after the meal.

ARTICLE III – HEPATOPATHIES CAUSED BY INSOLUBLE POWDERS
(Syn. Anthracosis cirrhosis)

Some irritating substances, such as insoluble coal powders, when absorbed by the portal vein, can cause lesions pretty similar to those of wine drinkers' cirrhosis. This disorder, which did not draw physicians' attention, was first described by one of us[3].

Etiology and pathogenicity – Coal powders swallowed and introduced in the digestive tube infiltrate in the intestinal walls, in the mesenteric artery, in the epiploons and, through the portal vein, reach the liver; there, they impregnate the conjunctive tissue which they irritate and lead to the appearance of a new tissue and cirrhosis.

Copper melters and miners are mostly exposed to this disorder, being forced to live in an environment where the air contains abundant coal powders; they inhale through the respiratory and digestive paths these particles, whose presence determines pulmonary and hepatic sclerosis.

Other insoluble or precipitable substances can generate the same effects; thus, dust naphtha and silver nitrate can cause cirrhosis. A man suffering from epilepsy, who was subjected for 4 months to a treatment with silver nitrate, later revealed a grey coloration of the skin and, following death due to pulmonary tuberculosis, we discovered that the liver had dark spots, which was the results of metallic deposits around the ramifications of the portal vein.

The chemical analysis showed that the liver contained 0.009 gr silver chloride (FROMMANN).

Pathologic anatomy – The liver lesion resembles wine drinkers' cirrhosis. This organ is tough, with unequal surface, irregular cuts which look like islets of the parenchyma surrounded by sclerosed tissue.

The cuts are much more spread than those of wine drinkers, which are small and almost equal.

Symptomatology – The clinical manifestations of this hepatitis are often latent. However, the digestive functions are disturbed and diarrhea and meteorism are present. Sometimes, in advanced cases, ascites and jaundice occur.

The evolution of this cirrhosis is chronic; but since the lungs are usually more affected than the liver, they are the cause of death.

Semiology and treatment – It is very difficult to diagnose this form of cirrhosis, since it is necessary to differentiate it from other types of cirrhosis, but also from blood stasis of the liver.

The prognosis is generally not very serious, being less serious than the simultaneous disorder of the lungs.

The treatment consists in suppressing the cause and prescribing a milk-based diet and potassium iodide.

CHAPTER II
HEPATOPATHIES CAUSED BY CHEMICAL AGENTS

Many chemical substances introduced in the organism mainly focus their action on the liver.

Some *corrosive agents*, especially alkaline and strong caustic acids, swallowed by mistake or for suicidal purposes, can penetrate the stomach walls and cauterize the liver surface which is in contact with this organ, as we noted in a woman who had swallowed concentrated sulfuric acid.

But *toxic agents* preferably attack the liver. Most of them alter the hepatic cells; thus, phosphorus, arsenic, antimony, ammoniac, mercury, some acids, oxalic acid in particular, alcohol, chloroform etc.

Other chemical agents, on the contrary, seem to be an exception to the rule according to which toxic substances focus their action on the nervous system and glandular epithelium (see vol. I page. 43) – and attack the conjunctive-vascular tissue similar to parasites and microbial agents; some substances contained in wine act this way.

We will study in detail the disorders caused by phosphorus ad alcohol and this study will serve to describe the action of other metallic and organic agents, which is similar to that of these bodies.

[3] E. Lancereaux, *Atlas d'Anat. path.*, Paris, 1871, p. 62, pl. 6, f. 1.

Then we shall pass to the study of wine drinkers' cirrhosis.

ARTICLE I – HEPATOPATHY CAUSED BY PHOSPHORUS

Etiology and pathogenicity – This disorder, which is the result of murder or most often a suicidal attempt, is usually caused by the intake of match paste or phosphorus paste which serve to destroy pests (see vol. I, page. 67).

Pathologic anatomy – In phosphoric poisoning, the liver is tumid, smooth, with soft and pasty consistency; it acquires a characteristic yellowish or brown hue. This color is sometimes partial, at least at the beginning of poisoning; in a personal case[4], in a young man poisoned with phosphoric matches, the hepatic gland was spread with large plaques of a beautiful yellow, slightly in relief, surrounded by a congestion area with small bruises.

The glandular cells, tumid and disturbed, reveal numerous protein or fat drops which blur the nucleus; sometimes, they are completely destroyed and their protoplasm is turned into a amorphic, granular and fat magma.

The blood vessels and the conjunctive stroma do not usually reveal significant changes. However, in intense poisoning, the conjunctive-vascular tissue is altered and small hemorrhagic centers (bruises) are visibly spread in the glandular parenchyma.

The spleen is turned into a blood pond. The kidneys present lesions similar to those of the liver. Muscular fibers are the location of a granular-fat transformation of the striated substance (see vol. I, p. 68).

Symptomatology – The first manifestations of phosphorus poisoning are a sensation of burning in the epigastrium, stomach pains of various intensity, vomiting, diarrhea. These phenomena are accompanied by alteration of the features, a condition of strong weakness and drowsiness. In 24-36 hours, a moment of temporary calm occurs, followed by accidents of functional hepatic and renal insufficiency.

In this case, mild jaundice occurs, which sometimes worsens coloring the skin in yellow, a moment which coincides with the volume increase of the liver. The urine, little abundant and full of albuminoids, has an red hue and creates reaction of the bilirubin (reaction of Gmelin); the feces are pale and rarely discolored.

Jaundice is accompanied by greenish vomiting and multiple hemorrhages: purpura, epistaxis, hemoptysis, hematemesis, melena, hematuria, etc.

These accidents are competed by vague pains in the muscles of the limbs and trunk. Then the pulse weakens and increases in frequency, the respiration becomes more accelerated, the urine drops and even disappears. The tongue dries, the temperature drops to 36° or lower, adynamia becomes excessive; patients are weakened: lying in the bed, they are incapable of getting up. Calm delirium installs, consisting of incoherent words, with attempts to reject the blankets and get up. In the end, the patient enters a profound coma and dies.

The evolution of this type of poisoning has three stages: the first is only digestive, the second corresponds to an alteration of the organs, the third refers to the functional insufficiency of the liver, kidneys, heart etc. The duration is generally short, death occurring between 5 to 7 days, 2 or 3 days after the jaundice installs.

Healing is not impossible. A young woman[5] who tried to commit suicide by swallowing water where she boiled the phosphorus of matches was seized by epigastric pains accompanied by vomiting and cold extremities. Then bruising stains appeared, as well as albuminuria and jaundice. On the fifth day, albuminuria diminished and healing was complete a few days later.

However, death is the most frequently met ending of this poisoning.

Semiology – It is often very difficult to diagnose this type of poisoning. In the case of the attempted suicide, the patient refuses to provide all the information items on the cause of the disorder and in attempted murders the patient is not aware that phosphorus was mixed with his food. Acute phosphorism is often considered serious jaundice; the best way to avoid errors is to obtain information on the existence of epigastric pains and to carry out chemical tests of vomited matters.

The prognosis is serious.

Treatment – Initially, the treatment consists of emptying the stomach from the poison it may contain (emetic drugs, stomach irrigations) and forbidding the use of milk and fat products capable to dissolve the phosphorus.

[4] E. Lancereaux, *Traité des maladies du foie et du pancréas,* Paris, 1899, p. 451.

[5] E. Lancereaux *Traité des maladies du foie et du pancréas,* Paris, 1899.

In the second stage, the indications of several physicians should be followed, who recommend turpentine essence in a dose of 4 gr., tablets or liquid.

In the last stage, hepatic and renal insufficiency must be fought against through the usual methods (see page. 1037).

Hepatitis caused by arsenic (vol. I, page. 73), *antimony* (vol. I, page. 78) and mercury salts (vol. I, page. 117) is similar to that produced by phosphorus poisoning.

Alterations are localized on the glandular cell which tends to be destroyed; more seldom, these poisons also attack the conjunctive stroma.

The symptoms of this form of hepatitis are similar to those of phosphorus poisoning. But in this case, especially mercury poisoning, there is alteration of kidneys which dominates the scene and kills the patient through uremic disorders.

The diagnosis must rely on information provided by the patient and the chemical test of vomited substances.

The prognosis is very serious.

The treatment varies with every poison (see vol. I, p. 74, 80, 117).

ARTICLE II – ALCOHOLIC HEPATOPATHY[6]

(Syn. Alcoholic liver adiposis)

Etiology and pathogenicity – The usual cause of these hepatopathies is the abuse of alcoholic drinks which also generates general adiposis[7]. Since alcohol excesses slightly irritate the conjunctive tissue, they do not cause cirrhosis, as is generally thought, but a fat overloading of the liver.

The action of alcohol mainly manifests in individuals leaving a sedentary life, in a poorly ventilated space or in people who work in overheated workshops. Emphysema, which reduces the pulmonary activity, and tuberculosis, which is also an effect of alcoholic excesses, are among the circumstances creating a predisposition for this disorder.

Pathologic anatomy – Fat, tumid and dense liver has obtuse and rounded edges; its increased weight sometimes reaches 2, 3 or 4 kg. It has low density, which can be lower than that of water, on which it floats. It has smooth consistency, a dull yellow color similar to dry leaves and a slightly irregular shape.

Glandular cells are the exclusive location of adiposis; fat deposits as drops which increasingly thicken, covering the entire protoplasm, as well as the edges of the nucleus. Moreover, drinkers' fat liver suffers sometimes from conjunctive thickening of portal spaces, caused by wine abuse.

Under the circumstances, hepatic cells increase in volume and are pressed by mutual pressure; their content is soluble in ether. They continue to live, but their function is reduced; although the adiposis of these elements is less to fear than the fat transformation of their protoplasm, it is still the source of potentially lethal accidents.

Besides liver lesions and an irritation of the digestive tube, alcohol determines a considerable *adipose overloading* of the conjunctive tissue under the skin, around the heart, the pancreas, the kidneys, in the mesenteric artery, in epiploons etc.

Symptomatology – Hepatic adiposis has an insidious start and its initial manifestations go unnoticed.

The first visible signs suggest alcoholism (see vol. I, p. 131), consisting of digestive disorders, morning pituitary symptoms and nervous disorders: analgesia of extremities, tingles and leg cramps, trembling muscles, insomnia, terrible nightmares and even delirium.

In a more advanced stage, progressive anemia occurs which can become profound and can be accompanied by loss of strength, swollen face and edemas of the trunk or legs.

Multiple hemorrhages are often possible: purpura, epistaxis, hematemesis, melena, etc.

At the same time, the composition of the bile is altered and contains very few pigments; the feces are discolored and this phenomenon, in the absence of jaundice, represents a highly significant sign for setting the diagnosis. The result is loss of appetite, slow digestion, meteorism, sometimes diarrhea.

If the abdomen is touched, we discover that the liver has a soft, smooth and regular consistency and the free, dense and rounded edge goes down under the false ribs and sometimes reaches the iliac.

In wine drinkers, we may not find hepatic tumefaction; but in this case, the spleen grows and ascites occurs, which are the consequences of liver cirrhosis.

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[6] E. Lancereaux, Altérat. graisseuse du foie, etc.; *Soc de Biologie*, Paris, 1860, I, 290.

[7] We shall call *adiposis* the accumulation of fat in the glandular hepatic cells, keeping the name *steatosis* for the fat transformation of cell protoplasma.

Finally, weight loss and prostration increase; a state of delirium installs and the patient falls into marasmus and dies in a coma.

The evolution of this disease is slow; its duration is usually several years. The end is often lethal; however, healing is not impossible.

Semiology – Setting the diagnosis, which is almost impossible, when hepatic adiposis is light, is easy when the liver has increased volume, if the spleen is slightly tumid, if there is progressive anemia with discoloration of fecal matters, no jaundice, and if there are multiple hemorrhages. However, we must not mistake this disorder for pernicious anemia, hemophilia etc.

The prognosis is always serious; it is unsettling when anemia and hemorrhages are consecutive.

Prophylaxis and treatment – Prophylaxis consists in avoiding alcoholic excesses. The treatment must follow the burning of fats recommending cold hydrotherapy (lotions, showers), and muscular practice. Purgatives and alkaline substances must also be used (Vichy, Calsbad, Vals, Royat waters).

Chronic poisoning with *ether*, *chloroform* generates fat hepatitis similar to that of alcoholic origin.

In some animals (geese, dogs, pigs etc.), over-abundant feeding, very rich in fats and carbohydrates, combined with absolute rest generates general adiposis, mainly hepatic adiposis. But such situations are not met in humans, and, in fact, there is no fat liver overloading in man besides alcoholic poisoning.

ARTICLE III – HEPATOPATHIES CAUSED BY WINE ABUSE

(Syn. Enolic cirrhosis,
So-called alcoholic cirrhosis)

Liver cirrhosis, which has been deemed univocal until recently, was decomposed by one of us in 1864[8] into several cirrhotic stages, each with distinct etiology and special anatomic and clinic physiognomy, as well as determining evolution. There is *alcoholic, paludic, syphilis* cirrhosis, as well as cirrhosis caused by insoluble powders.

This classification was not accepted and several authors, in dividing types of cirrhosis, attempted to rely not on etiology, but solely on the liver volume, a classification which still prevails and is still adopted by many physicians to date.

Starting with 1876, we found out that alcoholic cirrhosis is sometimes atrophic, other times hypertrophic, and later we learned that, during the evolution of cirrhosis, the liver grows and then decreases in volume.

At the same time, we demonstrated that the real cause of alcoholic cirrhosis is the *consumption of wine* and soon after, relying on experimental research, we reached the conclusion that, out of the substances that enter the composition of wine, potassium saults are responsible for cirrhosis etiology[9].

Etiology and pathogenicity – For over 30 years, we have been claiming that wine excess is the cause of enolic cirrhosis, contrary to the general belief which still currently states that it is alcoholic abuse.

Our observations of more than 250 cases reveal that in Paris, wine is the factor which must be incriminated, since wine excess is always met in all the cases, without exception.

In fact, in France, cirrhosis, common in Paris and vineyard areas, is rare in counties (Normandy, Bretagne) where the consumption of wine is replaced by that of a high consumption of spirits. The same happens abroad, and wine growers on the shores of Lake Leman and the surrounding areas of Lausanne are prone to liver cirrhosis. In England, Holland, Germany, Russia, where wine consumption is low, at least among ordinary people, cirrhosis is rare and when present, it must be attributed to beer. In America and Oceania (Haiti) cirrhosis is unknown, although excess of alcohol (tafia, rum) is frequent and considerable.

But not all wines cause to the same extent lesions specific to this form of hepatitis. Natural, white, little acid and poorly alcoholized wines are almost harmless, even if 3 liters are consumed a day. Thus, for instance, this type of cirrhosis is relatively unknown in Romania, a wine-making country, but which produces a light wine, mostly white, from which people can drink several liters a day without any problems. On the contrary, red, highly acid or sweet and highly alcoholized wines, consumed in amounts of 2–6 liters, generate lesions specific to cirrhosis.

[8] E. Lancereaux, *Traité de la Syphilis,* Paris, 1886; and *Atlas d'anatomie pathologique,* Paris, 1871. Also see H. Saingery, Thèse de Paris, 1896.

[9] *Idem, Traité des maladies du foie et du pancréas,* Paris, 1897.

Our patients usually drink red wine, which is sold in Paris with FR 0.80 a liter; sometimes, they also drink white wine in the morning, on an empty stomach. They confess to having drunk an average of 3 liters a day for 8–12 years.

Once we set the role of wine in cirrhosis etiology, we still have to determine which could be the harmful substance in this drink.

For sure it is not the alcohol contained in the wine, since this substance only causes liver adiposis, without altering the conjunctive tissue; moreover, it determines special accidents (see Alcoholism II, p. 127) which are not common in wine poisoning (see Enolism, II, p. 138). These proofs are completed with those provided by experiments, namely that alcohol administered by most observers only leads in animals to a fat infiltration of glandular cells, without sclerosis of the interstitial tissue.

Our attention has been drawn by the *potassium sulfate*, whose percentage is high in some wines with additives (4–6 gr. per liter), as in the case of some beer brands. Assisted by M. COUTURIEUX, pharmacist, one of us administered 2–7 g potassium bisulfate to rabbits and, 18 months later, he noticed sclerotic liver lesions in these animals.

According to our statistics, the age when cirrhosis usually occurs is between 35 and 50; nevertheless, it is also noted in a more advanced age or even in childhood. In several cases we met children who were given wine although they suffered from cirrhosis, with or without ascites[10].

Sex has a certain influence on the etiology of this disease. Our analyses reveal that, out of 254 cases, 179 were men and 75 were women, which means that cirrhosis is three times more frequent in men than in women. This is explained by the fact that men often drink wine in excess, while women prefer liquors. Liver sclerosis acquires in women a diffuse form, accompanied by adiposis of glandular cells.

The jobs that predispose to this disease are wine merchants, truck drivers, carriage drivers, porters, commissioners etc. Women are laundresses, cooks, door to door sellers and, rarely, tailors.

Pathologic anatomy and Symptomatology – Since the pathologic anatomy and the symptomatology of wine drinkers' cirrhosis are described in sufficient detail in volume I of this paper in the article *Alcoholism* (page. 139 and page. 142), we will not resume it here, where we shall only discuss the semiology and treatment of this disorder.

Semiology – Setting the diagnosis of enolic cirrhosis in the pre-ascites stage relies on the increase of the volume of liver and spleen, the coexistence of disorders generated by alcoholic poisoning, colored feces and lively and wet eyes which give the patient the appearance of very good health.

In the ascites stage, the diagnosis relies on the same symptoms, plus meteorism and ascites, with collateral circulation of upper abdominal sub-cutaneous (umbilical) veins coexisting with slow digestion, excessive weight loss which contrasts with the enormous volume of the abdomen, *alteration* of facial features, a yellowish brown color of the skin and, later on, hemorrhages and other manifestations of hepatic insufficiency.

Adhesive pylephlebitis and the compression of the portal vein by a tumour are distinct from cirrhosis through the absence of hepatic and splenic hypermegaly.

The obstruction of the lower vena cava is distinct from the circulation problem of the portal vein through the predominance in the latter case of collateral paths in the inferior part of the abdomen.

Peritonitis, particularly membranous syphilis, tuberculosis and cancerous perihepatitis, is sometimes similar to enolic cirrhosis; but it generally occurs through dilations of sub-cutaneous umbilical veins of the abdomen and has a distinct evolution. Furthermore, the ascitic liquid, often full of blood, is retained and bound to the false membranes and does not have the mobility of the liquid present in cirrhosis.

Cystic or fibrous tumours of the abdomen in ascites are visible through abdominal puncture.

In terminal stage, hemorrhages (hematemesis, melena, purpura, hemoptysis, epistaxis, etc.) can generate the idea of an ulcer or cancer of the stomach or intestine, even typhoid fever, and only the careful analysis of the liver and the evolution of the disease can lead to an accurate diagnosis.

The prognosis of enolic cirrhosis, less serious than it used to be, is still very serious. The progressive evolution of this disease generally leads to death and the ending is fast especially when cirrhosis has a fat and diffuse form, when jaundice is accompanied by hemorrhages, delirium. The decrease of urine amount must also draw the physician's attention. Considerable ascites which causes choking is a disturbing signal, but it is

[10] E. Lancereaux, *Bul. Acad. de médecine,* Paris, 13 octobre 1896.

possible to remedy it through puncture; it is also true that serosity soon occurs; moreover, the weakened patient dies within 24-48 hours as of the extraction of a too large amount of liquid. Under the circumstances, the best is never to empty the peritoneal cavity entirely.

Other diseases can prevent the prognosis of enolic cirrhosis; such are tuberculosis and especially erysipelas and pneumonia, which generate phenomena of hepatic insufficiency.

Prophylaxis and treatment – The prophylaxis of enolic cirrhosis consists in avoiding the excessive daily consumption of wine and beer and, in general, any alcoholic drink.

Considered for long an incurable disease, wine drinker's cirrhosis was not treated. After 1876, when we managed to cure ascites, following the methodic use of a dairy-based diet combined with potassium iodine, one of us[11] communicated in 1887 the results to the Academy of Medicine of Paris. These studies were not sterile and currently everybody knows that enolic cirrhosis can be cured.

The treatment contains an exclusively milk diet. This food product must be administered raw, half a liter every two hours, in small cups, reaching a total of 3–4 liters a day. In order to get used to this diet, the patient must avoiding sitting at the same table with healthy persons and, in order to accept it without disgust, he must not add in it soup, bread or other substances that could disturb his digestion. This diet must be followed for at least one or two years, until ascites resorbs and the liver can resume its functions. It shall be followed by solid food consisting of cooked meat, eggs, vegetables, cheese and water; milk shall only be used for breakfast.

In the beginning, if a nervous breakdown occurs, it is recommended not to eliminate alcohol altogether, but to administer the patient small amounts of brandy or rum.

This diet must be completed with a drug capable to act on young conjunctive elements. Potassium iodine meets this indication. We prescribe it in doses of 2–3 g a day and we shall continue until the lesion moves to the fibrous stage. In order to avoid its accumulation, we recommend it every month for ten days. It is recommended to administer to the patient one or two severe purgatives a month.

Chamomile has also been used for the same purpose as potassium iodine (BOUCHARD); they can be administered together.

In some cases, when the amount of urine drops and extended edemas occur, we prescribe diuretics. We use pills made of foxglove, violets and morning glory (0.05 gr), five to six times a day, for six days.

If necessary, we add a cold alcoholized solution or, if possible, a cold shower, for 10–15 seconds. These means, if well tolerated, must continue for several months, one year and more.

This is the treatment we apply to enolic cirrhosis and which had good results in approximately one hundred cases in about 25 years.

Some dangerous symptoms, such as ascites and phenomena of hepatic insufficiency, require a further appropriate intervention.

Ascites shall be fought against with a puncture, when it causes breathing problems. In general, it is not recommended to perform an ascites puncture right from the beginning or to delay it for too long when there is a danger of choking. At any rate, only half of the abdominal liquid must be extracted and, if accidents occur, the patient must be administered injections with artificial serum. It is recommended to apply a bandage on the abdomen after the puncture, in order to prevent the fast proliferation of drainage. Puncture is renewed when ascites reappears.

Insomnia, nightmares and even delirium stop when the treatment is completed with chloral (3–5 gr.) associated with morphine (syrup, 20 gr.)

Phenomena of hepatic insufficiency shall be fought against with diuretics and strong purgatives. Hemorrhages (epistaxis, hematemesis, etc.) shall be stopped by bandaging, if on the nose, or with ice and the use of ergot (claviceps purpurea), if they occur in the stomach or lungs, or subcutaneous injections with gelatin serum (5 gr. gelatin for 250 ml serum).

Enolic hepatitis in children

Enolic cirrhosis is sometimes noted since the age of 10 or 12, in children who were given wine in excess, as we saw many times[12]. First, the liver becomes tumid; then it withdraws and hardens, while the surface covers with granulation similar to peas or lentils. Histologically, bivenous, more rarely diffuse or fat cirrhosis is noted.

[11] E. Lancereaux Le traitement des cirrhoses du foie, in *Bull. Acad.* Of August 1887; also see MARINI (Thèse de Paris 1889(, WILLEMIN (Thèse de Paris 1890) and the remarkable paper of SAINGERY (Thèse de Paris 1897).

[12] E. Lancereaux, *Traité des maladies du foie et du pancréas,* Paris, 1899 p. 449.

Symptoms are similar to those noted in adult patients: increase of the volume of liver and spleen, collateral umbilical venous circulation, meteorism, ascites, edema of the legs, decrease of the amount of urine and uremic crisis, finally, phenomena of hepatic insufficiency: jaundice, multiple hemorrhages etc.

But what characterizes children's cirrhosis is the *interruption of physical development*, the patients remain small and do not suffer from signs of puberty when they are affected by this age.

The evolution of this disease is faster in children than in adults; however, healing is easier if intervention occurs sooner.

The diagnosis of this infantile hepatitis is difficult and must be differentiated from paludic and syphilis cirrhosis just as common in children, considering the features presented by the liver and spleen and the fact that the custom to drink give small patients simultaneous signs of alcoholism.

The prognosis is not different from that of enolic cirrhosis in adults.

The treatment consists of an exclusive milk-based diet and the use of the potassium iodine, of course after suppressing the causes of enolic poisoning. Diuretics are necessary when the amount of urine drops and uremia phenomena occur.