Lecture N. 18

Lithiasic Cholecystopathy

This chapter could easily have been titled “Cholelithiasis”, or even “Cholecystic Lithiasis”. The title Lithiasic Cholecystopathy was preferred, however, in order to highlight the fundamental role played by the vesicular function in the lithogenic process, all the while bearing in mind the multifactorial nature of events inducing the formation of stones. Indeed, a disturbance of the gallbladder contraction mechanism, which may be primary or (as we will see) secondary depending on different pathophysiological conditions, is considered a pivotal pathogenetic element of this disease

Physiology teaches us that while biliary secretion occurs uninterruptedly in the liver, the passage of bile into the duodenum must for digestive purposes come about intermittently and above all must be synchronized with meals. And here marks the entrance of the gallbladder, which is assigned the tasks of storing the bile produced by the liver, of concentrating it, and of pumping it into the duodenum at the right moment. Bile drains into the gallbladder when the common bile duct/gallbladder pressure gradient favors the former; this occurs thanks to the tone and function of the sphincter of Oddi. Because the organ’s maximum contents cannot exceed 40-50 ml, if it did not concentrate bile the gallbladder could collect only what is secreted by the liver in 2 hours. Given its ability to concentrate bile (by absorbing nearly 90% of the water contained therein), the gallbladder is able to collect nearly 20 hours worth of bile produced by the liver, together with most of the pool of bile acids. At this point the collected bile is appropriately concentrated and ready to exert its digestive functions: the gallbladder contracts, it empties into the biliary tract, the sphincter of Oddi relaxes in a synchronized manner, and the concentrated vesicular bile is transported into the duodenum. These mechanisms are induced and regulated by the hormone cholecystokinin and by the vagus nerve. It is clear that alterations in the coordination of this motility will provoke disturbances in the organ’s ability to contract, with consequent stasis of supersaturated bile and adverse effects on the enterohepatic circulation of bile acids and their exchange, as well as on the saturation index of bile. Such events promote the formation stones in the gallbladder.

Disturbances in the correct emptying of the gallbladder may be primary, but they may also be, as we said, secondary to a variety of factors, including resective gastric operations, pregnancy, therapies that somehow negatively influence the actions of the vagus nerve and/or of cholecystokinin (e.g., anticholinergics, vagotomy, etc.).

In lithogenesis, beyond the above-mentioned dynamic motivations, other factors may intervene that are able to increase the lithogenic index of bile, that is the relative ratio among bile acids, lecithin, cholesterol and conjugated bilirubin. These factors may comprise inflammation of the gallbladder, obesity, dietary errors, estrogens, oral contraceptives, extensive resection of the ileum, etc. However, alterations in motility functions are the prevalent cause for the cholecystic lithogenic disorder.

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Epidemiology

It is estimated that prevalence varies between 10 and 20% in the adult population in the Western world. Recent analyses have indicated a prevalence of 18.9% (10-17%) in women of 9.5% (5-11%) in men. These numbers rise significantly with an increase in age: up to 50% in women and 15% in men above 60 years of age. These data thus confirm a greater frequency in females.

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Anatomic Pathology

Gallstones may vary in size, ranging from miniscule concretions (so-called "biliary sand") to multiple formations, at times facetted owing to reciprocal pressure, up to single stones that can reach a conspicuous size. The lithiasic composition may vary; stones may be:

- Pure cholesterol: often single, oval, at times large, crystalline white, light (able to float in water), radiotransparent; so-called "strawberry gallbladder" is a not uncommon form of vesicular cholesterolosis which may - from a variety of standpoints - be assimilated to cholesterol lithiasis (Fig. 1 - 2):
- Mixed, of combination or compounds: often multiple, facetted, of varying size at times voluminous, of different color (yellow-brown, flecked with green, black, white, etc.), radio-opaque (Fig. 3);
- Pigmentary: variable in number, various forms (facetted if numerous, at times moriform), black or brown in color, radio-opaque. These form from unconjugated bilirubin that precipitates in the form of calcium or copper bilirubinate. They are more common in older patients and in conditions of biliary stasis. These stones may also form in the intra- and extra-hepatic biliary tracts (hepatic ducts) in hemolytic syndromes (Fig. 4);
- Biliary sludge: this is the term coined by English-speaking authors to describe the situation in which the gallbladder is filled with extremely viscous - indeed, muddy - bile that contains calcium bilirubinate precipitates, various other calcium salts, cholesterol monohydrate crystals, and a large quantity of mucous. This situation is considered an important pathogenetic phase, even a precursor, in the formation of gallstones. Ultrasonography (US) is able to diagnose this clinical picture.

Fig. 1 - Large cholesterol gallstone

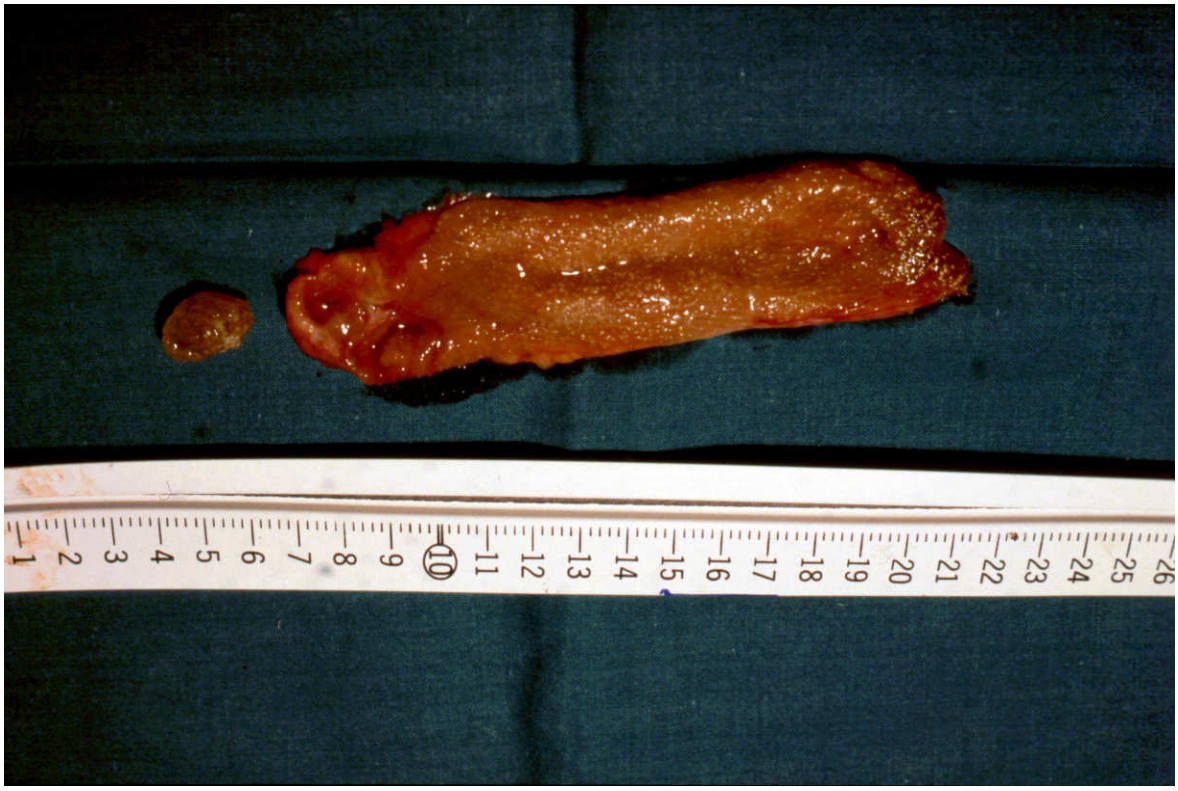

Fig. 2 - Strawberry gallbladder

Fig. 3 - Mixed - multiple gallstones

Fig. 4 - Single pigmentary gallstone

The wall of the lithiasic gallbladder always presents alterations of varying type and degree of severity (Fig. 5). The claim by some authors that cholesterol stones are not associated with modifications of the wall is not shared by everyone: indeed, according to some (Sato - Matsushiro and others) in cholesterinic lithiasis modifications of the mucosa, especially of a proliferative nature, occur. This is an observation that, as we will see, could have oncological implications.

The gallbladder wall is usually rigid and thickened: chronic cholecystitis is virtually always present in cholelithiasis (95%). On opening the organ it is possible to see imprints of stones (particularly if these are large) and often pressure (decubitus) lesions (Fig. 6 - 7). If these sink deeply into the wall, adhesions may develop with adjacent organs, above all the duodenum or the transverse colon. The chronic trauma caused by the stone may lead to the fistulization between the gallbladder and one of such nearby formations. The stone may migrate in the corresponding lumen: if this is the duodenum and the stone is voluminous, the condition known as “biliary ileus” arises, that is, mechanical occlusion by the stone in a restricted point of intestinal passage, such as segment III-IV of the duodenum, the angle of Treitz, or the ileocecal valve.

From a histological standpoint, the mucosa may present numerous alterations: atrophy, hyperplasia, inflammatory infiltrates, at times metaplastic phenomena, ulcerations, thickening and fibrosis of the muscular tunic, evidence of the so-called “Rokitansky-Aschoff sinuses”, which often extend to the muscular level.

What are cited here are only the most common alterations that the gallbladder wall may undergo during lithiasis. More complex manifestations, e.g., features of xanthogranulomatosis, particular forms of adenomatous hyperplasia, metaplasia or dysplasia, etc., lie beyond the scope of this Lecture. Texts on anatomic pathology are thus recommended for further reading and consultation.

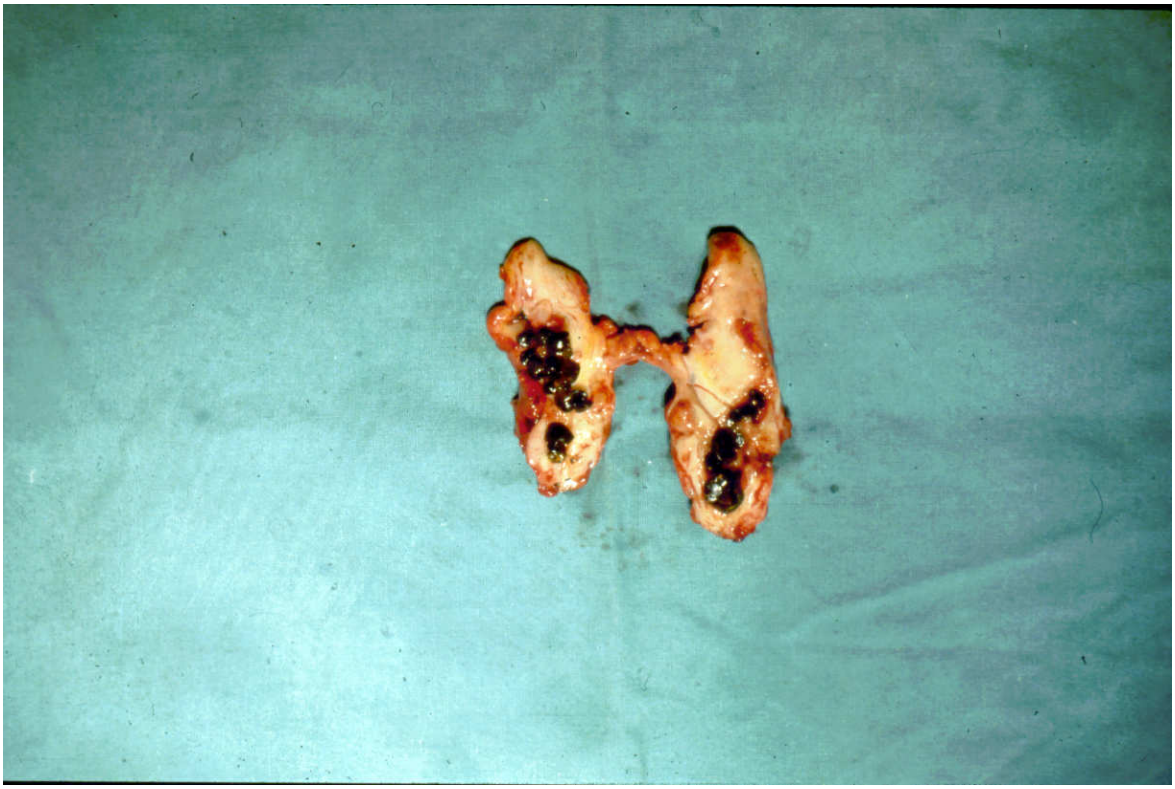

Fig. 5 - Chronic cholecystitis with pigmentary gallstones

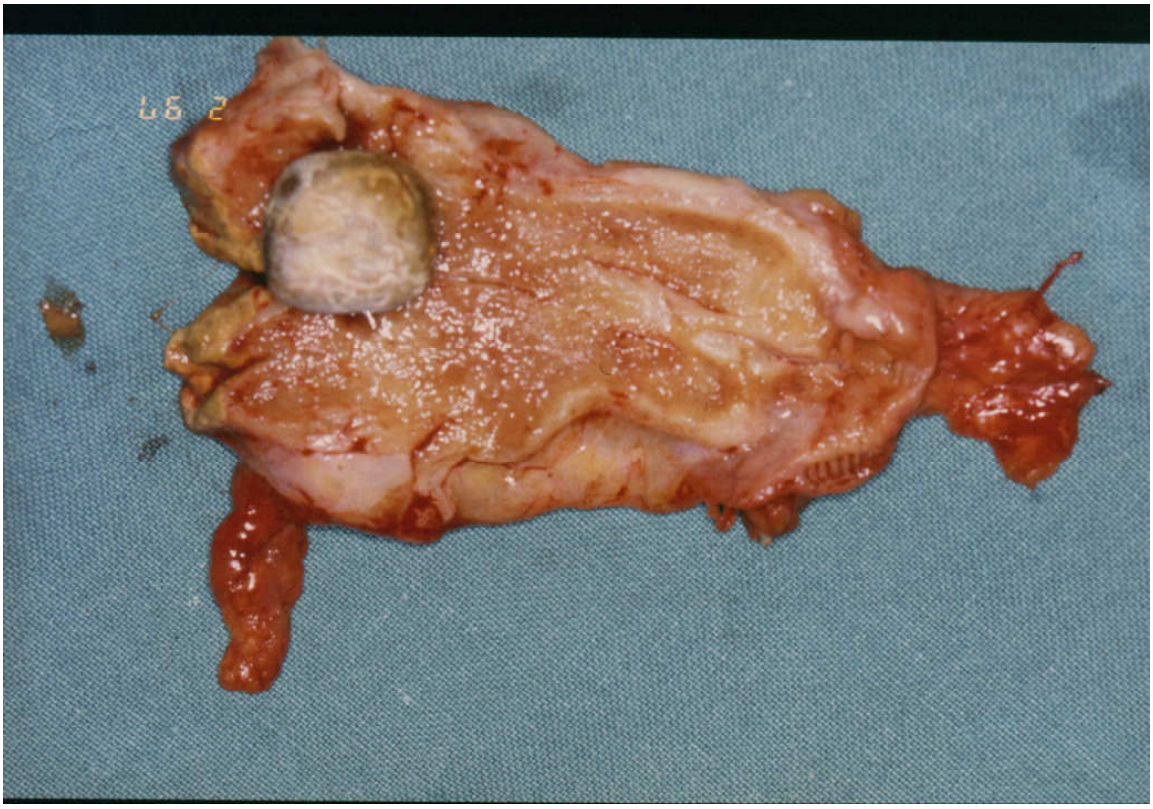

Fig. 6 - Imprints with pressure/decubitus lesions caused by a single cholesterol stone

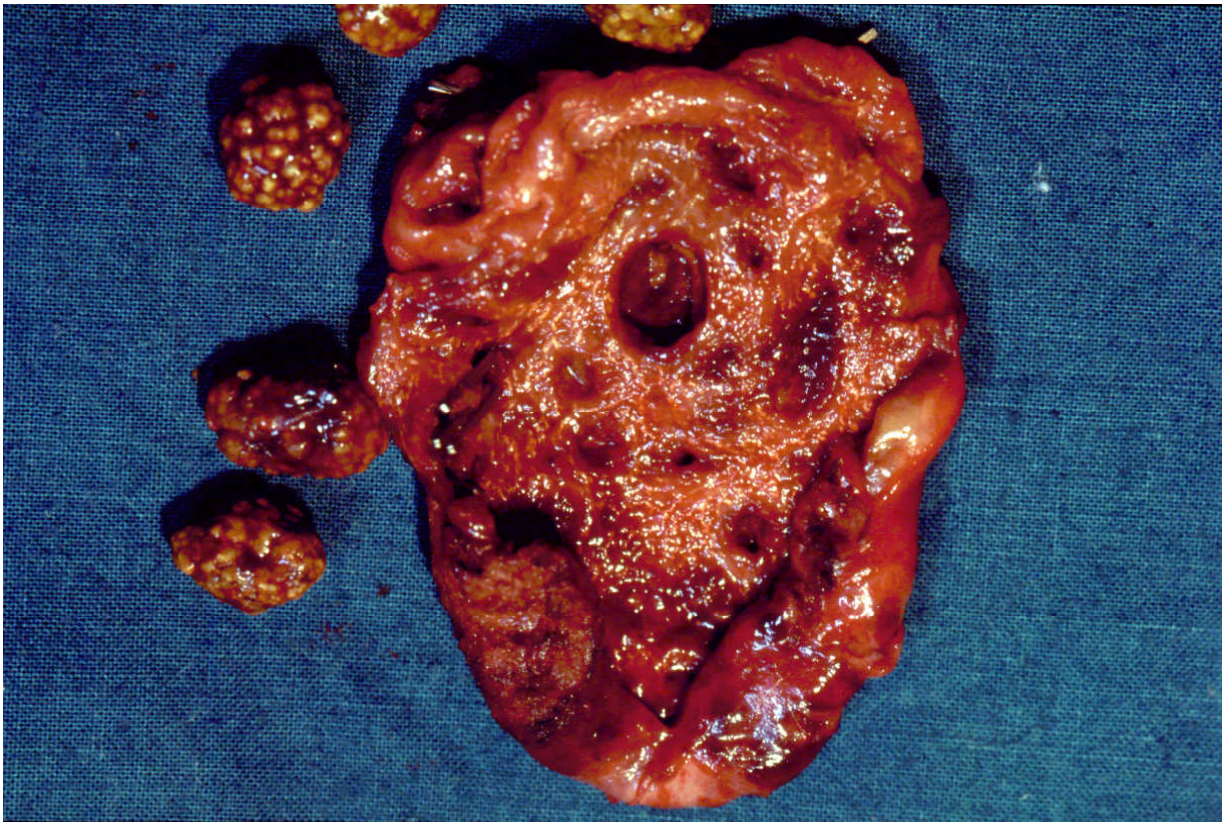

Fig. 7 - Serious varioliform cholecystitis with numerous imprints and pressure/decubitus lesions due to multiple moriform stones

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Symptomatology

For however strange it may seem, opinions vary widely on this issue. The topic animating debate is that of "*silent cholelithiasis*". The widespread use of US over the last few decades lies at the heart of the controversy: before the advent of this investigational means, it was the onset of symptomatologic manifestations that led to the diagnosis. The possibility to *see* stones and the frequent application of US, also for purposes of preventive medicine, spawned the problem.

Does silent cholelithiasis truly exist? According to optimistic hypotheses, as many as 80% of ascertained subjects are asymptomatic and only 15% of will develop symptoms and/or complications in years that follow.

It must first be said that the incidence of asymptomatic cholelithiasis varies considerably in relation to the interpretation given to the term *asymptomatic*. Many studies on the issue have considered pain and even hepato-biliary colic as valid symptoms. Above and beyond interpretations of an epidemiological and statistical nature, surgeons know that the symptoms of gallbladder lithiasis may manifest themselves through varied, often elusive, disturbances that disappear after cholecystectomy.

Thus, the first point demanding critical attention is the term "*silent*", and as such the percentage of so-called silent cholelithiasis would be placed in a different perspective.

A second point is the outlook for silent cholelithiasis: this is a difficult issue, since little is known about the natural history of bile lithiasis, even if countless studies on the subject have been conducted. The notion that ultimately, over the course of some years, silent

cholelithiasis will in 30-50% of cases become symptomatic, prompting as well classic (and severe) complications, is still valid. This tenet is upheld by a number of studies, most of which and especially based on large cohorts report and confirm that nearly half of all subjects with silent gallstones will sooner or later present symptoms and/or complications. Noteworthy is that onset in subjects over 50 years of age is somewhat frequently (20-25%) acute, sudden and often an expression of complications: thus, these latter may represent the first sign of silent cholelithiasis.

With these preliminary remarks in mind, we can classify the symptomatologic pictures of cholecystic lithiasis as follows:

1) absence of symptoms
2) dyspeptic disturbances: e.g., anorexia, epigastric tension after eating, epigastric pyrosis, nausea, vomiting of bile;
3) cardiac disturbances: e.g., arrhythmia (extrasystolic); pseudoangina-like precordial pressure and/or pain;
4) right hypochondriac pain with homolateral posterior irradiation up to the scapular angle. A phrenic-type pain in the right shoulder may be associated;
5) hepatobiliary colic;
6) symptoms induced by a complication (see below) arising in subjects without previous pathognomonic signs of cholelithiasis, as in Group 1 - existing silent cholelithiasis.

The symptoms in 2, 4 and 5 may show themselves at subsequent times, simultaneously or in rapid succession. If the patient complains of symptoms like those of Group 2, the general rule of thumb is to suspect a possible cholecystic cause and to undertake a targeted objective examination, all the more so if the symptomatology matches that of Group 4: in this case, moreover, the anamnestic findings may themselves be indicative.

Physical examination entails delimitation of the hepatic area with palpation of the organ if encroaching from the costal arch.

The cystic point (metameric point of elective pain between the outer margin of the rectus abdominis muscle and the 10^{th} rib) may be painful on compression.

Positivity on Murphy's maneuver (epicritic sign, emblematic of cholecystopathy) (*)

Less reliable and often superfluous for diagnostic purposes are lumbar-costal (Boas' sign), the scapular angle and the phrenic points.

Hepatobiliary colic is an extremely violent event characterized by excruciating pain that evolves in successive waves, as is customary for expulsive phenomena, called appropriately "colicky". The episode may appear in full health or following a disturbance as in Group 2 mentioned above. Pain arises in the right hypochondrium and typically radiates to the back (right thoracic base) and to the homolateral shoulder; epigastric radiation and vomiting of bile may also be present. Left untreated, the phenomenon may last two to three days, but generally the timely administration of antispasmodic drugs is able to resolve the event. At times, transient scleral jaundice may appear if the episode is prolonged. If, however, full-fledged and persistent jaundice follows, this is normally a sign of complications (as will be discussed in more detail below).

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(*) Murphy's maneuver: hand below the right costal arch or below the hepatic margin if palpable. the patient is invited to breathe in deeply, and doing so the liver is pushed against the palpating hand; the gallbladder is consequently compressed between the hand and the liver; the gallbladder is tender and the patient stops breathing if cholecystopathy (inflammation, stones) is present; the maneuver must be performed along the entire costal arch of hepatic margin since the gallbladder fundus may be lateralized.

Complications of lithiasic cholecystopathy

- Acute cholecystitis. As mentioned in the section above on anatomic pathology, the wall of the gallbladder with stones is always more or less affected by chronic inflammatory events; these may become acute, thereby prompting the picture of acute cholecystitis with the classic symptomatology of an acute inflammatory affection: pain, fever, hematological signs of inflammation , etc..

- Hydrops of the gallbladder. If a stone obstructs the neck of the gallbladder or the cystic duct, the organ is unable to empty into the common bile duct and bile it has already collected is slowly resorbed. The gallbladder wall, if not too thickened by sclerosis, behaves as if it were a semipermeable membrane and begins to let in liquid from outside; this action dilutes biliary content and considerably distends the organ, which becomes palpable on physical examination. If the content becomes infected, an empyema of the gallbladder (Fig. 8) and even phlegmon may arise, both of which are serious events that can compromises the peritoneum.

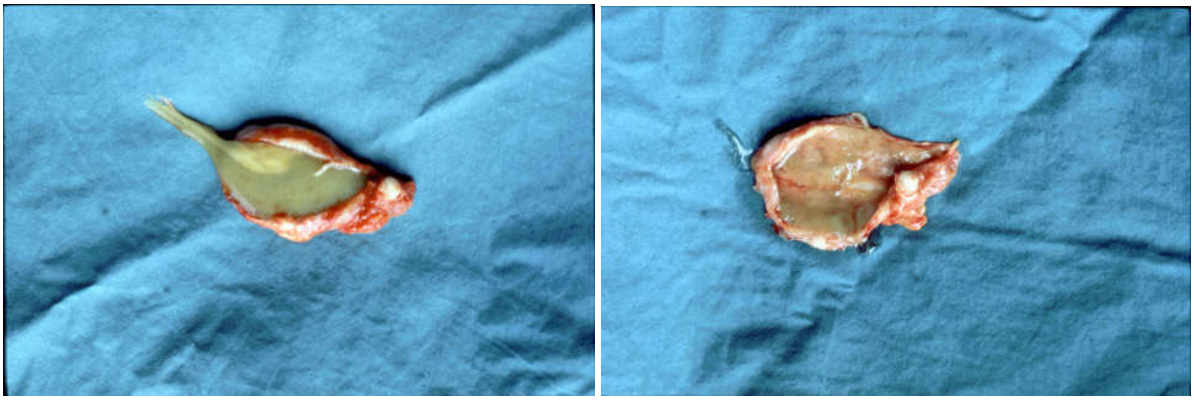

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Fig. 8 - Empyema of the gallbladder

- Migration of gallstones (Fig. 9). One or more stones may pass through the cystic duct and into the principal biliary tract (PBT). This occurs most often after a colic episode. Jaundice, as mentioned above, may become manifest after the painful phase and disappear thereafter, or may instead not regress and even increase in intensity. Jaundice from biliary stasis due to gallstone obstruction of the PBT thus develops with all the features typical of this condition: intermittent jaundice without gallbladder distension (Courvoisier's law). The migration of gallstones, especially those with a small diameter, may often be asymptomatic.

Fig. 9

- Pancreatitis. As mentioned elsewhere, important functions correlate the biliary structures. Gallbladder motility is regulated by the sphincter of Oddi, which also controls the excretive function of the duct of Wirsung. It is thus understandable why alterations often induced by motility malfunctions, like cholelithiasis and/or so-called papillo-odditis, as well as their consequences and all the more so if complicated by gallstone migration in the PBT, may compromise pancreatic function. So-called biliary pancreatitis is more often than not edematous pancreatitis, which may regress following anti-lithiasic therapy, but which may also evolve into much more severe lesions of the gland.

- Biliodigestive fistula. This complication may cause ascending cholangitis, with related hepatobiliary and general inflammatory consequences. The stone responsible for the fistula is usually quite large, and migrating into the intestine may lead to the phenomenon termed biliary ileus.

- Carcinoma of the gallbladder. This disease is still a subject of debate. The fact is that the cancer and cholelithiasis are frequently associated (80-90%). Indeed, the coexistence of stones was detected in 100% of our own series of gallbladder carcinoma patients. In our and others' experience, a greater incidence of cholesterol stones, above all larger and single stones, characterizes this association. The cancer risk would thus seem to be directly proportional to the composition and size stones and, according to some authors, the duration of lithiasic conditions. The presumed greater responsibility of cholesterol stones is in keeping with the finding these are particularly associated with hyperplastic and regressive phenomena in the gallbladder mucosa. Another troubling clue is that women, who are more susceptible to cholelithiasis, are 4-5 times more likely than men to be affected by gallbladder carcinoma: 1-4% vs. 9.3% in women over 60 years of age.

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Diagnosis

In most cases patient history and physical examination guide the diagnostic workup. Only when symptoms reveal little, like some of the examples listed in Group 2 above, or when cardiac problems are concomitant (Group 3), do issues of interpretation arise.

As far as diagnostic modalities are concerned, the primary test is upper abdominal ultrasonography (US), which can easily visualize the gallbladder and its contents. Radiography of the abdomen, once the test of choice and able to detect radiopaque stones, has now been replaced by US. Plain x-rays may still prove useful when US reveals small, low intensity stones that could be cholesterol: radiography does not visualize these, thereby confirming their composition. This approach could be useful for the choice of antilithiasic pharmacological therapy.

The diagnostic workup should include laboratory tests aimed at detecting possible canalization difficulties or even obstructions, i.e., to measure cholestasis indices (CI), in the PBT. Foremost among these are assays for total, and especially conjugated or direct, bilirubinemia, and for alkaline phosphatase and gamma-glutamyl transpeptidase levels.

If CI are increased it is necessary to inspect the PBT; magnetic resonance cholangiopancreatography (MRCP) is a reliable means for this purpose (Fig. 10). Endoscopic retrograde cholangiopancreatography (ERCP) is able to confirm MRCP findings and, ultimately, to remedy defects in the PBT. As we will see below, this procedure may precede (sequential technique) or accompany laparoscopic cholecystectomy.

These and other more targeted tests may be called for depending on the needs deriving from the characteristics and presentation of complications.

Fig. 10 - MRCP - large gallstone impacted in the neck of the gallbladder -
- Intact PBT

Therapy

The introduction of this Lecture outlined the pathophysiological principles of cholelithiasis. And in doing so emphasis was placed on the notion that this process is primarily and most frequently to be ascribed to - albeit with some exceptions - the gallbladder itself, the site of the pathological process. This is the reason why the term "*cholecystopathy*" was chosen for the title of this lesson. That said, the gallstone is thus a consequence of gallbladder disease, and in the event a stone is detected, be it by a diagnostic means such as US or by a particular clinical picture, it must be considered the sign - *the symptom*" - of a disease that has its own evolution and, as such, needs to be treated. It is for this reason that the only treatment for lithiasic cholecystopathy is none other than cholecystectomy, the removal of the gallbladder.

Cholecystendesis (cholecystolithotomy) entails the removal of gallstones while leaving the gallbladder intact. Now abandoned, the procedure has only historic value (*), but it nonetheless provides proof, experimental so to speak, of what has been said so far, that is the recurrence of lithiasis in the short-term.

The same may be said of non-surgical treatment modalities for cholelithiasis: pharmacological dissolution (chenodeoxycholic acid/ursodeoxycholic acid), shock wave lithotripsy, and direct instillation of solvents (e.g., methyl *tert*-butyl ether).

(*) In pediatric patients cholecystendesis may still be indicated in selected cases of hemolytic disease (e.g., hereditary spherocytosis), in association with splenectomy if the gallstones are of pigment and secondary to an increase of unconjugated bilirubin.

Cholecystectomy is thus the treatment of choice for the lithogenic affliction of the gallbladder. The laparotomic access is traditionally the standard operation for removal of the gallbladder, but since 1987 that video laparoscopic approach has also been a surgical option. Although this latter has become the most commonly performed procedure in view of its numerous advantages, the laparotomic approach - now adopted as first-line treatment only for rare, entirely subjective, preferences - remains a viable alternative above all when technical reasons demand so-called "*conversions*" from laparoscopy to laparotomy.

Both procedures are valid and safe: mortality is next to zero, reaching values far below 1% in many patient series (examples: 0.06%, 0.17%, 0.2%); morbidity ranges from 4% to 8% for open surgery, and from 2 to 5% for laparoscopic procedures. Video-laparoscopic cholecystectomy offers all of the now well-known advantages that come with minimally invasive surgery: nearly absent postoperative pain; rapid restoration of gastrointestinal functions; short hospital stays (1-2 days); minimal and cosmetically acceptable scarring; rapid return to work.

By the same token, the laparotomic approach often allows overcoming obstacles that may arise when laparoscopy is impossible or at best difficult, for instance when encountering dense adhesions or complex variations in the normal morphology of the so-called "Calot's Triangle". These phenomena are not uncommon and can, above all, prove difficult and dangerous, inasmuch as they may lead to errors of interpretation and, therefore, of surgical technique. More often than not, perioperative cholangiography during the laparoscopic approach will clarify the situation, but this, unfortunately, is not the general rule. At times, a "conversion" will resolve the problem with less effort.

Here are a few of the anomalies that may be encountered. Starting with the most dangerous these are: a) the cystic duct flowing into the right hepatic duct; b) a branch of the right hepatic duct flowing into the cystic duct; c) absent cystic duct, with the neck of the gallbladder draining directly into the PBT; d) long cystic duct adhering closely to the PBT; e) cystic duct running behind the PBT, etc.

While the complications of *open* cholecystectomy most often result from surgical trauma to the abdominal wall (suppuration, dehiscence, incisional hernia, etc.), those deriving from a laparoscopic procedure generally occur soon after intervention and are caused by technical errors: lesions of the PBT, hemorrhaging, lesions of the duodenum or colon. The most essential and effective of prophylactic efforts to prevent such serious events remain within the realm of the surgeon's experience.

As far as **indications for cholecystectomy** are concerned, there would seem to be no doubt in cases presenting with hepatobiliary pain and/or colic (Groups 4 and 5). In Group 2, on the other hand, some authors recommend refraining from surgery, inasmuch as they believe that the symptomatology (dyspepsia, epigastric tension, etc.) could be independent of concomitant cholelithiasis and could instead be caused by esophageal-gastroduodenal afflictions, colonic, etc. Cholecystectomy, in their view, would only worsen the situation. Obviously, cases such as these require a careful differential diagnostic workup. Nevertheless, in many investigators' experience (as well as ours) the incidence of such disturbances is in a very percentage of cases to be ascribed to cholecystopathy, above all thanks to the observation that the same disturbances quickly disappear after surgical intervention.

A more complicated and widely debated issue is that of asymptomatic lithiasis, i.e., silent gallstones. Many surgeons believe it best not operate under such conditions, but to leave the affliction to itself and to manage the patient expectantly in the meantime (for how long we could ask) with hygienic and dietary alternatives. These are the same authors who define cholecystectomy in subjects with silent symptoms as *prophylactic cholecystectomy*. This

term, at least in this writer's view, should be banned because it is wrong. Only if the gallbladder were perfectly normal could its removal in order to prevent future pathological events be called "*prophylactic*". But we and many others know that cholelithiasis is a bona fide gallbladder disease, as such, removal of the organ is fully justified. How many times has the surgeon found it necessary to intervene quickly in patients long affected by gallstones and treated merely with medical, dietary or behavioral intervention? At this point it's worth quoting Sir William Osler, who in 1898 - when surgery and anesthesia were surely more venturesome than today - wrote: "*The patient is safer in the hands of the surgeon than entrusted to nature with the weak assistance of medicines and mineral waters*".

Let us thus see how to act. We have three possible options:

- no therapy, waiting for symptoms;
- non surgical therapy (pharmacological litholysis, lithotripsy, etc.);
- surgical therapy.

It is important to state immediately that reliable controlled trials on these three alternative do not seem to be available. We do know, however, about the noteworthy limitations of litholytic treatment. For the other two, divergent vantage points exist between the internist and the surgeon: the former is still conditioned by a generic concern over anesthesia and the surgical intervention, with a fear of risks that are disproportionate to the apparent significance of the clinical picture; the surgeon, by contrast, is prompted to intervene surgically on the basis of tragic experiences linked to complicated cases of cholelithiasis.

I believe we can safely say that under conditions of silent symptomatology cholecystectomy is recommendable in:

- young patients with large cholesterol stones (neoplastic risk);
- patients over 50 years of age (risks of serious complications);
- patients over 60 years of age with voluminous stones (neoplastic risk);
- patients of any age with small stones (risk of stone migration into the PBT).

The option for surgery would still include young patients with transparent (cholesterol) stones under 1 cm in diameter (pharmacological litholysis) or with medium-range sized stones. In these subjects surgery may be useful subsequently, when dissolution therapy fails or when the first symptoms present.

Many of the reservations about sending patients to surgery are a legacy of the greater risks, especially in the past, inherent with open procedures; most of these have been eliminated with the video-laparoscopic technique, although this approach cannot be considered exempt of inconveniences.

Surgical treatment

The patient generally undergoes surgery when the US diagnosis has already been performed. In particular circumstances, for example in cases of previous abdominal operations, of acute or subacute cholecystitis, of adhesions, etc., it may be advisable to radiographically control the stomach-duodenum, especially duodenal conformation: due to cholecystic inflammatory phenomena, the duodenum may be lateralized because it is attracted and/or adherent to the gallbladder. As mentioned earlier, control of the cholestasis indices (total and conjugated bilirubinemia, alkaline phosphatase, gamma-glutamyl transpeptidase) is compulsory. If these are altered, MRCP and/or transcystic exploration with eventual clearance of the PBT by ERCP, are/is indicated. If this latter procedure is performed preoperatively, it can replace perioperative cholangiography and simplify and shorten the operating times of video-laparoscopic surgery (sequential technique). Preferences among surgical teams vary

between this latter procedure (our choice), perioperative ERCP (double equipe) and perioperative cholangiography with eventual extraction of migrating stones by a transcystic or choledocolithotomic route.

Video-laparoscopic cholecystectomy (Philippe Mouret - 1987)

Described below is the surgical procedure adopted by many, including us (**see video**).

CO^2 Pneumoperitoneum at 12 mm Hg is established using an umbilical Verres needle or Hasson trocar (open laparoscopy). Four trocars are introduced according to Dubois' scheme. Visualization of the sub-hepatic region and observation of gallbladder conditions. Preparation of Calot's triangle and control of the PBT. Interruption and isolation between clips of the artery and of the cystic duct. Retrograde cholecystectomy. Hemostasis of the hepatic bed. Extraction of the gallbladder, if necessary in a bag. Toilette of the abdominal cavity. Evacuation of CO^2. Removal of trocars. Suture of the access ports.

Perioperative cholangiography is performed in cases in which doubts remain after preoperative tests (MRCP, ERCP) or for the identification of anatomic variations in Calot's triangle.

Hydrodissection is performed for the separation of adhering structures, particularly for coalescence of the gallbladder and/or gallbladder neck and the cystic duct to biliary ducts, with greater frequency to the common hepatic duct (Pseudo-Mirizzi syndrome).

Sub-hepatic drainage is carried out if necessary.

Open cholecystectomy

Right subcostal transverse incision (optimal operating field and fewer risks of postoperative incisional hernia) or upper right transrectal access. Laparotomic incision varies according to cases and to preference.

Operating times and technical details are similar to those described above.

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Conclusions

The frequency of the disorder described herein and the variety of clinical pictures, that it generates, demand that considerable attention be paid to the individual patient's medical history and that the pathological situation be interpreted on a case-by-case basis. The concept that it is the gallbladder that is diseased and that the gallstone is simply the consequence must be reiterated. The enormous diagnostic possibilities available today, not to mention the relative ease with which the disorder is treatable, more often than not place the practitioner in the position to accurately assess the patient and to choose the appropriate therapeutic route to take. Finally, poorly symptomatic or even asymptomatic clinical pictures should never be underestimated, as these are often responsible for unwelcome developments in the course of the disease.
