

## HEMOCHOLECYST, A RARE CAUSE OF SUDDEN DEATH

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Article Received on 07/07/2021

Article Revised on 27/07/2021

Article Accepted on 17/08/2021

### ABSTRACT

Hemocholecyst is a very low-profile topic in the field of medical and scientific research, particularly in forensic medicine which causes a problem diagnosing the cause and sometimes the circumstances of death. In this context, we report here in a clinical vignette of the forensic medicine department of The Hospital-University Center of Tizi-Ouzou, the case of a 47-year-old man with diabetes and a psychiatric history found without signs of life in his room at the family home, having required the practice of a forensic autopsy, an important hemoperitoneum was found at the opening of the cavities, a traumatic origin of the bleeding was suspected. After a thorough autopsy, a complicated hemocholecyst by digestive hemorrhage caused his death. The origin of the bleeding was difficult to locate but essential to eliminate a traumatic cause of death.

**KEYWORDS:** Hemocholecyst; hemoperitoneum; cholecystitis; gallbladder.

### INTRODUCTION

The term of hemocholecyst was first introduced in 1961 by Fitzpatrick 2, and since then few cases have been described in the medical and forensic literature until now. Thus, making a subject of forensic research to establish the cause and circumstances of death.

Hemocholecyst 1 means a hemorrhagic gallbladder, several causes can cause bleeding. Faced with this situation an abdominal trauma is not ruled out but also a medical cause is to be sought before the absence of any trace of violence, namely, a tumor of the gallbladder, the toxic and iatrogenic causes, the parasitoses, the aneurysms, an attack of the cystic artery or the nearby arteries. In all these situations the final cause of death is a hemorrhagic shock.



Figure 1: Hemoperitoneum of great abundance found at the opening of the abdominal cavity.

## LITERATURE REVIEW

A literature review allowed us to look over a collection of books related to this research question. Through this reading of each book or each author, we present to you the theories, concepts and main debates of our subject. This analysis not only helps to show the validity of the research project but also to formulate a clear research question.

1. A study published in the Turkish J Gastroenterol 2019, by the Department of Surgery, Show Chwan Memorial Hospital, Changhua, Taiwan (4) research work done on the Hemocholecyst following secondary cholecystitis has a pseudo aneurysm in a context of gallbladder cancer. This work has shown that the hemocholecyst has often been linked to a pseudo aneurysm of the gallbladder and that the exact mechanism of its development remains unknown. In addition, it was reported secondarily an inflammatory cause, a tumor cause and also a traumatic cause of the bile region. It has been reported that 6 to 17% of cholecystitis are alithiasis, and a rare case of hemocholecyst caused by a ruptured aneurysm on alithiasic cholecystitis was described in a bladder cancer setting in a man of 81 with a positive Murphy sign, the scanner objectified a wide gallbladder, double boundary with the intra-cystic extravasation, while the gallbladder seemed normal, so the diagnosis of hemocholecyst is made. This patient showed symptoms with gastrointestinal bleeding and jaundice to biological exploration. There was no obvious sign of bile obstruction or evidence of vesicular calculi. Alithiasic cholecystitis was identified as the cause of the blood system.

2. A study published in the journal of the American College of Gastroenterology in 2012(5) reported a case of hemocholecyst, a consequence of endoscopic varicose ligation on a decompensated cirrhosis and hepatitis C that developed a perforated hemocholecyst causing hemoperitonea shortly after endoscopic ligation of the esophageal varice.

Decompensated cirrhosis most often has complications that include liver encephalopathy, ascites and varicose veins. Although most varicose veins are located in the esophagus or gastric cardia, ectopic varicose veins outside these locations represent about 5%. Varicose bleeding is associated with high mortality, which makes monitoring and prophylaxis essential.

The incidence of isolated gallbladder varicose veins is estimated to be between 12% and 30%, most of which remain asymptomatic. There are no diagnostic standards and care is individualized according to the best clinical judgment.

It is assumed that increased varicose pressure of the vesicle precipitated an intra-cystic venous hemorrhage. Subsequent formation of intra-luminous clots led to a cystic channel with obstruction causing the

hemocholecyst. Bleeding caused distension and perforation of the gallbladder causing a hemoperitoneum.

3. A study conducted by the Department of General Surgery, General Hospital of Drama in October 2012 (6) presented a case of haemocholecyst in a terminally ill patient on haemodialysis under low molecular weight heparin (HBPM), which is an exceptionally rare event, especially when there is no concurrent pathology as in the case of renal failure.

However, the clinical significance of bleeding associated with chronic renal failure is difficult to assess. Although patients on renal dialysis are at increased risk of acute gastrointestinal bleeding, gallbladder bleeding is extremely rare.

The study reported the case of a 70-year-old man with terminal renal failure. He was evacuated to surgery due to abdominal pain in the upper right quadrant, 2 hours after enoxaparin haemodialysis (40 mg). Physical examination revealed localized sensitivity and palpable mass in the upper right quadrant. The patient was hemodynamically stable. An ultrasound showed a thick, distensive gallbladder containing bile with pericholecystic fluid and gall tracts are normal, and non-dilating echoes.

On the third day of hospitalization, the patient underwent a laparotomy. The gallbladder evacuation showed traces of blood and clots. A Cholecystectomy combined with transcystic exploration of the common bile duct removed blood clots from the common bile canal. During the next two postoperative days, the patient had blood loss in the abdominal drainage tube with hematoic stool (melena), but no transfusion was required.

Although early laparoscopic cholecystectomy is a safe approach in the management of acute cholecystitis in patients with chronic haemodialysis, open cholecystectomy was selected because of the high risk of conversion in patients with an increased risk of gallbladder gangrene.

It is well recognized that anticoagulation is necessary during hemodialysis to maintain the permeability of the extracorporeal circuit. Traditionally, non-fractional heparin has been used in patients with terminal renal failure.

### *Clinical vignette*

The forensic medicine department of the Tizi-Ouzou University Hospital, structured in several units. At the level of the thanatological unit we received a requisition from the public prosecutor of Tizi Ouzou for the forensic autopsy 1 of the 47-year-old body of the named Y.S. with the mission of practicing the autopsy and determining the cause and circumstances of his death.

**Psychological autopsy**

The family's examination of the facts tells us that the deceased has a history of diabetes and psychiatric pathology not specified under medical treatment. He was said to have had a sensation of discomfort with asthenia and a loss of appetite for two days in a row, evacuated to a nearby hospital in a critical condition and died a few hours after his admission. No sudden death was reported in his family.

**External examination of the body**

Our team of forensic doctors at the HOSPITAL-UNIVERSITY CENTER of Tizi Ouzou had performed an autopsy on the body and found that there was no evidence of violence on the clothing or on the body as a whole that could trace the circumstances of the death.

In addition, there was a cutaneous-mucosal pallor and distension with abdominal contracture.

**Cavities Opening**

The opening of the cavities according to classical techniques plan by plan and region by region had made it possible to verify the integrity of the organs and elements of the head, neck and thorax. A mucosal-cutaneous pallor and organs were frank.

At the abdominal level and after the opening of the peritoneum, we were surprised by an important hemoperitoneum of great abundance quantified at 1200 milliliters of liquid and fluid blood. A traumatic origin is to be feared!

After careful exploration that took us several hours of thanatological work, the abdominal organs are free from any traumatic lesion. In addition, an active bleed was detected from the vesicular bed, which was taken off at the level of a dilated gallbladder and had a millimeter gap, thus defining a complicated hemocholecyst of a gall bladder rupture.

A 50-cm mass of a large, red-white axis, encapsulated in its light, was found during the macroscopic examination of the gallbladder. The rest of the abdominal cavity organs are intact.

**Additional Exploration**

Post-mortem biological samples were taken in search of a possible toxic cause.

The anatomical pathology of the cholecystectomy piece revealed a hemorrhagic vesicular wall and the intravascular mass found corresponds to a lipoma.



**Figure 2: A millimetric gallbladder breach with an encapsulated mass found in its light.**

**FORENSIC DISCUSSION**

Blood in the gallbladder may be derived from the liver, extra-liver gallstones, gallbladder, and pancreas. The term haemocholecyst refers to bleeding confined to the gallbladder. Hemocholecyst can be classified according to the etiology, as primary (spontaneous) it is the case of (hemorrhagic syndrome, renal disease, serious disease...) or secondary (chronic cholecystitis, neoplastic, parasite, traumatic, vascular, rupture of varicose veins, gastroduodenal ulcer, erosion of the cystic artery).

In our case and after eliminating a traumatic cause (absence of traces of violence at the external and internal examination of the body with the integrity of the abdominal and pelvic organs) which is the most frequent

cause of abdominal hemorrhages found at autopsies, the spontaneous origin of the hemocholecyst is confirmed by the anatomopathological examination revealing a complicated chronic cholecystitis of an acute thrust with erosion of the vascular bed responsible for active intravesicular and hemoperitoneal bleeding after rupture, responsible of the death by hemorrhagic shock which represents the most frequent complication.

As a result, we have responded to our mission by concluding that the forensic cause of death is a natural cause, which has enabled us to eliminate a traumatic cause.

## CONCLUSION

Hemocholecyst is a rare condition of the gallbladder that can be responsible for death by fatal hemorrhagic shock, it remains unknown by the practitioners considering the poverty of the literature and the ambiguity and non-specificity of its clinical picture as well as the difficulty of locating the bleeding during the autopsy. Abdominal CT scans remain the reference test for positive diagnosis in the living and the forensic autopsy is the most reliable way to confirm it and explore its origin in post mortem this allows to decide on the forensic form of death by hemoperitoneum.

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