Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Medicine and Pharmacy

Pseudoaneurysm of the Cystic Artery Due to Lithiasic Cholecystitis: A Case Report

Ismail Labbi[1,2*], Abdesslam Bouassria[1,2], Hicham El Bouhaddouti[1,2], Ouadii Mouaqit[1,2], El Bachir Benjelloun[1,2], Abdelmalek Ousadden[1,2], Khalid Ait Taleb[1,2]

[1]School of Medicine and Pharmacy of Fez, Sidi Mohammed Ben Abdellah University, Fez, Morocco
[2]Department of Surgery « A », University Hospital Hassan II, Fez, Morocco

DOI: 10.36347/sjmcr.2022.v10i04.004 | **Received:** 22.02.2022 | **Accepted:** 03.04.2022 | **Published:** 06.04.2022

***Corresponding author:** Ismail Labbi
School of Medicine and Pharmacy of Fez, Sidi Mohammed Ben Abdellah University, Fez, Morocco

Abstract **Case Report**

We report a rare case of a 71-year-old woman with a pseudoaneurysm of the cystic artery due to lithiasic cholecystitis. She benefited from embolization of the pseudoaneurysm with good evolution.

Key words: Pseudoaneuvrysm, Cystic artery, ultrasound, cholecystis, hemobilia, embolization.

INTRODUCTION

Pseudo-aneurysm of the cystic artery secondary to lithiasic cholecystitis is an entity very rarely described in the literature. It's also a rare cause of hemobilia and it is, therefore, a serious complication, especially in the elderly. We report a case of pseudoaneurysm of the cystic artery secondary to cholecystitis lithiasic.

CASE PRESENTATION

A 71-year-old was admitted to the emergency department with biliary colic complaints, bilious vomiting, and fever for the past five days. She has no particular pathological history, and there was no jaundice.

The physical examination has noted an asthenic patient, febrile at 38.5, with normal blood pressure. The abdominal examination showed tenderness of the right hypochondriac region.

Blood investigations showed anemia (HGB: 86 g /L), hyperleukocytosis (WBC: 14 10^9/L) and normal liver test (TB: 10 DB: 3, SGOT: 40, SGPT: 38).

Abdominal Computed Tomography scanner with intravenous contrast showed a distended gallbladder (6cm) with spontaneously hyperdense content. The gallbladder wall was thickened, and a voluminous gallstone was impacted in the cystic duct (figure 1). It also shows an image of addition in the cystic artery related to a pseudoaneurysm.

After correction of dehydration and intravenous antibiotic therapy, she benefited from embolization of cystic artery with good evolution (figure 4). Surgical treatment is planned as a second step after recovery of the acute cholecystitis.

DISCUSSION

Pseudoaneurysm of the cystic artery due to acute lithiasic cholecystitis is a rare entity. Less than 12 cases were reported in the literature [1, 2]. The diagnosis is facilitated by modern imaging, based on Doppler echo, and angioscanner.

Clinical symptomatology boils down to cholelithiasis symptoms: pain in the right hypochondriac region and fever. Haemobilia (due to intravesicular bleeding) may manifest as jaundice or gastrointestinal bleeding (hematemesis or melena). If the bleeding is massive in the gallbladder, this can rupture and lead to hemoperitoneum.

The impaction of gallstones in the cystic duct can lead to an erosion of the inflamed vesicular wall and the wall of the cystic artery in contact with it. This is how a pseudoaneurysm of the cystic artery appears. Intravesicular bleeding leads to hemobilia. That was not the case in our patient. Thus, any cholecystitis complicated by gastrointestinal bleeding should raise

suspicion of haemobilia, which may be secondary to a pseudoaneurysm of the cystic artery [3-5].

Abdominal ultrasound can show signs of lithiasic cholecystitis, haemobilia and look for haemoperitoneum [6, 7]. The Doppler echo is the initial examination to choose in case of suspicion of pseudo-aneurysm of the cystic artery. It allows showing a flow arterial within a para vesicular formation, but without being able most often to specify the artery where the pseudo-aneurysm is located.

The abdominal angioscanner confirms the diagnosis of pseudoaneurysm of the cystic artery (figure 1). The CT scan allows, thanks to the MIP reconstructions, to give an angiographic image, showing the branches of the hepatic artery and the origin of the pseudo-aneurysm (figure 2). The advantages of angioscanner over angiography are to be non-invasive and to allow exploring the vascular light and wall and the peri-vesicular environment. Angiography performed after selective catheterization of the hepatic artery has a diagnostic role. It allows to show the seat of the pseudoaneurysm on the cystic artery and to eliminate a malformation of the branches of the hepatic artery [7, 8].

MRI when it is performed shows the pseudo-aneurysm and can distinguish in case of hemobilia, blood from lithiasis, sludge, and tumors of the gall bladder.

The interest in embolization is limited in the case of a pseudoaneurysm of the cystic artery secondary to a lithiasic cholecystitis, given the infectious context, requiring imperatively a surgical treatment. Surgery is the treatment of pseudoaneurysm of the cystic artery on lithiasic cholecystitis: it's about a cholecystectomy and cystic artery ligation [1, 2, 9]. However, we preferred to perform embolization of the cystic artery first in our case. This allows us to operate on the patient away from the acute episode, in better conditions.

CONCLUSION

The pseudoaneurysm of the cystic artery is a very rare complication of lithiasic cholecystitis. Symptomatology is unspecific, except when it is associated with haemobilia and digestive hemorrhage. In these situations, cholecystitis complicated by a pseudoaneurysm of the cystic artery can be suspected.

Ultrasound coupled with Doppler allows diagnosis of pseudoaneurysm. The seat of the pseudoaneurysm on the Cystic artery is better specified by CT scan or angiography.

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Competing interests

All authors declare no competing interest.

Fig-1: Computed tomography in the arterial phase of the IV injection of contrast product: gangrenous lithiasic cholecystitis complicated by a perforation next to segment V and a pseudoaneurysm of the cystic artery as well as haemobilia

Fig-2: Computed tomography: coronal MIP reconstruction after injection of contrast product. Cystic artery pseudoaneurysm

Fig-3: Arteriography: pseudo aneurysm of the cystic artery

Fig-4: Embolization of the cystic artery

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