



Case report

The complications of subtotal cholecystectomy: A case report



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ABSTRACT

Introduction: Although the symptoms attributed to gall stones resolve in most patients after cholecystectomy, some may have symptoms that persist or recur. It is known as the post-cholecystectomy syndrome (PCS). The aim of this case was to describe the diagnostic difficulties encountered and to discuss the main etiologies of this entity.

Case report: A 54-year-old man presented for a recurrent right upper quadrant pain despite laparoscopic cholecystectomy five years ago. Imaging showed cystic lesion at the gallbladder fossa with gallstones. We decided to reoperate the patient by laparoscopic approach. It turned to be a residual gallbladder with stones inside. It was confirmed by histopathology. He was asymptomatic after a follow-up of 2 years.

Discussion: The PCS should not be trivialized. Most of the causes are allocated to extra biliary etiologies. They must be ruled out first as most of them can be controlled with medication. There are etiologies for which reoperation can be necessary.

Conclusion: The indication of cholecystectomy must be taken wisely otherwise surgery will not solve the problem. Even though patient may complain of persistence or recurrence of the pain. In this case, it can be a real challenge for both diagnosis and treatment.

1. Introduction

Cholecystectomy is still the only recommended treatment for symptomatic gallstones [1]. Although the symptoms attributed to gall stones resolve in most patients after cholecystectomy, some may have symptoms that persist or recur. It is known as post-cholecystectomy syndrome (PCS) which frequency varies in the literature from 5 to 30% [2]. It is defined as the continuation or the recurrence of symptoms similar to those experienced before surgery [2]. The main complains are upper abdominal pain, with a variety of gastro-intestinal symptoms as indigestion, nausea, vomiting, jaundice and diarrhea [3]. The onset of the syndrome may range from 2 days to 25 years [4]. The causes of this syndrome can be biliary or extrabiliary. Regardless of their initial surgery those patients present a challenging diagnosis [5]. The aim of this case was to describe the diagnostic difficulties encountered in a patient who presented a PCS and to discuss the main etiologies of this entity. This case report has been reported in line with the scare 2020 criteria [6].

2. Case report

A 54 year old man, with no medical history or family history, had five years ago a laparoscopic cholecystectomy for acute cholecystitis in our department. The surgeon reported a perforation of the gallbladder wall. A stone was dropped but it was retrieved. Postoperatively the liquid on the Redon drain was initially stained with bile. An ultrasonography was performed and was normal. The patient progressed well and was discharged on the fourth operative day. Since discharge, the patient had experienced no symptoms. Five years after, he presented to our department for a recurrent right upper quadrant pain. He stated that the pain was comparable to the pain before cholecystectomy. It was not associated with fever or jaundice or vomiting. Physical examination revealed laparoscopic scar and upper quadrant tenderness. There was no palpable mass or jaundice. Laboratory investigations showed no anomalies. Abdominal ultrasonography (US) revealed a 50*25 mm fluid collection at the gallbladder fossa with calcifications inside. The common bile duct (CBD) diameter was estimated to 8.3 mm and no stone was visualized. Computed tomography (CT) showed a 50*25 mm fluid collection well organized at the gallbladder fossa, homogeneous and

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well circumscribed by a thin wall. There were multiple clips inside the collection (Fig. 1). Magnetic resonance cholangiography (MRCP) revealed a 10 mm cystic lesion at the gallbladder fossa with a thin wall which communicated with the CBD (Fig. 2). Four gallstones were seen at the cyst lesion. There was no dilation of the CBD or a common bile duct stone. At this point we evocated a collection due to forgotten gallstones or clips, a cystic duct stump stone, a choledochal cyst and a duplicated gallbladder. We decided to reoperate the patient by laparoscopic approach. There were dens adhesions. After gentle adhesiolysis, we discovered a cystic structure of 4*2 cm size on the gallbladder fossa communicating with the CBD (Fig. 3). The cystic duct was non dilated. The former clip from the initial operation was found at the top of the cystic structure very far from the junction of the cystic duct with the CBD (Fig. 4). We concluded that the first surgeon performed a subtotal cholecystectomy. There were stones inside the residual gallbladder (Fig. 5). The cholangiography showed no dilation of the CBD neither a common bile duct stone. We ligated the cystic duct and we completed the cholecystectomy. Histopathology concluded to gallbladder remnant without malignant lesions. The procedure was performed by a senior surgeon and one junior surgeon that had three years of surgical specialty training. Despite his initial fears, the patient was able to overcome them thanks to his trusting relationship with his surgeon. He was satisfied with the result of the surgery and the care. He adhered to the follow-up established by his doctor. He was asymptomatic after a follow-up of 2 years.

3. Discussion

Our case showed that PCS should not be trivialized because there are etiologies for which surgical treatment is possible.

Most of the causes of PCS are allocated to extra biliary causes such as reflux esophagitis, peptic ulcer, chronic pancreatitis or irritable bowel syndrome. They must be ruled out first as most of them can be controlled with medications [7].

For our patient it was a residual gallbladder (RGB) due to unintentional subtotal cholecystectomy which made the preoperative diagnosis difficult. The subtotal cholecystectomy can be performed by surgeons to avoid difficult calots dissection and iatrogenic complications [8,9]. If the incidence of a required subtotal cholecystectomy is estimated to 5%, the incidence of unintentional incomplete cholecystectomy is still unknown [10]. Still though, we found a retrospective study which analyzed 93 patients who underwent surgery for RGB. It demonstrated that 71% of the RGB was left behind unintentionally [8]. Many complications may occur due to the subtotal cholecystectomy such as biliary fistula. Even a

case of de-novo malignancy in the residual gallbladder was reported [9].

Before concluding that it was a residual gallbladder, we had to drop out the other possible biliary causes of post-cholecystectomy syndrome.

It could have been a dropped gallstone especially there was a perforation of the gallbladder as in our case. Dropped gallstones are estimated to 6% of cases [11]. It may cause an abscess and granulomas in 0,08% of cases [11]. The imaging of abscess and granulomas are seen as a soft tissue mass and fluid collection which can invade the surrounding structure [12]. In our case the diagnosis of dropped gallstone has been ruled out due to the connection between the liquid collection and the common biliary duct on the imaging.

The "choledochal cyst" was a possible diagnosis precisely the subtype VIA. The subtype VIA has been described as an isolated cystic duct dilation [13]. Choledochal cyst is extremely rare and few cases have been documented [13–15]. The cyst must be totally resected, due to its oncogenic potential [16]. The main difference between our case and others is a wide communication with the common bile duct either dilated or not on the imaging [13–15].

The gallbladder duplication is an extremely rare congenital anomaly, it occurs in 1/4000 at autopsy [17]. Fifty percent of the cases can be missed by the preoperative imaging [18]. We found some cases of cholecystitis even after cholecystectomy due to a missed duplicate gallbladder [5,19]. Although it was rare and no anatomic anomaly was reported on the first surgery, we kept this diagnosis in mind. It was ruled out after surgery due to the former clip that we found on the residual gallbladder from the initial operation. It indicated that it wasn't a duplicated gallbladder but the same one.

The cystic duct remnant is defined as a residual duct greater than 1 cm in length [20]. It can be symptomatic if there are stones within the remnant, bile stasis and/or infection [5]. Laparoscopic management of the cystic duct remnant is effective particularly when surgeons are experienced [21]. It was ruled out after surgery. After dissection we found a non-dilated cystic duct. We concluded that it wasn't a dilated remnant cystic duct but a residual gallbladder.

Terhaar presented an algorithmic approach for patient suffering from PCS [22]. The first line test in the PCS is ultrasound and liver function. If serum bilirubin ≥ 20 $\mu\text{mol/l}$ and the CBD on US ≥ 10 mm but no cause was identified, MRCP should be performed. If the CBD is < 10 mm and liver function is normal, MRCP is not recommended. If a bile duct stone is shown, MRCP is not necessary [22]. In our case the level of bilirubin was normal and the CBD < 10 mm. If we follow this algorithm, there is no need for more exploration. We consider that this algorithm is limited. It didn't resolve all the possible diagnosis of the PCS.

In the laparoscopic re-explorations, there are extensive adhesions in



Fig. 1. The computed tomography showed a 50*25 mm fluid collection well organized at the gallbladder fossa, homogeneous and well circumscribed by a thin wall with multiple clips inside the collection (marked with arrow).



Fig. 2. The magnetic resonance cholangiography revealed a 10 mm cystic lesion (marked with hollow arrow) at the gallbladder fossa with a thin wall which communicate with the common bile duct (marked with solid arrow).

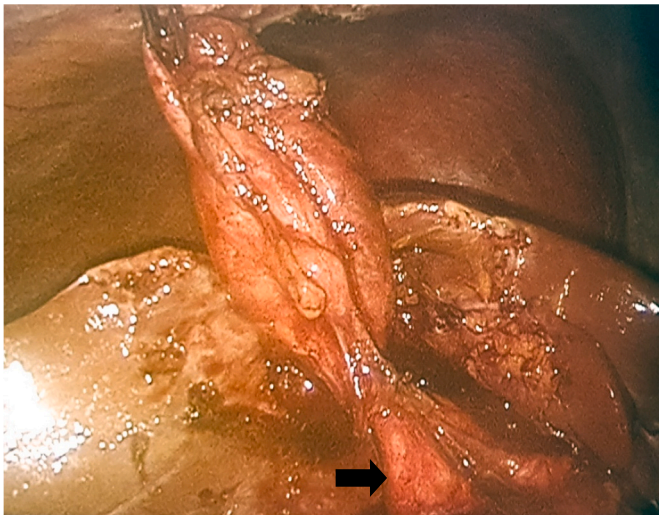


Fig. 3. A cystic structure of 4*2 cm size on the gallbladder fossa communicating with the common bile duct (marked with arrow).

the gallbladder fossa. The duodenum, the right colon and the omentum can adhere to the gallbladder fossa. The re-exploration of this patient can be risky due to the adhesions and it may lead to organ injury while adhesiolysis. Thanks to the advances in laparoscopic skills and instruments, it is no more contraindicated to operate patient with previous abdominal surgeries [23]. Palanivelu and Chowbey reported good results with no major postoperative complications [21,24]. Indeed, laparoscopic surgery has advantages as a better operating view than the open technique. It allows an easier identification of the calot's triangle [23]. However, it needs a high degree of expertise [23].

4. Conclusion

The indication of the cholecystectomy must be taken wisely

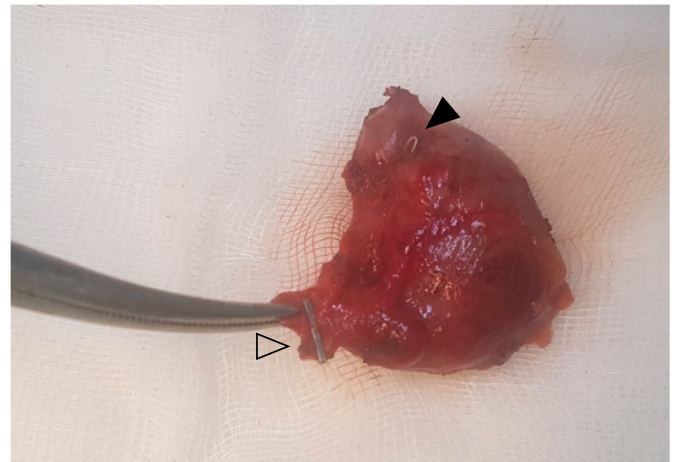


Fig. 4. Specimen of residual gallbladder with the former clip from the initial surgery (marked with solid arrow), a non-dilated cystic duct with the new clip (marked with hollow arrow).

otherwise surgery will not solve the problem. Even though the indication is correct, patient may complain of persistence of the pain. The post cholecystectomy syndrome can be a real challenge both for diagnosis and treatment. But it still possible to resolve it. We must keep in mind that remnant gallbladder can be left accidentally. In this case re-operation can be necessary. Laparoscopy by expert surgeon can be the first resort.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.



Fig. 5. Specimen of residual gallbladder with stones (marked with solid arrow) inside.

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Ethical approval was not required and patient identifying knowledge was not presented in the report.

CRediT authorship contribution statement

Study concepts and manuscript evaluation: Dr Hichem Jerraya, manuscript writing and data interpretation: Dr Wafa Ben Hmida, helped in collecting data: Dr Souhir Nasseh and Dr Nabil Haloui, manuscript evaluation: Dr Mehdi Khalfallah. Critical revision: Dr Ramzi Nouira. All authors discussed the results and contributed to the final manuscript.

Guarantor

Dr Hichem Jerraya.

Declaration of competing interest

Authors declare no conflict of interest.

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