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Laparoscopic treated so-called reformed gallbladder in patient with postcholecystectomy chronic pain

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SUMMARY: **Laparoscopic treated so-called reformed gallbladder in patient with postcholecystectomy chronic pain.**

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Introduction. *Inadequate calculi removal, bile stasis, inflammation and strictures are causes of postcholecystectomy biliary syndrome. A cystic duct remnant is defined as a residual duct greater than 1 cm; it may predispose to chronic postcholecystectomy symptoms.*

Case report. *We describe a case of a 33-years-old woman with recurrent epigastric pain radiating to right back. In the past medical history, an uncomplicated cholecystectomy was reported 11 years earlier. Imaging demonstrated a 2 cm impacted calculus within a cystic duct remnant, mimicking a so-called reformed gallbladder. At the magnetic resonance imaging the biliary tract was regular without dilatation. The patient was scheduled to laparoscopic exploration. Intraoperatively, the cystic duct stump containing the impacted calculus was easily found and meticulously dissected from extrahepatic bile structures.*

Conclusion. *In our experience the laparoscopic removal was safely performed with complete cystic duct remnant excision and definitive cure of chronic painful symptoms. Therefore we think that, in selected cases, the reoperation is feasible by means of mininasive surgical procedures.*

RIASSUNTO: **Trattamento laparoscopico del moncone cistico residuo (cosiddetta *refomed gallbladder*) in paziente con dolore cronico post-colecistectomia.**

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Introduzione. *Cause di dolore ricorrente post-colecistectomia possono essere la rimozione incompleta di calcoli, la stasi biliare, l' infiammazione e la stenosi biliare. Un moncone del dotto lungo più di 1 cm può essere causa di dolore cronico post-colecistectomia.*

Caso clinico. *Descriviamo il caso di una donna trentatreenne con dolore epigastrico cronico, irradiato al dorso. Nella storia clinica, si segnala un pregresso intervento di colecistectomia eseguito circa 11 anni prima. L'imaging documentava la presenza di un calcolo di circa 2 cm nel dotto cistico residuo condizione che mimava una colecisti cosiddetta rigenerata. All'esame RMN, l'albero biliare è risultato regolare senza segni di dilatazione. Alla luce del quadro clinico e dell'imaging abbiamo posto indicazione all'esplorazione chirurgica con approccio laparoscopico. Intraoperatoriamente il dotto cistico residuo contenente il grosso calcolo è stato individuato, dissecato e alla fine asportato.*

Conclusione. *Nella nostra esperienza, è stato possibile l'approccio mini-invasivo con escissione completa del moncone cistico e del calcolo in esso contenuto, ottenendo la regressione dei sintomi cronici dolorosi. Il successo della "re-colecistectomia" laparoscopica dimostra che in casi selezionati, pregressi interventi chirurgici non precludono l'utilizzazione di procedure mini-invasive.*

KEY WORDS: Post-cholecystectomy pain - Cystic duct remnant - Laparoscopic cholecystectomy - Chronic pain.
Sindrome post-colecistectomia - Dotto cistico residuo - Colecistectomia laparoscopica - Dolore cronico.

Introduction

The incidence of the so-called "postcholecystetomy syndrome" (PCS) has been reported to be between 10-40% and its onset may range from 2 days to 25 years after surgery (1,2). Cystic duct remnant containing impacted stones, fistula, granulomas or neuromas have been described as cause of PCS (2). A survey of 150 laparoscopic cholecystectomy patients showed that about 5% of cases suffered from chronic pain with no obvious cause (3). The pathogenesis and risk of chronic postcholecystectomy symptoms are still not well defined.

The aim of this report is to outline our strategies for the management of a cystic duct remnant calculus, to describe this unusual case laparoscopically treated and to review the literature.

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Case report

In June 2008, a 33-year old woman was referred to our Department after recurrent episodes of abdominal pain. She has undergone cholecystectomy for acute cholecystitis in 1997. The patient was symptomatic for more than 6 months. On examination, she had reproducible right upper quadrant abdominal pain with a positive Murphy's sign, and normal laboratory values. Abdominal ultrasonography (US) revealed a tubular structure in the gallbladder fossa with echogenic densities within it. Magnetic resonance imaging (MRI) identified a cystic duct stump containing a 2 cm stone (Fig. 1). No residual calculi were noted in the common bile duct (CBD). The patient was scheduled for laparoscopic exploration.

After section of multiple adhesions, the residual cystic duct was dissected meticulously from extrahepatic bile ducts (Fig. 2). Dissection technique started laterally from the inferior margin of the liver and progressively moving medially. The cystic duct remnant was excised at the cystic duct-CBD junction and, after application of ligaclips, easily removed.

Postoperative recovery was uneventful and the patient was discharged on the first postoperative day. Histology revealed a scarred cystic duct remnant with chronic inflammatory process associated with nerve's hypertrophy. The patient remained completely asymptomatic with no further episodes of pain at one-year follow-up.

Fig. 1 - Radiological images of a reformed gallbladder: a. T2-weighted MRI coronal section: Note the cystic duct stump with impacted calculus (arrow). b. Cholangiography acquisition for MRI. No dilatation or additional residual calculi of the biliary system have been observed.

Discussion

The diagnosis of PCS includes biliary and non-biliary aetiologies. Sphincter of Oddi dysfunction, retained common bile duct stone, bile duct stricture and/or injury, bile leak, and cystic duct remnant are the more common biliary causes (4). Disease of the cystic duct remnant was suggested in 1887 by Oddi (5). Patients who undergo partial cholecystectomy, or those with a cystic duct remnant, are at risk of inadequate calculi removal or new calculi formation for bile stasis and Oddi dysfunction (6).

Rogy and co-workers evaluated 322 patients with PCS. Eleven showed "a long cystic duct stump". Only eight had a stone in the cystic duct stump. The Authors concluded that cystic duct stump alone may not be the cause of recurrent painful symptoms (1). Recent studies have emphasized the role of retained calculi as a source of chronic biliary pain (7). The estimated incidence of a retained calculus within the cystic duct remnant after cholecystectomy was reported to be around 2,5% resulting as the most frequent biliary cause for PCS (2,4). The choice of a mini-invasive surgical procedure to perform gallbladder removal may predispose to PCS in patients with residual long cystic duct. During open cholecystectomy, the cystic duct is usually tied close to the CBD leaving only a minimal cystic duct remnant, while with laparoscopic procedure the cystic duct is divided closer to the gallbladder to avoid CBD iatrogenic damage, and finally leaving a longer cystic duct remnant (2).

We hypothesized that patients with particular long cystic duct remnant develop obstruction of the stump due the biliary sludge that finally collects in the low pressure structure like a residual cystic duct. The obstruction may be favoured by sphincter of Oddi dysfunction producing bile outflow alteration.

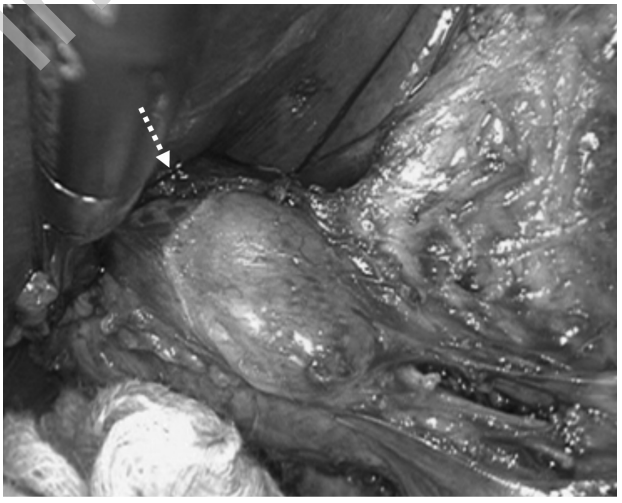

Fig. 2 - Laparoscopic image of a reformed gallbladder (arrow). Exposure of extrahepatic biliary and vascular structures.

The PCS diagnostic algorithm is the same as in an initial episode and should rule out non-biliary causes of upper quadrant pain. Of these, pancreatitis, peptic ulcer disease, postoperative adhesions, gastrointestinal motility disorders, and neurological disorders represent the more common aetiologies (4). US alone has moderate

sensitivity, specificity and accuracy while MRI shows better results with a sensitivity, specificity and accuracy of 100, 88.0, and 92.5 % respectively (8). ERCP is probably the most accurate test and should be utilized when endoscopic surgery is clearly indicated. The following algorithm was recently proposed for PCS patients: US together with liver function tests (LFT) remains the first line exam. If the CBD size is < 10 mm and LFT are normal further ERCP or MRCP is not recommended. If CBD stones are demonstrated on US patients should immediately undergo to ERCP (8). The success of ERCP in stone removal is related to specific anatomic factors, such as the size of the cystic duct, the position of the stone in the duct, the number of valves, and the degree of stone impaction (7). Stones in the cystic duct may also benefit from fragmentation techniques with holmium laser transpapillary placed or extracorporeal shockwave lithotripsy, associated with its endoscopic removal (2). In our experience ERCP was not indicated due the diameter of the impacted calculus and the absence of colestasis indexes. It was uncertain if the calculus arose the novo or was retained with a portion of gallbladder infundibulum during the first intervention. Surgical option to treat a symptomatic cystic duct remnant may involve open and laparoscopic procedures. The indication of open surgery is advocated from the majority of surgeons for the direct visualization of the unusual picture of a reformed gallbladder. Infact, the laparotomy shows the benefits to easily recognize the Calot's triangle embedded in inflamed scar tissue, to find the cystic duct stump and to realize a proper dissection from visceral adherences. We were able to treat this unusual case laparoscopically without conversion to open techniques. Despite previous cholecystectomy, the laparoscopic approach may be proposed and safely performed as revision surgery in case of symptomatic cystic duct stump.

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