



Post Cholecystectomy Stump Calculus Cholecystitis with Completion Cholecystectomy –A Rare Case Report

Authors

**Dr Shrirang Yadwadkar¹, Dr Rajiv Chnadra², Dr Manish Motwani³, Dr Jayant⁴,
Dr Swapnali⁵**

¹SMC (Speciality Medical Consultant), Dept of Surgery, ^{2,3}Assistant Honorary, Dept of Surgery,

⁴SMO (Speciality Medical Officer), Dept of Surgery

⁵SMC (Speciality Medical Consultant), Dept of Anaesthesia

M.T. Agrawal Hospital, Opposite ESIS Hospital, Off LBS Road,

Mulund – (West), Mumbai-400080 Maharashtra

*Corresponding Author

Dr Shrirang Yadwadkar

* Address – M.T. Agrawal Hospital, Opposite ESIS Hospital, Off LBS Road, Mulund
(West), Mumbai-400080 Maharashtra

Email: yadwadkarshrirang@gmail.com, Phone No: 08855022933

Abstract

Cholecystectomy is the most common method of choice for treating symptomatic gall stones. It can either be performed laparoscopically or by open cholecystectomy. Partial cholecystectomy is usually done whenever there is difficulty in performing total cholecystectomy due to various reasons such as acute attack with adhesions, fibrosis, in view of preventing bile duct and vascular injuries, variations in anatomy which lead to bile duct remnant which can cause post cholecystectomy syndrome. After a partial or subtotal cholecystectomy, symptoms may recur from pathology in the gallbladder remnant. When this occurs, a completion cholecystectomy is required as treatment of choice.

We here report a case of a patient with stump cholecystitis in a gallbladder remnant to demonstrate open exploratory laparotomy with completion cholecystectomy.

Keywords: Cystic duct stump calculi, stump cholecystitis, completion cholecystectomy.

Introduction

Cholecystectomy, either laparoscopically or by the conventional ‘open’ method, is considered to be the “gold standard” operation for gallstones ^[1]. Partial cholecystectomy has been performed in many situations such as difficult Calot’s triangle, where the anatomy may be distorted by recurrent

episodes of inflammation, adhesions or bleeding. In such a situation, persisting with dissection in the calot’s triangle can lead to major complications such as common bile duct and/or vascular injury, which can turn the procedure into a nightmare, both for the surgeon as well as the patient. In such cases, it is advisable to leave a

cuff of the gallbladder near the Hartmann's pouch, removing the rest of the gallbladder, in the manner described by Lerner [2] or Bornman and Terblanche [3] after removing all stones from the remaining cuff of the gallbladder. However, this carries the risk of developing stump cholecystitis when the gallbladder remnant becomes inflamed due to stone disease [4]. The reported incidence of stump cholecystitis varies but has been reported to occur in as many as 5% [4] of patients after emergent cholecystectomy, and it is rare after elective operations. It tends to occur in middle-aged women who are usually quite confident that their symptoms are similar to those that prompted their original cholecystectomy. The diagnosis is always into the dilemma as history suggestive of symptoms of post cholecystectomy syndromes leading to delayed diagnosis. Contrast enhanced CT scan or MRCP further aids in definitive diagnosis. ERCP can help in the diagnosis and if possible stones in the cystic duct remnant can be taken out with great difficulty. Most of the patients with retained calculi require surgical intervention and re exploration to remove the cystic duct remnant and stones.

Case Report

45-year-old man with hypertension presented to our hospital complaining of severe right upper quadrant pain and vomiting. He reported having laparoscopic cholecystectomy done eight years before followed by biliary leak with cystic duct stump blow out for which Exploratory laparotomy done with ERCP and CBD stenting done. Now he noted that the symptoms he now experienced were similar. He had been hospitalized four times in the preceding two years for similar episodes. Although abdominal ultrasounds were done on these occasions, the emergency room physicians did not entertain the possibility of a stump cholecystitis because the patient insisted that her gallbladder had already been removed.

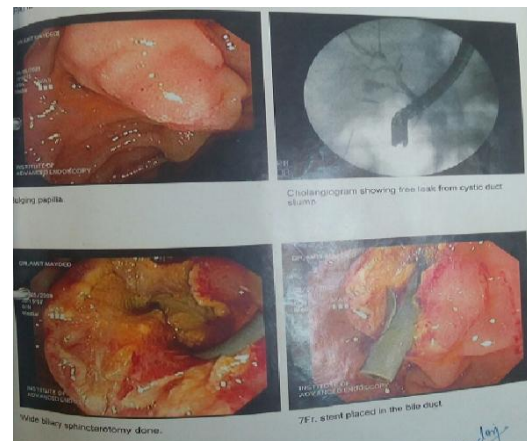


Figure 1. Previous ERCP with cystic duct leak and stent placement



Figure 2. Previous laparotomy scar

Abdominal ultrasound suggested that stones were present in a thick walled remnant of gall bladder with no evidence of dilated CBD. MR cholangiography revealed Gall bladder stump with calculus and sludge within and associated with wall thickening suggestive of stump cholecystitis. Exploratory laparotomy done with completion cholecystectomy with removal of multiple remnant stones and part of gallbladder with cystic duct. Wound closure done with drain in situ. Post operative course was uneventful. Drain removal done on 5th day followed by stitch removal on 10th day. 6 month follow up of the patient done without any new complaint.

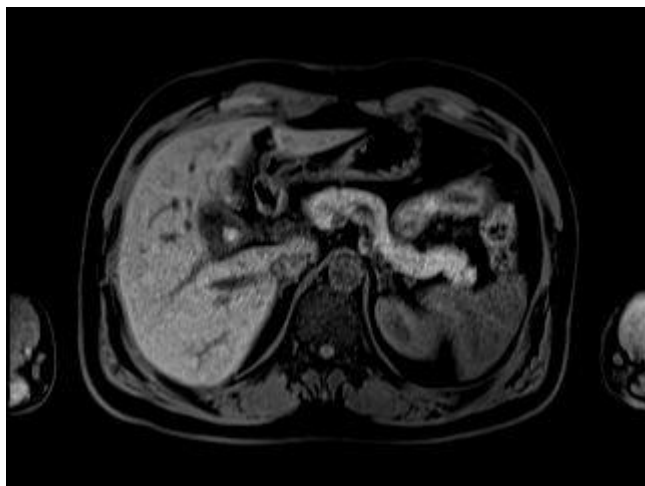


Figure 3 MR cholangiography showing Gall bladder remnant with calculi



Figure 5 Cystic duct remnant with stones

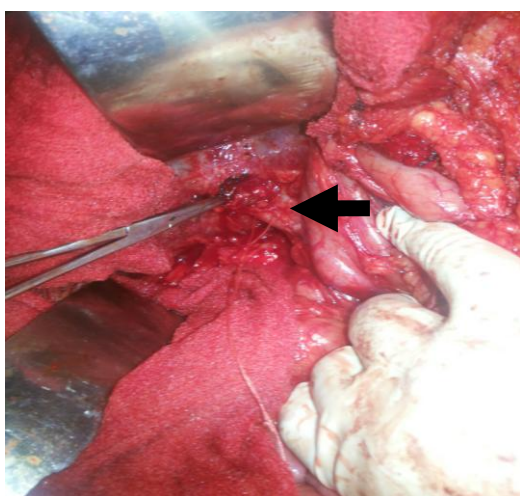


Figure 3 .Cystic duct remnant



Figure 6. Post operative wound with previous applied clips

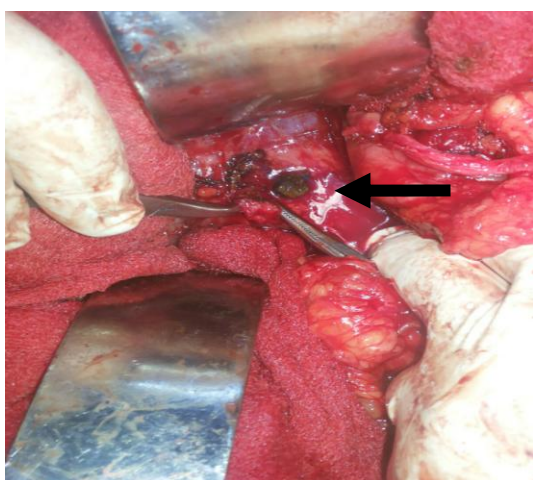


Figure 4. Cystic duct stump with calculus

Discussion

Imaging Anatomy

The normal cystic duct connects the gall bladder to the common hepatic duct to form the common bile duct, and is considered the most important structure to be identified during cholecystectomy. The normal cystic duct usually measures 46cm in length and contains concentric folds known as the spiral valves of Heister. [5] Cystic ducts shorter than 2 cm can also be found, which can present a significant challenge in the dissection and placement of clips during laparoscopic cholecystectomy. The diameter of the cystic duct ranges from 1 to 5 mm. The cystic duct usually joins the extra hepatic bile duct approximately halfway between the porta hepatis and ampulla of vater, commonly to its medial aspect [6]. During cholecystectomy, a variable length of the cystic duct is left as a remnant.

Usually, a cystic duct remnant measuring 12 cm in length is left, although remnants can be seen up to 6 cm in length. Complications associated with the remnant cystic duct are retained stones in cystic duct, bile leakage, stricture, fistula formation, dilatation of the cystic duct remnant, amputation neuromas, and suture granuloma of the cystic duct. Cystic duct mucocele is a rare complication, where the remnant of the cystic duct is distended with mucus.^[5,6]

Discussion

By definition, any length of cystic duct more than or equal to 1 cm remaining following surgery is considered as a cystic duct remnant^[7]. Bodvall and Overgaard found that a cystic duct remnant larger than 1 cm was present in 67% of patients with common bile duct stones and 82% of patients with severe postoperative biliary distress^[8]. Rozses *et al.* reported the cause of post cholecystectomy syndrome to be due to the cystic duct stump syndrome in 16% of patients^[9]. Though the exact incidence is not known, cystic duct or gall bladder remnant with or without stones seems to be emerging as one of the leading causes of post cholecystectomy syndrome, especially in this era of minimally invasive surgery where subtotal cholecystectomy has started gaining popularity^[10,11]. The terminal end of the cystic duct remnant is described as resembling a “leaf bud” in normal post cholecystectomy patients. When the remnant is pathologically dilated, it is described as having the appearance of a “flashlight bulb”.^[12] The dilatation or the pouch formation of the cystic duct remnant is thought to be due to an inflammatory reaction. Stump cholecystitis is rare phenomenon and in addition to it stump cholecystitis due to cystic duct stones is rare. It is not clear from the existing literature as to what is the natural history of these gallbladder remnants over a period of time, but there seems to be a trend towards surgical intervention in symptomatic patients. It could be concluded that the presence of a long cystic duct stump or a gallbladder remnant (with

or without calculi) on investigation, in patients with persistent post-cholecystectomy symptoms definitely demands surgical intervention, especially when a stone is present^[13,14,15]. Patients with gall bladder remnant can be asymptomatic or they can present with acute symptoms (biliary colic, acute cholecystitis or acute pancreatitis) or chronic symptoms (persistent right upper quadrant discomfort or pain, food intolerance, nausea or jaundice)^[16]. Although there are no pathognomic symptoms, the persistence of symptoms after cholecystectomy should alert the clinician to the possibility of a gallbladder remnant, especially when coupled with radiation of pain to the shoulder, food intolerance, nausea or jaundice^[16,17]. Ultrasonography is the initial investigation followed by Contrast enhanced CT scan and MRCP. ERCP is recommended only in situations where some intervention is contemplated. The treatment of patients with gallbladder remnants who are symptomatic is excision of the remnant — the so-called “re-cholecystectomy”, or “completion cholecystectomy”^[18]. Completion cholecystectomy can be done by open or laparoscopic. Due to previous difficult partial cholecystectomy or due to recurrent episode of inflammation, laparoscopic completion cholecystectomy can be converted into open.

Conclusion

Post cholecystectomy stump calculus cholecystitis is an important but rare sequelae after cholecystectomy. Completion cholecystectomy (open or laparoscopic) is the most common treatment modality reported in the literature for the management of residual gallbladder stump with stones.

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