

Case Report

A tale of spilled stones

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ABSTRACT

Cholecystectomies are one of the commonest surgeries done in India. Gallbladder perforation and stone spillage is common and occurs in 15 to 40% of laparoscopic and 5 to 20% of open cholecystectomy procedures. In up to a third of these cases, stones are not retrieved and complications can arise many years post-operatively. In majority of cases these lost stones either in laparoscopic or open surgery remain silent but rarely can become symptomatic and cause range of complications like intra-abdominal abscesses, empyema, abdominal wall abscesses, cutaneous sinus tract and bladder fistulas. Diagnosis can be difficult and patients may present to many specialties within medicine and surgery. We seek to present our case and on a rare complication and management of one such “lost” stone.

Keywords: Cholecystectomy, Spillage, Fistula, Retained stones

INTRODUCTION

In the current era laparoscopic cholecystectomy has become the gold standard for the surgical treatment of symptomatic gallstones. However, with the increase in the number of laparoscopic operations performed, there has also been a noticeable increase in the number of complications specific to these procedures.¹ Stones spilled at the time of surgery may remain in the peritoneal cavity adjacent to the liver or spillage may occur during dissection of the gall bladder off the liver bed, tearing with grasping forceps, or during extraction of the gall bladder through one of the port sites. The incidence is more common when operating on an acutely inflamed gall bladder. Gallstones can be spilled during an open cholecystectomy, but these stones are eliminated usually through direct removal, copious irrigation and mopping with laparotomy sponges. In majority of cases these lost stones either in laparoscopic or open surgery remain silent but rarely can become symptomatic and cause range of complications like intra-abdominal abscesses,

empyema, abdominal wall abscesses, cutaneous sinus tract and bladder fistulas.^{2,3}

CASE REPORT

A 35-year-old woman presented with discharging sinus in anterior abdominal wall for 1½ years. She was apparently alright 1½ years back when she started having itching in the right subcostal area over the old surgical scar followed by formation of a small pustule which ruptured after few days with passage of foul smelling discharge. Initially patient had taken 5 days course of oral antibiotics prescribed by general practitioner followed which discharge subsided but the complaints recurred after 1 month. She also complained of swelling over lateral aspect of incision line from 1 year which was insidious in onset and gradually progressive to current size of 4×4 cm, aggravated on strenuous work and relieved on taking rest. Her significant past history included a laparoscopic converted to open cholecystectomy in view of dense adhesions in case of chronic

calculus cholecystitis done 2 years before presentation. She did not have any medical comorbidities.

Local examination revealed a sinus tract in the right sub-costal region in midclavicular line over the surgical scar which was non tender and serous discharge was seen with no signs of inflammation. A 7×4 cm single, solitary swelling with ill-defined borders and smooth consistency was present over the medial aspect of scar in right hypochondrium with positive cough impulse and 4x4 cm defect was palpable in fascial sheath.

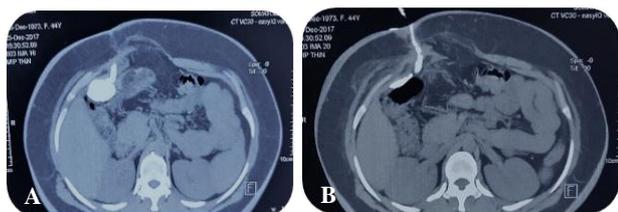


Figure 1 (A and B): CT sinogram showing sinus tract leading to collection in GB fossa.

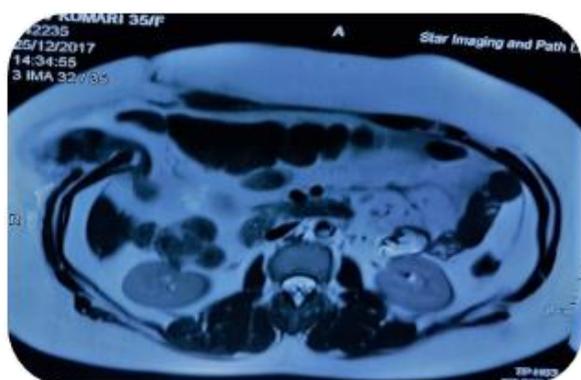


Figure 2: T2W axial image showing linear tract in anterior abdominal wall with adjacent hernia with protrusion of omental fat and bowel.

Her blood parameters did not revealed any abnormality. USG whole abdomen revealed a hypochoic fistulous tract measuring approx. 3.6 cm extending from anterior abdominal wall at the site of incision to the GB fossa with no evidence of collection in GB fossa with features suggestive of incisional hernia. CT Sinogram revealed a 4 cm long sinus tract leading to a collection of 12×15 mm in gall bladder fossa. MRCP revealed two T2 hypointense structures suggestive of dropped calculi were noted in GB fossa with small fluid collection measuring 12×15 mm on anterior aspect of GB fossa with T2/ STIR hyperintense tract seen leading from this collection and reaching up to skin surface biliary fistula. Posterior to this tract, a right ventrolateral wall herniation at the incision site containing proximal transverse colon loop through an anterior abdominal wall defect of 7.4×6.3 cm.

A plan of loco-regional exploration of sinus tract was made. Skin incision was made over the previous scar site

and abdomen opened up in layers. Fistulous tract of length 5×1 cm internally communicating with remnant gall bladder with two stones were seen. There were dense adhesions in between duodenum, sac, fistulous tract. The tract was excised and stones retrieved with marsuplization of remnant gall bladder. Further anatomical repair of incisional hernia was done. Histopathology of the specimen showed chronic inflammation with lymphocytic infiltration.

DISCUSSION

Nowadays laparoscopic cholecystectomy is standard of care for symptomatic cholelithiasis. The well-known complications are common bile duct injuries, perforation of the gall bladder and spillage of stones.^{1,2} The reported abdominal complication rate after spillage of stones is 1.4%.^{1,2}

Prevention and management of spilled stones

During laparoscopic cholecystectomy, there are three ways by which perforation of gall bladder can occur. First, the gallbladder is used for traction to assist in the dissection of the cystic duct and cystic artery. This leads to excessive traction on gall bladder and graspers that may tear the wall of the gall-bladder. Secondly, the gallbladder may be punctured during dissection from the liver bed. Finally, the gallbladder is extracted from the abdomen through a small incision, at which time it may be put under high pressures.

Perforation is easily avoided if extension of the skin incision is performed when needed. Patients with acutely inflamed gallbladders have friable tissue susceptible to tear. Dense adhesions around the gallbladder make dissection potentially more difficult and a tense, distended gallbladder that has not been decompressed is at risk of perforation.

Effort should be done to prevent spillage of stones by careful dissection and adherence of tissue planes and proper amount of traction on the tissues. Retrieval bags may be used if available to prevent spillage. In case of spillage, the perforation should be closed with clips, endoloops or sutures. Stones that can be handled with instruments should be removed and copious lavage should be done to remove any concretions and spilled fragments of stones. Endorsement in the patient documents should be done regarding this complication and patient should be followed-up closely. High index of suspicion regarding the spilled stones should be kept in a patient presenting with non-healing port site sinuses after laparoscopic cholecystectomy.

Risk of complications from lost stones

Although lost gallstones were initially considered innocuous, it is now recognised that they can be a small but significant source of postoperative morbidity. The

chemical composition of the bile and bacteria in the stones can lead to complications.

The presentation of complications will vary from patient to patient, and depend largely on the site and type of complication suffered, subsequently causing intra-abdominal abscesses, empyema, abdominal wall abscesses, cutaneous sinus tract and bladder fistulas to the less common, such as liver abscess, staphylococcus bacteraemia, broncholithiasis and expectoration, empyema, granulomas, bowel obstruction and incarceration within a hernial sac.^{2,3} In most instances, the diagnosis is made retrospectively, or after visualisation of the stones on imaging and revisiting the patient's surgical history. Most complications occur within the first few months, but presentations up to ten years after the procedure have also been documented

Management of complications

The first imaging method of choice is usually ultrasound, as stones are usually visualised well using this method. Visualisation, however, depends on the location of the lost stones. CT and magnetic resonance imaging (MRI) can also be used to obtain adjunct images depending on the biochemical composition of the stone. Pigmented stones that are radio-opaque can be seen clearly on CT with unenhanced pictures. On MRI most stones are hypointense on T2-weighted images and isointense to hyperintense on T1-weighted images. These are best seen without fat suppression as this allows for the contrasting features of the stone to be seen against the fat. Sometimes the radiological findings mimic unusual diagnoses such as actinomycosis, hydatid disease or even malignancy, so diagnosis can be difficult. Ultimately, abscesses should be drained, whether percutaneously or surgically, and the stones should eventually be removed. Ideally this is done via minimally invasive techniques, but open surgery is often required as in our case

CONCLUSION

Gallbladder perforation during laparoscopic/open cholecystectomy is a reasonably common problem and may result in spilled and lost gallstones. Though uncommon, these stones may lead to early or late complications, which can be a diagnostic challenge and cause significant morbidity to the patient. Clear documentation and patient awareness of lost gallstones is of utmost importance, as this may enable prompt recognition and treatment of any complications.

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