A rare late complication of spilled gallstones

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Abstract

Laparoscopic cholecystectomy is the treatment of choice for symptomatic gallstones. A complication that is often overlooked is that related to lost intraabdominal gallstones as a consequence of intraoperative gallbladder perforation. This is a case report of a patient presenting with a colovesical fistula due to lost gallstones from laparoscopic cholecystectomy performed 14 years previously. A literature review follows that explains how lost gallstones have the potential to cause late complications and why it is should not be ignored.

The most common cause of colovesical fistula in Western countries is diverticular disease; other common causes include Crohn’s disease and colonic malignancy.

The patient discussed is one of a handful of reported cases presenting with colovesical fistula secondary to lost gallstones during laparoscopic cholecystectomy, since the advent of the procedure in 1987.

Case report

A 54-year-old lady presented to the General Surgical Outpatient Clinic at Greymouth Hospital in April 2009 for management of a documented colovesical fistula.

She was an otherwise well lady who had undergone a laparoscopic cholecystectomy (LC) for symptomatic gallstones in 1995. Postoperative course was unremarkable until June 2004 when she presented to her GP with recurrent urinary tract infections. She was investigated over the following 12 months with no cause found for symptoms.

She continued to be troubled by ongoing suprapubic pain and urinary symptoms over the next 3 years and was reinvestigated with a computed tomography (CT) scan of her abdomen in January 2009 which showed evidence of a colovesical fistula presumed to be secondary to diverticulitis (see Figure 1).

Subsequent colonoscopy in May 2009 demonstrated changes in the mucosa of the descending colon representing the colovesical communication.
Figure 1. CT scan showing fistulous communication between the colon and the bladder

An elective repair of the colovesical fistula was performed on 11 June 2009. When the fistula was divided, three small gallstones (see Figure 2) were identified within the fistula tract.

Figure 2. Gallstones removed from the fistula tract
A resection and anastomosis of the distal descending colon to rectosigmoid was carried out. She went on to have an uneventful recovery.

Review of the notes from her laparoscopic cholecystectomy performed in February 1995 state that a large gallbladder containing multiple stones was encountered. During the dissection one stone had fallen into the abdomen, and was unable to be retrieved.

**Discussion**

Since its introduction almost 25 years ago, laparoscopic cholecystectomy has become the main stay of treatment for symptomatic gallstones. However two complications are more common compared to the open procedure: (1) injury to the common bile duct and (2) complications due to lost gallstones.

As surgeons have become more experienced at laparoscopy, the risk of common bile duct injury has reduced. The incidence of spilled and lost gallstones as a result of intraoperative gallbladder perforation has remained unchanged however.\(^1\)

There have been a number of hypotheses as to what effect leaked bile and lost gallstones have on intraperitoneal organs. Several studies over the past 15 years have looked at this subject, implanting bile and gallstones in animal models. These studies have shown that gallstones can remain inert in the abdominal cavity or can be partially reabsorbed causing only mild local effects.\(^2,3\)

Gallstones also demonstrate the ability to cause postoperative adhesions and abscesses.\(^4,5\) Risk factors for septic complications include the number, volume and composition of stones. Fragmented stones and stones from an acutely infected gallbladder also leave the patient at higher risk of complications.\(^3,6\)

There are a wide variety of complications reported in the literature from lost gallstones. Intraabdominal abscess formation being the most common (60%), fistulisation to other intraabdominal organs being the next most likely (12%).\(^6\)

Whilst the incidence of long-term complications from lost gallstones is low at approximately 1.7/1000 LCs,\(^1\) the figures are more impressive in the subset of patients that have intraoperative gallbladder perforation. Woodfield et al analysed 18,280 LCs showing an incidence of gallbladder perforation in 18.3% of cases.\(^6\) This was similar to the percentage of gallbladder perforations found by Brockman et al at 20% who analysed approximately 17,000 LCs.\(^7\)

When the gallbladder was perforated, the incidence of spilled stones was approximately 40% or 7.3% of all LC’s.\(^8,9\) There have been two studies of 4813 LC’s\(^9,10\) and one review\(^7\) looking at 16,869 LCs that have reported the incidence of spilled stones being unretrieved at 33%. The actual figure may well be higher given that approximately 20% of stones are lost without the surgeon realising it.\(^7\)

The incidence of complications from a stone *knowingly left in the abdominal cavity* is approximately 7%-8.5%\(^1,6\) but this figure may be higher given that late complications after end of follow up would not have been included in the above studies. Data suggests that there is a mean duration of 10.4 months until definitive intervention is carried out for complications from lost stones.\(^6\)
Gallstones are most commonly spilled either during dissection of the gallbladder off the gallbladder fossa or during removal through a port site. The general consensus in the literature is that the surgeon should explore and remove as many of the spilled stones as possible. Conversion to an open procedure to retrieve lost gallstones is not recommended.1

As evidenced by the patient that is the subject of this case report, complications from lost gallstones can occur several years after the initial operation. The importance of clear documentation and informing the patient about the lost gallstones cannot be emphasised enough.

Documentation of lost gallstones should include relevant information on the status of the gallbladder, the number of stones lost and whether the stones were fragmented, as all these leave the patient at higher risk of developing late complications. Physicians need to have a high index of suspicion regarding symptoms that could be a complication from lost stones so that necessary investigations can be carried out early. Clear documentation and communication with the patient is important from a medicolegal standpoint if late diagnosis and/or unnecessary investigations do occur.

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References: