



Flank Abscess: A Complication of Spilled Gallstones

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Abstract:

Spilled unretrieved gallstones can cause rare but significant complications such as intraperitoneal abscesses, fistulas, intestinal obstruction and broncholithiasis. A 79 year old woman presented with a painful abscess on her right flank and MRI that revealed a large collection extending into the pararenal space. Her recent surgical history included a laparoscopic cholecystectomy for cholecystitis. She underwent an incision and drainage of the flank abscess which revealed a large cavity containing purulent exudate and several small gallstones.

Gallstones are more likely to be spilled during laparoscopic cholecystectomy when compared to the open procedure. Steps during a laparoscopic cholecystectomy where the gallbladder can be perforated include when grasping the gallbladder, when dissecting the gallbladder off the liver and during retrieval through the umbilical port site. The risk of perforation is increased with an inflamed gallbladder. Spilled gallstones can have serious complications that will likely require an additional surgical procedure.

Key words: Abdominal Abscess, Cholecystitis, Fistula, Gallstones, Intestinal Obstruction.

Introduction

Laparoscopic cholecystectomy is considered the gold standard for management of gallstone disease. The advantages include decreased hospital stay, decreased post-operative pain, speedier recovery and improved cosmesis. However, perforation of the gallbladder and spillage of gallstones during laparoscopic cholecystectomy is more common than in open cholecystectomy and occurs in 8%-40% of cases [1-4]. Spilled stones can cause rare but serious complications including both intra and extraperitoneal abscesses, fistula

formation, intestinal obstruction, pleural effusion and broncholithiasis [3,5].

Case Report

A 79 year old lady presented with a two month history of right sided lumbar pain and formation of an enlarging flank abscess. An MRI scan investigating the cause of her back pain revealed a large collection that extended into the right posterior pararenal space. Her past surgical

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history included a laparoscopic cholecystectomy for acute cholecystitis six months previously. She was discharged two days after this procedure and was asymptomatic at her follow up appointments with an unremarkable post-operative MRCP.

She had a large carbuncle on her right flank and a mild leukocytosis. Intravenous antibiotics were commenced and the abscess was incised and drained under general anaesthetic. Purulent discharge and four small black stones drained from the large abscess cavity. No obvious fistula was palpated. A swab was sent for microbiology and the stones were sent for chemical composition.

She was discharged with oral antibiotics and a negative pressure wound device in situ. The swab grew *Klebsiella pneumoniae* and the stones were reported as bile gallstones. She had regular wound reviews in outpatient clinic with no abscess recurrence [Fig.1].

Discussion

Gallstone spillage is more common in laparoscopic cholecystectomy than in open cholecystectomy. Additionally, it is more difficult to retrieve the stones with the laparoscopic approach and so stones are retained in the peritoneal cavity in 13%-32% of laparoscopic cholecystectomies [3]. Complications of retained stones are uncommon (0.1%-0.3% of cases) but significant [5,7,8]. The complications are diverse in their presentation due to the migratory nature of the stones. The most frequently reported complications are intraperitoneal and abdominal wall abscesses. Other complications in the literature include intestinal obstruction, colocutaneous fistula, pleural empyema, broncholithiasis, sinus formation, bladder fistulisation, incarcerated hernia and dyspareunia [1,3,4,9]. The temporal course to spilled gallstone complications has been reported from one month to twenty years; however most



Fig.1: Right flank: wound review at 8 weeks post-procedure.

commonly occur at approximately four months postoperatively [1,3,4].

There are several steps during a laparoscopic cholecystectomy where a gallbladder can potentially be perforated. It can occur during gasping and traction of the gallbladder, during dissection of the gallbladder from the liver bed, and during retrieval of the dissected gallbladder through the umbilical port site. The Hartmann's pouch clip can also become dislodged [3,4]. The risk of gallbladder perforation is increased with an inflamed, friable gallbladder wall and with difficult dissection due to adhesions [10].

The risk factors for complications after spilled gallstones are pigment stones, infected bile, old age [5], >15 spilled stones and stone size >15 mm [3,5,10]. Pigment stones have been shown to contain more bacteria than cholesterol stones and bile is more likely to be contaminated in the elderly, in jaundiced patients and in those with acute cholecystitis [3].

The diagnosis of complications arising from spilled stones is usually made retrospectively. Ultrasound can be used to visualise stones. CT and MRI can also be used for more difficult stone locations. The treatment of spilled gallstones is

ultimately to remove the stones and to treat any complications [5,10]. Several cases in the literature reported the need for bronchoscopy to retrieve a broncholithiasis and in one extreme case, a wedge resection of the lung was performed for a chronic abscess caused by a gallstone [4,6].

Although complications arising from spilled gallstones are rare, they usually require a secondary surgical procedure and so should be considered as a significant risk. Recommendations for decreasing gallbladder perforation include careful dissection from the liver bed, the use of a specimen bag and extension of the umbilical incision to allow easier delivery of a large gallbladder. In the event of gallbladder perforation, copious irrigation and suction should be used and stones removed with graspers or suction. In event of gross spillage, a drain should be inserted and antibiotics given. The literature does not report spilled gallstones to be an indication for conversion to open cholecystectomy [3,5].

Conclusion

Spilled gallstones are a common event in laparoscopic cholecystectomy and have rare but serious complications that will likely require an additional surgical procedure. The risks of unretrieved gallstone complications are higher in the elderly, those with acute cholecystitis and in those with pigment stones. If perforation occurs, it is recommended the stones should be retrieved as best as possible and that known unretrieved stones are documented in the operative notes.

References

1. Khan M, Khatri M, Oonwala Z. Knowledge and practices of general surgeons and residents regarding spilled gallstones lost during laparoscopic cholecystectomy: a cross sectional survey. *Patient Saf Surg.* 2013;7:27.
2. Patterson, E, Nagy A. Don't cry over spilled stones? Complications of gallstones spilled during laparoscopic cholecystectomy: case report and literature review. *Can J Surg.* 1997;40:300-304.
3. Quail J, Soballe P, Gramins D. Thoracic gallstones: a delayed complication of laparoscopic cholecystectomy. *Surg Infect (Larchmt).* 2014;15:69-71.
4. Chatzimavroudis G, Atmatzidis S, Papaziogas B, Galanis I, Koutelidakis I, Doulias T, *et al.* Retroperitoneal Abscess Formation as a Result of Spilled Gallstones during Laparoscopic Cholecystectomy: An Unusual Case Report. *Case Rep Surg.* 2012;2012:573092.
5. A prospective analysis of 1518 laparoscopic cholecystectomies. The Southern Surgeons Club. *N Engl J Med.* 1991;324:1073-1078.
6. Mullerat J, Cooper K, Box B, Soin B. The case for standardisation of the management of gallstones spilled and not retrieved at laparoscopic cholecystectomy. *Ann R Coll Surg Engl.* 2008;90:310-312.
7. Hougard K, Bergenfeldt M. Abdominal fistula 7 years after laparoscopic cholecystectomy. *Ugeskr Laeger.* 2008;170:2803.
8. Helme S, Samdani T, Sinha P. Complications of spilled gallstones following laparoscopic cholecystectomy: a case report and literature overview. *J Med Case Rep.* 2009;3:8626.
9. Smith A, Stewart L, Fine R, Pellegrini C, Way L. Gallstone disease. The clinical manifestations of infectious stones. *Arch Surg.* 1989;124:629-633.
10. Demirbas B, Gulluoglu T, Aktan A. Retained Abdominal Gallstones After Laparoscopic Cholecystectomy: A Systematic Review. *Surg Laparosc Endosc Percutan Tech.* 2014;25:97-99.