Urological manifestation of delayed complication of laparoscopic cholecystectomy

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Abstract Gallstone spillage is recognised as a possible complication of laparoscopic cholecystectomy and there are countless examples of untoward short and long term sequelae resulting from their non-retrieval. We present the case of a 65-year-old gentleman with sterile pyuria and lower midline abdominal mass which proved to be a complex gallstone inflammatory mass related to the dome of the bladder. This patient's investigative course was exhaustive and the definitive diagnosis not achieved until histopathological assessment of the intraoperative specimen. The diagnosis of these lower abdominal wall masses can be difficult, particularly with complex lesions.

Keywords Laparoscopic cholecystectomy · Gallstone spillage · Abdominal mass

Case presentation

A 65-year-old man was reviewed at one year post laparoscopic cholecystectomy upon which he was noted to have a palpable suprapubic mass. Furthermore, the patient had been experiencing urinary urgency and frequency the past year. Urine cultures were negative and the patient was referred to a urologist.

Subsequent examination by said specialist confirmed a persistent mass which was then imaged. On ultrasound the lesion was noted to be 62 mm in maximum diameter and lying just above the bladder. The CT appearance was consistent with a complex cystic structure with loculation and thickened walls without involvement of the bladder roof. Specific manoeuvring at CT failed to demonstrate communication between the bladder lumen and the mass. Comparative MRI was performed and the lesion described as thick walled, enhancing with central cystic degeneration and possible small bowel involvement. The patient proceeded to cystoscopy which revealed an extrinsic mass indenting the dome of the bladder with central punctuate opening suggestive of a complex urachal lesion. A fine needle biopsy was performed which showed organising granulation tissue favouring a reactive inflammatory process. There was no evidence of malignancy.

Excision was undertaken and intraoperative findings were of an obvious mass arising from, or involving the dome of the bladder and possibly a urachal remnant. A short length of small bowel had adhered to the mass posteriorly. The mass, small bowel and bladder dome were excised en bloc and bowel was reanastomosed using a linear stapler. (Figs. 1 and 2)

Histopathological evaluation of the operative specimen confirmed the mass as 55 × 50 × 45mm, with no urachal remnants, or communication with the bladder. Within the mass itself were small foreign body granulomas, giant cells and within the lumen a 1mm concretion comprised of cholesterol crystals and possible bile pigments. The most likely aetiology of this finding was therefore thought to be intra-abdominal migration of a lost gallstone creating a complex and chronic inflammatory focus as described previously. Another infrequently described possibility, however remote, would entail seeding of the stone through the umbilical port at laparoscopy.

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Figs. 1 & 2 The complex mass as seen in situ (1) and post resection (2). Small bowel involvement is clearly visible

The patient's postoperative recovery was uncomplicated and he has remained well.

Discussion

Spillage of gallstones at laparoscopic cholecystectomy has long been recognized as a relatively common procedural complication. Figures of between 5–40% have been quoted in the literature but of interest in this case is the potential for adverse outcome as a result of their unretrieval [1]. The intra-abdominal migration and seeding of lost gallstones is highly variable and unpredictable with a wide spectrum of potential adverse endpoints. By far the most common complications are in the right upper quadrant as the offending particle becomes trapped in between layers of tissue [2]. A less than exhaustive list of these endpoints includes intra-abdominal and abdominal wall abscess formation, cholelithoptysis (expectoration of gallstones) and gallstone empyema, fistula formation, urinary tract pathology (for example, vesicular granuloma), small bowel obstruction and perforation and sepsis [3, 4, 5]. Recent literature reviews suggest that there are a number of factors, which contribute to higher morbidity following gallstone spillage, and these

include size, number and type of stone (particularly pigment stones as they carry a higher bacterial load), and the age of the patient [2].

Of particular importance from a urological perspective is the initial diagnosis and work-up of patients who present with a midline lower abdominal mass. Disorders of the bladder and urachus would head the list of differential diagnoses and the potential for malignancy must always be considered. In females, one must also consider uterine pathology and pregnancy, though. Incisional and midline, e.g. Spigelian, hernias are also a possibility.

In the setting of sterile pyuria, the possibility of bladder malignancy is increased and therefore is the working diagnosis, however foreign bodies (and associated inflammatory response) and pregnancy are other differentials. Sterile pyuria as an isolated finding suggests a renal aetiology, both intrinsic and extrinsic, but vaginitis and rare infections such as tuberculosis need to be considered also.

This case highlights the difficulty in diagnosing midline abdominal masses and as shown, the full complement of investigative procedures has been utilised in order to achieve this. As the endpoint in the majority of such cases is surgical intervention, especially in symptomatic patients, one must approach with caution exposure of the patient to radiation and procedural risks through FNA and contrast administration. The information gained through imaging and FNA of this patient's abdominal mass was restricted to 'chronic inflammation' and the definitive diagnosis only achieved following excision of the offending tissue. A careful surgical and medical history may provide clues as to the likely aetiology of such presentations and possibly allowing for a more streamlined investigative course [6, 7, 8]. The main consideration here is to exclude malignancy and imaging and biopsy should play an adjunctive role to surgery.

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