CASE REPORT

Huge gallstone complicating laparoscopic cholecystectomy

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SUMMARY

Gallstone disease is common in the western world and is most often diagnosed on ultrasound scanning. This case is of a 57-year-old woman with a history of biliary colic who was admitted as a day case for a laparoscopic cholecystectomy. This was converted to open because of the technical difficulty related to a huge gallstone in the gallbladder measuring 60 mm×30 mm×35 mm, the largest we have seen. Review of her ultrasound scan showed this large stone present at the time. Several factors are known to increase the risk of conversion to open, and these patients require a longer in-hospital stay postoperatively. Prior knowledge of these factors may advocate preoperative admission to a unit with inpatient beds available, not a day case unit. This will help save costs involved in ambulance transfers of day case patients to inpatient units and support the efficient use of our elective and emergency services.

BACKGROUND

Gallstones are a common important clinical condition, over 400 000 cholecystectomies were performed in England over a 9-year period from 2001 to 2009, of which 16.7% were open cholecystectomies. Laparoscopic cholecystectomy is often performed in a day case unit, but when converted to open the patients require in-hospital stay. In this age of austerity, reducing the extra costs of an ambulance transfer of a patient with a laparoscopic converted open cholecystectomy is beneficial. In addition, efficient use of day case services and acute hospital beds is crucial. Accurate preoperative gallstone size measurement could help predict high risk of conversion to open, and pre-emptive admission to a unit with inpatient beds available.

CASE PRESENTATION

A 57-year-old woman attended the day case unit for a laparoscopic cholecystectomy. She has a 1-year history of right upper quadrant colicky pains following fatty meals. She is normally fit and well with no medical history and not on any regular medication. She has never undergone a surgical procedure. Abdominal examination is unremarkable. Her blood tests show a normal full blood count and normal liver function tests. No evidence of obstructive jaundice or deranged liver function tests in the past. An ultrasound scan confirmed the presence of a solitary gallstone. Perioperative cholangiography was not performed as in our unit this is reserved for suspected cases of intraductal stones where the liver function tests are deranged. At operation, her gallbladder was not amenable to

removal laparoscopically because of a large stone present within, which made the gallbladder difficult to grasp and dissect. The graspers used in cholecystectomy are not ideal for holding the gallbladder when it is distended or full of stones. Attempts were made to aspirate the gallbladder but this was unsuccessful due to the solid nature of the gallbladder stone and lack of any fluid contents. The decision was made to convert to open cholecystectomy. The gallbladder contained a single large gallstone measuring 60 mm×30 mm×35 mm (figure 1), certainly the largest seen in our experience. The patient was transferred to an inpatient bed for continued recovery and was discharged 3 days later.

DISCUSSION

Gallstones are a common condition, with women being more commonly affected than men.¹ The prevalence increases with age and nearly 40% of women in the ninth decade have gallstones. The aetiology of gallstones is likely due to defects in lipid metabolism and supersaturation of bile contents, especially cholesterol. Several factors can aggravate this process; diet and obesity to name a few. Cholecystectomy is the gold standard treatment. In England between 2001 and 2009, 418 214 cholecystectomies were performed, of which 83.3% were done laparoscopically.² This represents a significant use of National Health Service (NHS) resources, with nearly 50 000 cholecystectomies performed every year.

Ultrasound (US) has become the method for detection of gallstones. The characteristic features of gallstones on US are a marked posterior acoustic shadowing, a reflective echo from the anterior surface of the gallstone and mobility of the gallstone on changing the patient's position.¹ Although most radiologists and ultrasonographers do not routinely record the exact dimensions of stones, US preoperatively can be used to accurately measure the size of gallstones if they appear large. The size of gallstones can be assessed by the ultrasound reflection and attenuation,³ and this is accurate with their actual size when measured after removal.⁴ One limitation with US is the inability to ascertain the type of stones in the gallbladder. This additional information would be useful as cholesterol gallstones are easier to crush than pigment gallstones.

The rate of conversion from laparoscopic to open cholecystectomy is 5%.² Admission with inflammatory gallbladder pathology, emergency operation, comorbidities, increasing age and male patients are significant predictors of conversion to

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Figure 1 Huge gallstone removed from gallbladder after cholecystectomy.

open cholecystectomy. The main reason for conversion to open is inability to expose the anatomy.⁵ Large gallstones within the gallbladder can necessitate a conversion to open surgery via two ways. First, large stones in the gallbladder contribute to inflammation and thickening of the gallbladder wall. Through ultrasound measurements, the thickness of gallbladder wall has been shown to correlate with conversion to open surgery in bivariate analyses.⁶ Second, a large gallstone can make it difficult to grasp the gallbladder with laparoscopic instruments and expose the important anatomy to be dissected. It is difficult to ascertain when a gallstone should be considered 'large' and more studies are required. The location of the gallstone may also be an important predictive factor.

Laparoscopic cholecystectomy is often performed in day case units, but when converted to open the patients have to remain in hospital for several days for monitoring and pain control. Not all day case units have the facilities for in patient care, so

transfer to other units or sister hospitals by ambulance for continuing care is required. This is the case in our unit, where such patients are routinely transferred to our nearby acute hospital (part of the same trust) to avoid the day case unit becoming an inpatient ward. This ambulance transfer represents an extra cost burden to the NHS and an inefficient use of day case services. In addition, it is a diversion of emergency ambulance services away from areas of high need, and puts pressure on the available acute beds in the hospital. Prior knowledge of the presence of a large gallstone means appropriate planning of the operation in a unit with inpatient beds available to support a cost-effective service.

Learning points

- ▶ Gallstone disease is common.
- ▶ Ultrasound can accurately assess the size of a gallstone and should be done routinely.
- ▶ Large gallstones may pose technical difficulties when performing a laparoscopic cholecystectomy.
- ▶ Patients with large gallstones may be more suited to admission to an inpatient unit as they have a higher risk of conversion to open.
- ▶ More studies are required to ascertain what measurements should be used to define a gallstone as 'large' in relation to an increased risk of conversion to open.

Competing interests None.

Patient consent Obtained.

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