



Giant gallstone performed by emergency laparoscopic cholecystectomy



Xiequn Xu*, Tao Hong, Chaoji Zheng

Department of General Surgery, Peking Union Medical College Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100730, China

ARTICLE INFO

Article history:

Received 12 August 2013
Received in revised form
18 September 2013
Accepted 1 October 2013
Available online 9 October 2013

Keywords:

Giant gallstone
Laparoscopic cholecystectomy
Open cholecystectomy

ABSTRACT

INTRODUCTION: Gallstone disease is very common, but the gallstone bigger than 5 cm in diameter is very rare. It is very challenging to be removed by laparoscopic cholecystectomy (LC) and poses extra difficulty in emergency.

PRESENTATION OF CASE: A 70-year-old man complained of abdominal pain in the right upper quadrant with fever of 38 °C for two days. Abdominal ultrasound indicated acute cholecystitis and a single, extremely large gallstone (95 mm × 60 mm × 45 mm). Emergency laparoscopic cholecystectomy was performed successfully.

DISCUSSION: Gallstone over 5 cm in diameter is very rare. LC will be very difficult for these cases, especially for the emergency cases. Emergency laparoscopic cholecystectomy can be successfully performed with clear exposure of the anatomy of the Calot's triangle. To the best of our knowledge, such giant gallstone has been rarely reported.

CONCLUSION: We have proven that for the rare giant gallstone about 10 cm in size, LC is a feasible option if the anatomy of the Calot's triangle can be clearly exposed; otherwise, open cholecystectomy is a safe choice.

© 2013 The Authors. Published by Elsevier Ltd on behalf of Surgical Associates Ltd.

Open access under [CC BY-NC-SA license](http://creativecommons.org/licenses/by-nc-sa/4.0/).

1. Introduction

Gallstones are common in western countries and are increasingly usual in eastern countries including China. The etiology of gallstones is probably a combination of defects in lipid metabolism and super saturation of bile contents, especially cholesterol. Laparoscopic cholecystectomy is often performed with quick recovery, but it could require long hospital stay when converted to open the patients, thus increasing extra costs for a patient. Accurate preoperative gallstone size measurement could help to predict the risk of converting laparoscopic cholecystectomy (LC) to open cholecystectomy.

2. Case report

A 70-year-old male patient with type 2 diabetes who has had a symptomatic gallstone disease for about 20 years reported having the symptoms of repeatedly pain or discomfort in the right upper quadrant without fever or jaundice after fatty meals.

Cholecystectomy was indicated and had been advised several years earlier, but he did not wish to undergo the surgical procedure. This time, he had two days of progressively increasing right upper quadrant pain. He had a fever of 38 °C. On physical examination, he had abdominal tenderness on the right upper quadrant. The routine laboratory tests were normal except for white blood cell count of 21,000/mm³. Abdominal ultrasound demonstrated the presence of a solitary giant gallstone (100 mm × 60 mm × 50 mm). Emergency LC was carried out on the day of admission. LC with three ports was performed. During operation, since the stone fully filled gallbladder with little fluid, it is difficult to grasp the gallbladder, so the gallbladder was held with the grasper open to maintain the tension between the gallbladder and gallbladder bed to dissect. Because the lithotomy forceps could not crumb the giant hard gallstone, the subxiphoid trocar incision was extended to pick out the gallbladder with specimen retrieval bag. The gallbladder contained a single giant gallstone measuring 95 mm × 60 mm × 45 mm (Fig. 1). The patient's postoperative recovery was uneventful and he was discharged on the postoperative third day.

3. Discussion

Gallstone disease is very common in the west world with women being more commonly affected than men, but it is rare in Asia and Africa.¹ Cholecystectomy was the gold standard treatment for gallstone disease and can be done laparoscopically in 96% of the cases, the rate of conversion from laparoscopic to open

* Corresponding author. Tel.: +86 10 69152610; fax: +86 10 69152610.
E-mail address: xiequnxu@gmail.com (Xu X.).



Fig. 1. Single giant gallstone measuring 95 mm × 60 mm × 45 mm.

cholecystectomy is about 4–5%.² But the gallstone with a diameter of over 5 cm is very rare. Such case is difficult for LC, especially for the emergency cases. The risk of conversion is related to surgeon factors, patient factors, and possibly equipment factors.³ Although the surgeon's experience is very important, the inflammatory gallbladder, emergency operation, comorbidities, increasing age and male patients are all significant predictors of conversion to open cholecystectomy. The major challenge for conversion to open cholecystectomy in these cases is inability to expose the anatomy.⁴ The anatomy was hard to expose for presence of acute cholecystitis, thickened gallbladder wall, and adhesions resulting from previous abdominal operations. Acute cholecystitis is accompanied by increased vascularity and dense adhesions that interfere with good visualization, whereas thick-walled gallbladder often is shrunk and contracted. In both presentations, the cystic duct becomes foreshortened, and the gallbladder may be adherent to the common bile duct, making it difficult to grasp the gallbladder for retraction or to dissect the gallbladder from the common bile duct.³ Large or giant gallstones are associated with more tendency of a conversion from LC to open cholecystectomy. Large or giant gallstones would result in more severe inflammation and thickening of the gallbladder wall. And the giant gallstone would make it difficult to grasp the gallbladder with the laparoscopic instruments and expose the important anatomy of the Calot's triangle.⁴ LC could be tried, yet open cholecystectomy is a safe choice if the Calot's triangle is difficult to be exposed because of adhesion or inability to grasp the gallbladder.^{5,6} This case was the first report about a

patient with such rare giant gallstone undergoing emergency LC successfully.

4. Conclusion

Giant gallstone of the size more than 5 cm in diameter is rare, laparoscopic cholecystectomy for these cases would be tried; emergency laparoscopic cholecystectomy can be successfully performed with clear exposure of the anatomy of the Calot's triangle. Accurate preoperative gallstone size measurement could help predict high risk of converting LC to open cholecystectomy.

Conflict of interest

None.

Funding

None.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report.

Author contributions

X.X. drafted and wrote the article. Z.C. supervised the writing of the manuscript. H.T. is a member of the surgical team. All authors read and approved the final manuscript.

References

- [1] Lammert F, Sauerbruch T. Mechanisms of disease: the genetic epidemiology of gallbladder stones. *Nat Clin Pract Gastroenterol Hepatol* 2005;2(September (9)):423–33.
- [2] Berthou JCh, Dron B, Charbonneau P, Moussalier K, Pellissier L. Evaluation of laparoscopic treatment of common bile duct stones in a prospective series of 505 patients: indications and results. *Surg Endosc* 2007;21(November (11)):1970–4.
- [3] Kama NA, Doganay M, Dolapci M, Reis E, Atli M, Kologlu M. Risk factors resulting in conversion of laparoscopic cholecystectomy to open surgery. *Surg Endosc* 2001;15(9):965–8.
- [4] Gholipour C, Fakhree MB, Shalchi RA, Abbasi M. Prediction of conversion of laparoscopic cholecystectomy to open surgery with artificial neural networks. *BMC Surg* 2009;9(August):13.
- [5] Ekici Y, Yağmurdur MC, Moray G, Haberal M. A giant gallstone. *Turk J Gastroenterol* 2007;18(June (2)):133–4.
- [6] Banigo A. Huge gallstone complicating laparoscopic cholecystectomy. *BMJ Case Rep* 2013;(January).