Case Report ISSN: 2249-9571

Eighteen Thousand Nine Hundred Seventy Gallstones Removed in Cholecystectomy: A Case Report

Abdul Jabbar Mirani¹, Ali Albaqali², Ahmed Alsaegh³, Faten M. Hasan⁴, M. Yasser. M. Abdel Azziz⁵, Georges N. Mezher⁶

¹ M.D Head of Surgical Department, Consultant General Surgeon, Alkindi Hospital, Manama, Kingdom of Bahrain.

³M.D: Consultant Gastroenterologist, Alkindi Hospital, Manama, Kingdom of Bahrain.

⁴M.D: Resident, Surgery Department, Alkindi Hospital, Manama, Kingdom of Bahrain.

⁵M.D: Anesthesiology Specialist, Alkindi Hospital, Manama, Kingdom of Bahrain.

⁶M.D. Instructor, Department of Anesthesia and Reanimation, Faculty of Medical Sciences, Lebanese University, Anesthesiology Consultant, Alkindi Hospital, Manama, Kingdom of Bahrain.

Corresponding Author: Georges Nicole Mezher

DOI: https://doi.org/10.52403/ijhsr.20240536

ABSTRACT

Gallstones vary in nature, size, shape, and number. Cholesterol stones are the most common type. Cholelithiasis tend to be asymptomatic. The most common symptom is biliary colic. More serious complications include cholecystitis, choledocholithiasis, cholangitis, and gallstone pancreatitis. Laparoscopic cholecystectomy is the gold standard of treatment. We describe a case of gallstone disease in a 27 years old male, where about eighteen thousand nine hundred seventy stones were extracted from the gallbladder through laparoscopic cholecystectomy.

Keywords: Multiple gallstones, Cholelithiasis, Laparoscopic cholecystectomy.

INTRODUCTION

Cholelithiasis or gallstone is the presence of hardened deposits of digestive fluid that is formed in the gallbladder¹. Types of gallbladder stones can be classified into cholesterol stones (containing > 50% cholesterol), mixed stones (containing 20-50% cholesterol), and pigment stones (containing < 20% cholesterol)². Eighty five percent of cholelithiasis are cholesterol stones^{3,4}. The frequency of cholelithiasis is found to be higher in the female gender and obese patients, sedentary lifestyle and hypertension, as compared to male patients, and the risk of cholelithiasis also increases

with age⁵. Cholelithiasis is asymptomatic in many patients. However, in addition to simple symptoms such as nausea, vomiting, and abdominal pain, gallstones can cause serious complications such as cholecystitis, cholangitis, obstruction, bile duct pancreatitis, biliary perforation, biliary fistula, and biliary neoplasty⁶. Laparoscopic cholecystectomy (LC) is one of the most frequently performed surgery. Its popularity stems from its minimally invasive nature, shorter hospital stays, and faster recovery times⁷.

It is very rare to find thousands of gallstones. In the present case we report the

² M.D Head of GI Endoscopy Department, Consultant Gastroenterology and Hepatology, Alkindi Hospital, Manama, Kingdom of Bahrain.

removal of a gallbladder by laparoscopic procedure with thousands of gallstones inside.

CASE REPORT

A 27-year-old man presented to the gastroenterology outpatient clinic with a 2week history of epigastric pain radiating to the back. Six years ago, he had undergone a sleeve gastrectomy. Abdominal sonography showed a distended gallbladder with numerous tiny echogenic stones and dilated common bile duct (CBD) (Figure 1). The blood investigations revealed elevated liver function tests. Two days later, the MRCP revealed a gallbladder distended with sludge and multiple tiny calculi (largest one measuring 4mm), the CBD is dilated proximally and is narrowed distally. One week prior to admission, an ERCP was done with sphincterotomy and removal of sludge and microlithiasis.

The patient was admitted on the 3rd of April 2024 for elective LC under general anesthesia. About 18970 stones were removed from the excised gallbladder (**Figure 2**). The procedure took less than one hour while counting the stones took around 4 hours and was carried out by 4 healthcare professionals.

As per the literature review on the number of gallstones recorded via a laparoscopic procedure, we found that our case is among the highest number reported. The postoperative period was uneventful and the patient was discharged from the hospital one day after surgery.

Figure 1. Abdominal sonography showing a distended gallbladder and numerous stones.

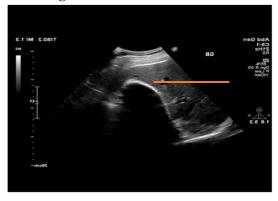


Figure 2. About 19870 gall stones removed through laparoscopic cholecystectomy.



DISCUSSION

Cholelithiasis is the most common cause of acute pain in the right upper quadrant of the abdomen. Acute cholecystitis is a common cause of hospital admission and responsible for approximately 3-10% of all patients with abdominal pain⁸.

The gallstones are mainly classified into 3 groups: cholesterol stones, black pigment stones, and brown pigment stones. Cholesterol stones are the most common variety of gallstones. These stones occur due to the supersaturation of bile with cholesterol. Black pigment stones are usually found in patients with hemolysis and consist primarily of calcium bilirubinate. The brown pigment stones are found in association with bacterial or parasitic infection of the biliary system⁹.

Gallstones' formation is multifactorial, its major risk factors are female gender, age, obesity, type 2 diabetes, rapid weight loss, physical inactivity, and genetic traits. Gallstone disease is mainly asymptomatic. A longitudinal follow-up study of asymptomatic gallstones, showed that over 20-year period only 18% of patients developed biliary pain. 10% of patients developed symptoms during the first 5 years and 20% by 20 years 10, 11, 12.

Ultrasound of the abdomen is the gold standard for diagnosing cholelithiasis. The most sensitive finding in acute cholecystitis is the presence of cholelithiasis in combination with sonographic Murphy sign¹³.

Biliary colic typically refers to a steady pain, rather than a series of "colicky" waves. The pain originates in the right upper quadrant or epigastric area and can radiate around to the subcapsular region and will typically last for more than half an hour and less than 6 hours. The patient will often be nauseated and may vomit. Cholelithiasis can cause obstructive jaundice, cholangitis or acute pacreatitis ^{14, 15}.

Since the early 1990s, Laparoscopic cholecystectomy has largely replaced the open technique for cholecystectomies. However, it is associated with higher incidence of complications (i.e bile duct and vasculo-biliary iniury) than open cholecystectomy¹⁶. Male gender, past history of acute cholecystitis, gallbladder thickness (≥ 4-5mm), gallbladder, and adhesion at Calot's triangle are significant predictors for difficult LC¹⁷. The most common complication is iatrogenic perforation of the gallbladder with spilt gallstones with an incidence of 10-30% ¹⁸. The most serious complication, associated with high mortality rate is the injury of common bile duct with an incidence of $0.1-0.6\%^{19,20}$.

The patient in our case had a history of recurrent symptoms, and there were thousands of stones found, and counted about 18970 stones, sizes ranging from 1mm to 4mm. The patient underwent an uneventful operation.

CONCLUSION

The relevance of this case report is due to the large number of gallstones (18970) removed from a gallbladder through laparoscopic cholecystectomy. This case is among the highest number of gallstones found.

Declaration by Authors Acknowledgement: None **Source of Funding:** None

Conflict of Interest: None of the authors declare any personal, professional or business conflict of interest.

REFERENCES

- 1. Chung AY, Duke MC. Acute Biliary Disease. Surg Clin North Am. 2018 Oct;98(5):877-894. doi: 10.1016/j.suc.2018.05.003. Epub 2018 Jul 29. PMID: 30243451.
- 2. Kereh DS, Lampus H, Sapan H, Loho LL. Correlation between stone type and mucosal histology change of gallbladder in gall stone patient. Biomedical Journal. 2015; 7:41-47.
- 3. Everhart JE, Ruhl CE. Burden of digestive diseases in the United States Part III: Liver, biliary tract, and pancreas. Gastroenterology. 2009 Apr;136(4):1134-44. doi: 10.1053/j.gastro.2009.02.038. Epub 2009 Feb 24. PMID: 19245868.
- Stinton LM, Shaffer EA. Epidemiology of gallbladder disease: cholelithiasis and cancer. Gut Liver. 2012 Apr;6(2):172-87. doi: 10.5009/gnl.2012.6.2.172. Epub 2012 Apr 17. PMID: 22570746; PMCID: PMC3343155.
- 5. Baddam A, Akuma O, Raj R, Akuma CM, Augustine SW, Sheikh Hanafi I, Singh G, Zain A, Azizz N, Singh M, Makheja K, Rahul F, Khan A. Analysis of Risk Factors for Cholelithiasis: A Single-Center Retrospective Study. Cureus. 2023 Sep 28;15(9):e46155. doi: 10.7759/cureus.46155. PMID: 37900464; PMCID: PMC10613112.
- 6. Aydin Ç. Clinical Conditions, Complications of Cholelithiasis, and Symptom Scoring Suggestion. Intechopen. 2023. doi: 10.5772/intechopen.11358.
- 7. Martínez G.A, "Summary of Complications of Laparoscopic Cholecystectomy". *International Journal of Medical Science and Clinical Research Studies*, vol. 3, no. 9, Sept. 2023, pp. 1989-91, doi:10.47191/ijmscrs/v3-i9-33.
- 8. Kimura Y, Takada T, Kawarada Y, Nimura Y, Hirata K, Sekimoto M, Yoshida M, Mayumi T, Wada K, Miura F, Yasuda H, Yamashita Y, Nagino M, Hirota M, Tanaka A, Tsuyuguchi T, Strasberg SM, Gadacz TR. Definitions, pathophysiology, and epidemiology of acute cholangitis and cholecystitis: Tokyo Guidelines. J Hepatobiliary Pancreat Surg. 2007;14(1):15-

- 26. doi: 10.1007/s00534-006-1152-y. Epub 2007 Jan 30. PMID: 17252293; PMCID: PMC2784509.
- Attili AF, Capocaccia R, Carulli N, Festi D, Roda E, Barbara L, Capocaccia L, Menotti A, Okolicsanyi L, Ricci G, Lalloni L, Mariotti S, Sama C, Scafato E. Factors associated with gallstone disease in the MICOL experience. Multicenter Italian Study on Epidemiology of Cholelithiasis. Hepatology. 1997 Oct;26(4):809-18. doi: 10.1002/hep.510260401. PMID: 9328297.
- Thamer, Sanaa. (2022). Pathogenesis, Diagnosis and Treatment of Gallstone Disease: A Brief Review. Biomedicine and Chemical Sciences. 2022; 1(2), 70-77. doi:10.48112/bcs. v1i2.99.
- 11. NIH Consensus conference. Gallstones and laparoscopic cholecystectomy. JAMA. 1993 Feb 24;269(8):1018-24. PMID: 8429583.
- 12. Friedman GD, Raviola CA, Fireman B. Prognosis of gallstones with mild or no symptoms: 25 years of follow-up in a health maintenance organization. J Clin Epidemiol. 1989;42(2):127-36. doi: 10.1016/0895-4356(89)90086-3. PMID: 2918322.
- 13. Radswiki T, Bell D, Murphy A, et al. Acute cholecystitis. Reference article, Radiopaedia.org (Accessed on 20 Apr 2024) https://doi.org/10.53347/rID-12084.
- 14. Cafasso DE, Smith RR. Symptomatic cholelithiasis and functional disorders of the biliary tract. Surg Clin North Am. 2014 Apr;94(2):233-56. doi: 10.1016/j.suc.2013.12.001. Epub 2014 Feb 18. PMID: 24679419.
- 15. National Institute for Health and Care Excellence (NICE). Single incision laparoscopic cholecystectomy. NICE, 2010. Available from: http://publications.nice.org.uk/single-incision-laparoscopic-cholecystectomy-ipg346(Accessed Jun, 2014)
- 16. Brunt LM, Deziel DJ, Telem DA, Strasberg SM, Aggarwal R, Asbun H, Bonjer J, McDonald M, Alseidi A, Ujiki M, Riall TS, Hammill C, Moulton CA, Pucher PH, Parks RW, Ansari MT, Connor S, Dirks RC,

- Anderson B, Altieri MS, Tsamalaidze L, Stefanidis D; and the Prevention of Bile Duct Injury Consensus Work Group. Safe Cholecystectomy Multi-Society Practice Guideline and State of the Art Consensus Conference on Prevention of Bile Duct Injury During Cholecystectomy. Ann Surg. 2020 Jul;272(1):3-23. doi: 10.1097/SLA.00000000000003791. PMID: 32404658.
- 17. Bhandari TR, Khan SA, Jha JL. Prediction of difficult laparoscopic cholecystectomy: An observational study. Ann Med Surg (Lond). 2021 Nov 14; 72:103060. doi: 10.1016/j.amsu.2021.103060. PMID: 34815866; PMCID: PMC8591467.
- 18. Duca S, Bãlã O, Al-Hajjar N, Lancu C, Puia IC, Munteanu D, Graur F. Laparoscopic cholecystectomy: incidents and complications. A retrospective analysis of 9542 consecutive laparoscopic operations. HPB (Oxford). 2003;5(3):152-8. doi: 10.1080/13651820310015293. PMID: 18332976; PMCID: PMC2020579.
- Frilling A, Li J, Weber F, Frühauf NR, Engel J, Beckebaum S, Paul A, Zöpf T, Malago M, Broelsch CE. Major bile duct injuries after laparoscopic cholecystectomy: a tertiary center experience. J Gastrointest Surg. 2004 Sep-Oct;8(6):679-85. doi: 10.1016/j.gassur.2004.04.005. PMID: 15358328.
- 20. Singh K, Ohri A. Anatomic landmarks: their usefulness in safe laparoscopic cholecystectomy. Surg Endosc. 2006 Nov;20(11):1754-8. doi: 10.1007/s00464-005-0528-4. Epub 2006 Sep 23. PMID: 17001444.

How to cite this article: Abdul Jabbar Mirani, Ali Albaqali, Ahmed Alsaegh, Faten M. Hasan, M. Yasser. M. Abdel Azziz, Georges N. Mezher. Eighteen thousand nine hundred seventy gallstones removed in cholecystectomy: a case report. *Int J Health Sci Res.* 2024; 14(5):275-278. DOI: 10.52403/ijhsr.20240536
