

Liver abscess after Laparoscopic Cholecystectomy. A Case Report.

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Abstract

Introduction: Laparoscopic cholecystectomy is the gold standard in the management of symptomatic gallstones. However, it is estimated that there are 2–15 cases of hepatic abscesses per 100,000 people in the U.S., mostly of bacterial etiology, and approximately half of these are caused by cholangitis.

Given the infrequency of cholangitis-induced pyogenic hepatic abscesses and the 0.4 % incidence of choledocholithiasis in post-cholecystectomy patients, pyogenic hepatic abscesses secondary to post-cholecystectomy choledocholithiasis comprise a rare entity.

A hepatic abscess occurring post-laparoscopic cholecystectomy is a known complication that can manifest months or even years after the surgery.

This case involves a 56-year-old female patient who presented with a 10-day history of abdominal pain and discomfort, primarily in the right hypochondrium, accompanied by fever unresponsive to antibiotics and antipyretics. The appropriate treatment approach was chosen based on clinical signs, abscess size, and the patient's overall condition.

Conclusion: This case shows the late complications arising from gallstone spillage into the abdominal cavity during laparoscopic cholecystectomy. It underscores the importance of careful laparoscopic exploration, especially in gallbladder perforation and stone spillage cases. Detailed documentation of the operative procedure is crucial, as it aids in the prophylactic and symptomatic treatment of long-term complications such as abscess formation.

Keywords: laparoscopic cholecystectomy, complications, hepatic abscess, drainage.

Introduction

Laparoscopic cholecystectomy is the gold standard in the management of symptomatic gallstones. However, it is estimated that there are 2–15 cases of hepatic abscesses per 100,000 people in the U.S., mostly of bacterial etiology, and approximately half of these are caused by cholangitis.[1, 2]

Given the infrequency of cholangitis-induced pyogenic hepatic abscesses, as well as the 0.4 % incidence of choledocholithiasis in post-cholecystectomy patients, pyogenic hepatic abscesses secondary to post-cholecystectomy choledocholithiasis comprise a rare entity.[3]

Acute cholecystitis is one of the most common abdominal diseases worldwide. [4] The prevalence of gallstones is between 10% and 15% in adults.[5] Cholesterol-origin gallstones are seen in Western societies in 80-90% of cases. Approximately 80% of gallbladder stones remain asymptomatic, with 1-2% of individuals with gallbladder stones becoming symptomatic each year. Among individuals younger than 50 years, women are three times more likely than men to develop acute cholecystitis. [6]

Laparoscopic cholecystectomy has been the standard treatment for gallbladder calculi for decades. As with any surgical procedure, complications are known to occur, including infection, hemorrhage, biliary tract injury,

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and perforation of the gallbladder, which can lead to the dispersion of stones into the peritoneal cavity—a significant cause of intra-abdominal abscess formation. [7]

The most common pathogens in these abscesses include gram-negative bacteria such as *Escherichia coli* and *Klebsiella* species. The clinical presentation is non-specific. The type of treatment is determined based on the clinical presentation and the progression of the abscess. [8, 9, 10]

Case Presentation

The patient, N.K., a 56-year-old female, underwent laparoscopic cholecystectomy six months ago for acute calculous cholecystitis. (Figure 1). She presents to the emergency department with severe pain, primarily in the right hypochondrium, and a fever reaching up to 38.5°C, which is unresponsive to antipyretics.

Laboratory examinations reveal leukocytosis with a neutrophil predominance of 87.9%. Imaging via ultrasound indicates a capsulated formation measuring 6 x 5 x 5 cm in segments 6 and 7 of the liver, suspecting a hepatic abscess.



Figure 1 – Postoperative view after laparoscopic Cholecystectomy

Under these circumstances, the patient is prepared for surgical intervention. Under general anesthesia, a right subcostal incision is made, carefully dissecting through the layers to open the peritoneal cavity. The gallbladder fossa and a capsulated abscess, corresponding to the sizes described in the ultrasound, are identified under segments 6 and 7 of the liver. (fig. 2)



Figure 2 - Intraoperative view, liver abscess

The abscess is drained, and a fluid sample is sent for culture. A drain is placed in the Winslow space, and postoperatively, the patient is managed with ceftriaxone and flagyl for several days.

The patient's postoperative course is stable, and the culture of the drained fluid returns positive for *Escherichia coli*.

Discussion

Compared to open cholecystectomy, laparoscopic cholecystectomy has a higher risk of gallstone spillage into the abdominal cavity due to gallbladder perforation or during its extraction. [8] Gallstones that are not retrieved can lead to long-term complications such as abscess formation. [9]

These stones induce an inflammatory process, leading to the partial or complete resorption of the stone, abscess formation, granulomatous reaction, and erosion of the affected organs. Infected stones, more familiar with pigmented stones, exacerbate this process. [10, 11]

Studies indicate that 80-83% of surgeons may underestimate the number of potential complications, highlighting the need for increased clinical attention to this issue. [12]

Gallbladder perforation and the spillage of stones into the abdominal cavity are infrequently reported in laparoscopic cholecystectomy descriptions. [13] Therefore, the late complications of a perforated gallbladder should be considered in every patient undergoing laparoscopic cholecystectomy. [14]

The treatment of these abscesses depends on their clinical presentation and evolution, including antibiotic therapy, minimally invasive drainage, and surgical drainage. Due to the size of the abscess and clinical presentation, the patient underwent a second surgical intervention. The laparoscopic procedure allows for better visualization of the entire abdominal cavity, so it is crucial to ensure that no stones are left in the cavity during perforation or gallbladder extraction and to perform a thorough lavage of the cavity. [15]

Conclusion

This case shows the late complications arising from gallstone spillage into the abdominal cavity during laparoscopic cholecystectomy. It underscores the importance of careful laparoscopic exploration, especially in gallbladder perforation and stone spillage cases. Detailed documentation of the operative procedure is crucial, as it aids in the prophylactic and symptomatic treatment of long-term complications such as abscess formation.

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References

1. Meddings, L., Myers, R. P., Hubbard, J., Shaheen, A. A., Laupland, K. B., Dixon, E., Coffin, C., & Kaplan, G. G. (2010). A population-based study of pyogenic liver abscesses in the United States: incidence, mortality, and temporal trends. *The American journal of gastroenterology*, 105(1), 117–124. <https://doi.org/10.1038/ajg.2009.614>
2. Radunovic, M., Lazovic, R., Popovic, N., Magdelinic, M., Bulajic, M., Radunovic, L., Vukovic, M., & Radunovic, M. (2016). Complications of Laparoscopic Cholecystectomy: Our Experience from a Retrospective Analysis. *Open access Macedonian journal of medical sciences*, 4(4), 641–646. <https://doi.org/10.3889/oamjms.2016.128>
3. Ansaloni, L., Pisano, M., Coccolini, F., Peitzmann, A. B., Fingerhut, A., Catena, F., Agresta, F., Allegri, A., Bailey, I., Balogh, Z. J., Bendinelli, C., Biffl, W., Bonavina, L., Borzellino, G., Brunetti, F., Burlew, C. C., Camapanelli, G., Campanile, F. C., Ceresoli, M., Chiara, O., ... Moore, E. E. (2016). 2016 WSES guidelines on acute calculous cholecystitis. *World journal of emergency surgery: WJES*, 11, 25. <https://doi.org/10.1186/s13017-016-0082-5>
4. Shaffer E. A. (2005). Epidemiology and risk factors for gallstone disease: has the paradigm changed in the 21st century?. *Current gastroenterology reports*, 7(2), 132–140. <https://doi.org/10.1007/s11894-005-0051-8>
5. Pisano, M., Allievi, N., Gurusamy, K. *et al.* 2020 World Society of Emergency Surgery updated guidelines for the diagnosis and treatment of acute calculus cholecystitis. *World J Emerg Surg* 15, 61 (2020). <https://doi.org/10.1186/s13017-020-00336-x>
6. Attili, A. F., Carulli, N., Roda, E., Barbara, B., Capocaccia, L., Menotti, A., Okoliksanyi, L., Ricci, G., Capocaccia, R., & Festi, D. (1995). Epidemiology of gallstone disease in Italy: prevalence data of the Multicenter Italian Study on Cholelithiasis (M.I.COL.). *American journal of epidemiology*, 141(2), 158–165. <https://doi.org/10.1093/oxfordjournals.aje.a117403>
7. Schäfer, M., Krähenbühl, L., Farhadi, J., & Büchler, M. W. (1998). Cholelithiasis--Laparoskopie oder Laparotomie? [Cholelithiasis--laparoscopy or laparotomy?]. *Therapeutische Umschau. Revue thérapeutique*, 55(2), 110–115.
8. Ruiz-Hernández, J. J., León-Mazorra, M., Conde-Martel, A., Marchena-Gómez, J., Hemmersbach-Miller, M., & Betancor-León, P. (2007). Pyogenic liver abscesses: mortality-related factors. *European journal of gastroenterology & hepatology*, 19(10), 853–858. <https://doi.org/10.1097/MEG.0b013e3282eeb53b>
9. Endoscopic Management of Bouveret Syndrome With Electrohydra... : ACG Case Reports Journal. https://journals.lww.com/acgcr/Fulltext/2023/05000/Endoscopic_Management_of_Bouveret_Syndrome_With.10.aspx
10. Habib, E., & Elhadad, A. (2003). Digestive complications of gallstones lost during laparoscopic cholecystectomy. *HPB: the official journal of the International Hepato Pancreato Biliary Association*, 5(2), 118–122. <https://doi.org/10.1080/13651820310016463>
11. Rao, K. C., & Govindan, S. (1979). Computer-assisted tomography in rapidly growing brain tumors. *Computerized Tomography*. [https://doi.org/10.1016/0363-8235\(75\)90003-4](https://doi.org/10.1016/0363-8235(75)90003-4)
12. Jabbari Nooghabi, A., Hassanpour, M., & Jangjoo, A. (2016). Consequences of Lost Gallstones During Laparoscopic Cholecystectomy: A Review Article. *Surgical laparoscopy, endoscopy & percutaneous techniques*, 26(3), 183–192. <https://doi.org/10.1097/SLE.0000000000000274>
13. Agha, R. A., Borrelli, M. R., Farwana, R., Koshy, K., Fowler, A. J., Orgill, D. P., & SCARE Group (2018). The SCARE 2018 statement: Updating consensus Surgical Case Report (SCARE) guidelines. *International journal of surgery (London, England)*, 60, 132–136. <https://doi.org/10.1016/j.ijssu.2018.10.028>
14. Christensen, A. M., & Christensen, M. M. (2013). Abdominal wall abscess containing gallstones as a late complication to laparoscopic cholecystectomy performed 17 years earlier. *Journal of surgical case reports*, 2013(1), rjs038. <https://doi.org/10.1093/jscr/rjs038>
15. Akhtar, A., Bukhari, M. M., Tariq, U., Sheikh, A. B., Siddiqui, F. S., Sohail, M. S., & Khan, A. (2018). Spilled Gallstones Silent for a Decade: A Case Report and Review of Literature. *Cureus*, 10(7), e2921. <https://doi.org/10.7759/cureus.2921>