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Case Report

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Laparoscopic management of residual gallbladder with calculi: a case report

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ABSTRACT

Residual gallbladder with calculi is a rare but significant complication following laparoscopic cholecystectomy. This condition can lead to persistent abdominal symptoms and poses diagnostic and therapeutic challenges. It often occurs when remnants of the gallbladder are unintentionally left behind during surgery, resulting in complications similar to those experienced prior to the procedure. We present the case of a 39-years-old female who experienced ongoing abdominal discomfort after undergoing laparoscopic cholecystectomy. A diagnostic laparoscopy revealed a residual gallbladder containing multiple calculi. The condition was successfully treated laparoscopically, alleviating her symptoms. This case underscores the need for a high index of suspicion for residual gallbladder complications in patients with recurrent biliary symptoms post-cholecystectomy. It highlights the importance of meticulous surgical techniques during initial procedures and reviews relevant literature on diagnostic modalities and treatment protocols, emphasizing effective management strategies for this uncommon but impactful condition.

Keywords: Calculi, Cholecystectomy, Laparoscopy, MRCP, Residual gallbladder, RGB

INTRODUCTION

Cholelithiasis or gallstone disease, is one of the most prevalent conditions requiring surgical intervention worldwide, with laparoscopic cholecystectomy recognized as the gold standard for managing symptomatic gallstones.[1,2] Despite its efficacy, complications can arise from incomplete excision of the gallbladder, often due to severe inflammation, altered anatomy or technical errors during the procedure. One such complication is the presence of a residual gallbladder (RGB), which can lead to significant morbidity.[2]

RGB with calculi is a rare but clinically important condition that may manifest as persistent or recurrent biliary symptoms. Patients typically present with abdominal pain localized to the right upper quadrant, accompanied by nausea, vomiting and fever. In some cases, jaundice may occur if there is associated choledocholithiasis. Clinical features often indicate possible infection or inflammation, necessitating prompt evaluation and management.[2] Radiological imaging plays a crucial role in diagnosing RGB and its complications. Ultrasonography (USG) is commonly employed as a first-line investigation; however, it has limitations in sensitivity. More advanced imaging techniques such as magnetic resonance cholangiopancreatography (MRCP) and computed tomography (CT) provide detailed anatomical insights and can effectively identify cystic duct remnants and associated calculi.[3,4]

This article aims to provide a comprehensive overview of residual gallbladder with calculi by detailing clinical features, causes, diagnostic modalities and management strategies. By correlating a unique case study with existing literature, we seek to enhance understanding and awareness of this condition among clinicians, ultimately

improving patient outcomes in those who experience complications following cholecystectomy.

CASE REPORT

A 39-years-old female presented with complaints of persistent right upper quadrant abdominal pain, nausea, fever and vomiting for two weeks. She had undergone laparoscopic cholecystectomy at a different institution 11 years prior for gallstone disease. Postoperative recovery was uneventful and she remained asymptomatic until two weeks before presenting at our facility. Her past medical history included no significant comorbidities, allergies or previous abdominal surgeries.

Symptoms

The patient reported worsening abdominal pain localized to the right side, associated with systemic symptoms such as fever and intermittent nausea. There was no history of jaundice or significant weight loss.

Evaluation and imaging

On physical examination, localized tenderness was noted in the right upper quadrant. Laboratory investigations, including liver function tests, were within normal limits. Ultrasonography revealed a cystic structure in the gallbladder fossa, with multiple hyperechoic foci suggestive of residual calculi and metallic clips from the previous surgery. MRCP and CT imaging confirmed the presence of residual gallbladder tissue containing calculi.

Surgical intervention

The patient underwent diagnostic laparoscopy, which revealed dense adhesions and a residual gallbladder containing multiple calculi. The surgical team carefully lysed the adhesions to expose the residual gallbladder. Dissection was performed meticulously to identify and isolate the cystic duct remnant and residual gallbladder, ensuring no injury to the surrounding structures. The gallbladder was excised using laparoscopic instruments and the cystic duct remnant was securely clipped.

During the procedure, intraoperative cholangiography was utilized to confirm the absence of residual stones within the bile ducts. The excised specimen measured 3×3 cm and contained multiple yellow calculi. An intra-abdominal drain was placed to monitor for any postoperative bile leak. The procedure lasted approximately 90 minutes, with minimal blood loss. Histopathological examination confirmed chronic cholecystitis without malignancy.

The patient had an uneventful postoperative recovery, tolerated oral intake on the second postoperative day and was discharged on the second postoperative day. Drain was removed on the fifth day and follow-up visits confirmed complete resolution of symptoms.

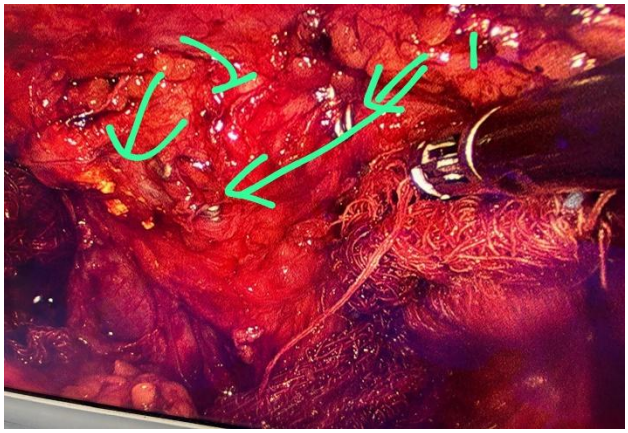

Figure 1: Dense adhesions and a residual gallbladder containing multiple calculi and clips from previous surgery.

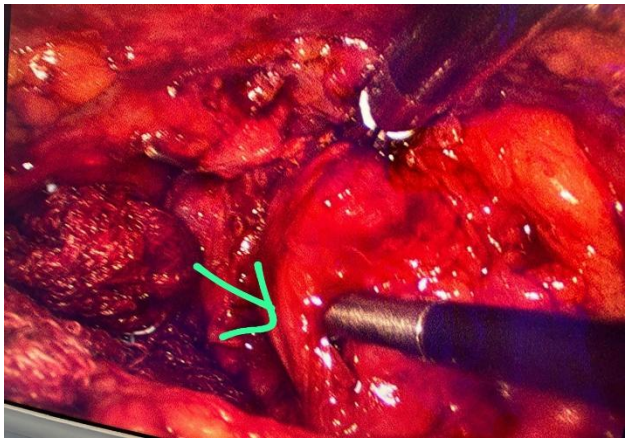

Figure 2: Dissection performed precisely to identify and isolate the cystic duct of remnant gallbladder.

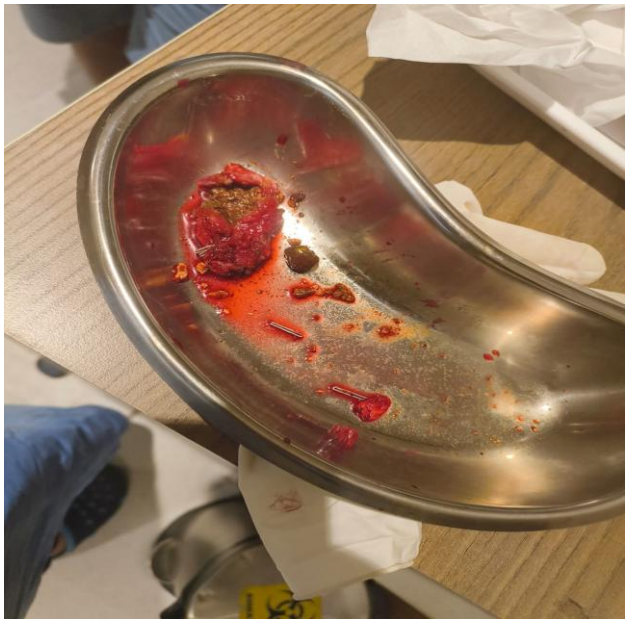

Figure 3: Residual gallbladder with previous clips and multiple gallstones.

DISCUSSION

Residual gallbladder with calculi, though rare, is a significant complication requiring timely intervention. A high index of suspicion is essential, particularly in patients with persistent biliary symptoms following laparoscopic cholecystectomy.[3] This case highlights the importance of comprehensive preoperative imaging and meticulous surgical techniques to prevent such complications.

Correlation with published literature reveals that residual gallbladder most commonly occurs in middle-aged individuals and is more frequently reported in females. Similar cases have been documented presenting symptoms such as right upper quadrant pain, fever and nausea, consistent with the findings in this report.[2] Treatment protocols generally involve re-laparoscopy and excision of the residual tissue.[5] This patient's successful recovery aligns with outcomes reported in other studies, underscoring the efficacy of early surgical intervention.

Additionally, MRCP was utilized for confirming the residual gallbladder tissue containing calculi, as its utility in more complex cases is well-documented.[6-8] Studies by Singh et al Al-Aubaidi et al and Gadiyaram et al emphasize the role of advanced imaging techniques such as MRCP in diagnosing residual biliary pathologies.[6-8]

CONCLUSION

This case emphasizes the clinical relevance of residual gallbladder with calculi as a potential complication following laparoscopic cholecystectomy. It underscores the critical need for heightened clinical suspicion, thorough preoperative imaging and meticulous surgical techniques to effectively prevent and manage this condition. The findings contribute to the existing body of knowledge by demonstrating successful laparoscopic management of RGB, resulting in favorable patient outcomes.

However, this study is limited by its single-case design and lack of long-term follow-up data, which may affect the generalizability of the findings. Future recommendations include the routine use of advanced imaging techniques for patients with atypical anatomical presentations to facilitate early diagnosis and intervention.

Additionally, establishing standardized surgical protocols is essential for minimizing complications associated with incomplete gallbladder excision. Further research involving larger cohorts is necessary to enhance understanding and improve clinical practices in managing residual gallbladder complications.

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