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Case Report

A case of Mirizzi syndrome: diagnostic and therapeutic challenges in a high-risk surgical patient

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ABSTRACT

Mirizzi Syndrome is a rare complication of long-standing cholelithiasis, characterized by extrinsic compression of the common hepatic duct by an impacted gallstone in the cystic duct or Hartmann's pouch. Its preoperative diagnosis remains challenging due to its mimicry of malignant biliary obstruction, and its management often requires a complex, multi-modal approach. The case of a 66-year-old female presented with multiple comorbidities who presented with obstructive jaundice and was ultimately diagnosed and treated for Type II Mirizzi Syndrome. This case highlights the critical role of endoscopic retrograde cholangiopancreatography (ERCP) in both diagnosis and initial management, the potential for complications, and the necessity for a tailored surgical strategy in high-risk patients.

Keywords: Syndrome Mirizzi, Colecistectomia, Laparoscopica, Sindrome icterico

INTRODUCTION

Mirizzi Syndrome, first described by Pablo Luis Mirizzi in 1948, is an uncommon sequela of chronic cholelithiasis, with an estimated incidence of 0.7-1.4% in patients undergoing biliary surgery. It occurs when a gallstone becomes impacted in the cystic duct or infundibulum of the gallbladder, leading to chronic inflammatory changes, fistula formation, and mechanical obstruction of the common hepatic duct. The condition is classified using the Csendes classification: Type I involves external compression of the common hepatic duct without a fistula, while Types II-V involve the presence of a cholecystobiliary fistula of varying sizes.[1-3]

The clinical presentation is often insidious and non-specific, featuring jaundice, right upper quadrant pain, and weight loss, which can be mistaken for pancreaticobiliary malignancies. Accurate preoperative diagnosis is crucial for surgical planning but is often achieved only intraoperatively due to overlapping radiological features with other pathologies. Management is primarily surgical; however, the approach must be highly individualized, considering the patient's comorbidities, the extent of inflammation, and the presence of a fistula. Endoscopic intervention with ERCP plays a vital role in preoperative biliary decompression and stenting, facilitating a safer subsequent surgical procedure.

The objective of this case report is to illustrate the diagnostic journey, interdisciplinary management, and successful treatment of a complex case of Type II Mirizzi Syndrome in a patient with significant cardiopulmonary comorbidities. We aim to emphasize the importance of a high index of suspicion, the utility of advanced

endoscopic techniques, and the adaptation of surgical techniques to minimize morbidity in high-risk surgical candidates.[4-6]

CASE REPORT

A 66-year-old female with a significant past medical history of systemic hypertension and chronic obstructive pulmonary disease (COPD) on supplemental nocturnal oxygen presented to the emergency department on July 8, 2025. The patient symptoms began on June 22, 2025, with colicky right upper quadrant pain radiating in a band-like pattern. The patient care at family medicine unit but received no specific treatment. Her symptoms evolved intermittently, accompanied by nausea and an unintentional weight loss of 3 kg over two weeks. The development of jaundice on July 7, 2025, prompted her visit to the emergency department. She denied any febrile episodes. The patient past surgical history was notable for an appendectomy 29 years prior, complicated by peritonitis. The patient home medications included enalapril, metoprolol, and a combination inhaler (budesonide/ glycopyrronium/ formoterol).

Initial laboratory studies on July 9, 2025, were significant for obstructive jaundice and cholestasis: total bilirubin 14.6 mg/dl, direct bilirubin 11.8 mg/dL, AST 202 U/l, ALT 361 U/l, alkaline phosphatase 917 U/l, and GGT 284 U/l. A urinalysis was positive for bilirubin and showed abundant leukocytes.

An initial abdominal ultrasound performed on July 9, 2025, revealed a heterogeneous gallbladder content with a hyperechoic image casting an acoustic shadow, impacted in the neck. The common bile duct (CBD) measured 4.2 mm, but there was noted dilatation of the intrahepatic biliary ducts. The pancreas was enlarged, suggestive of an acute inflammatory process. A follow-up magnetic resonance cholangiopancreatography (MRCP) on July 11, 2025, confirmed cholelithiasis without acute signs and described a progressively dilated CBD from 7.1 mm proximally to 8.6 mm distally (Figure 1).

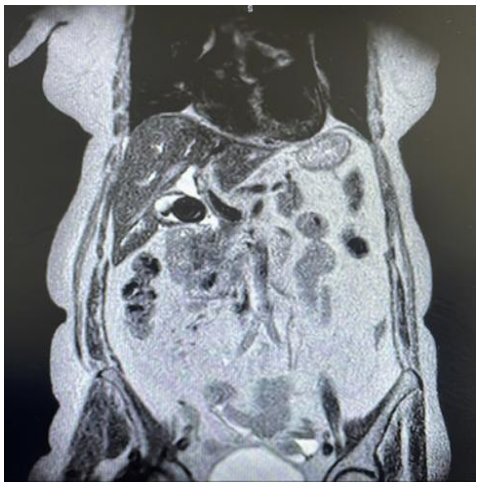

Figure 1: Magnetic resonance cholangiopancreatography.

Given the clinical picture of obstruction and cholangitis, an endoscopic retrograde cholangiopancreatography (ERCP) was performed on July 16, 2025. This procedure confirmed the diagnosis of Mirizzi Syndrome. A sphincterotomy was performed, followed by balloon sweeps and the placement of a 10 French, 10 cm plastic stent (Amsterdam type). However, on July 18, 2025, the patient experienced post-sphincterotomy bleeding. This complication was managed endoscopically by replacing the plastic stent with a self-expandable metal stent (SEMS) to achieve better tamponade and drainage.

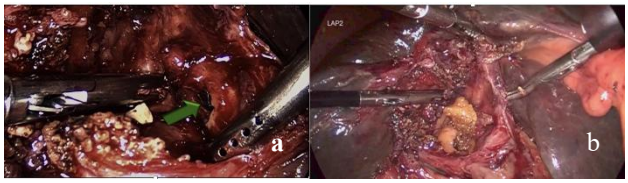

Figure 2 (a and b): Laparoscopic cholecystectomy with gallbladder stump and patch of omentum inside the remnant of the gallbladder, green arrow points to the fistula and the endoprosthesis can be seen inside.

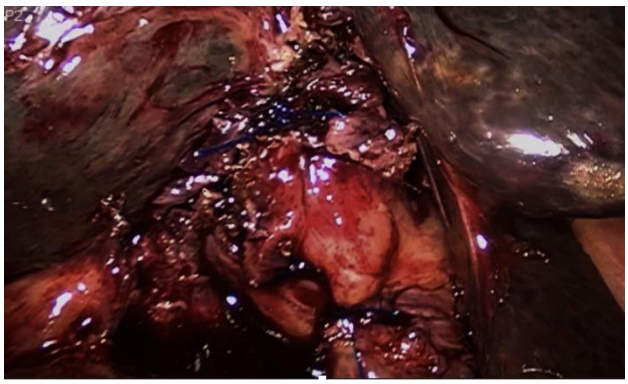

Figure 3: Gallbladder stump suture

After stabilization, the patient was scheduled for laparoscopic surgery on July 24, 2025. Due to the severe inflammatory changes and fistula consistent with Csendes Type II Mirizzi Syndrome, a subtotal reconstituting laparoscopic cholecystectomy was performed (Figure 2 and 3). An omental patch was placed intravesicularly, and a Penrose drain was inserted for postoperative monitoring. Her postoperative course was uneventful. Drain output was serosanguinous and decreased progressively from 35 cc on the first day to 5 cc of serous fluid by August 1, 2025, when the drain was removed. The patient was discharged and followed up on August 25, 2025, for suture removal, at which time she was asymptomatic and recovering well.

DISCUSSION

The management of this case exemplifies the diagnostic and therapeutic complexities associated with Mirizzi Syndrome. The patient's presentation with pain, jaundice, weight loss, and a classic biochemical profile of

obstruction initially raised concerns for malignancy. The definitive diagnosis, achieved through ERCP, paved the way for a meticulously planned, multi-stage treatment approach. The cornerstone of definitive management for Mirizzi Syndrome remains surgical, but the chosen technique must be adapted to the severe inflammatory pathology and the patient's individual risk profile.[5,6]

In a difficult gallbladder scenario, such as Mirizzi Syndrome, severe cholecystitis, or cirrhosis, where the critical view of safety in Calot's triangle cannot be achieved due to intense inflammation and fibrosis, a subtotal cholecystectomy (STC) is a vital life-saving and injury-preventing strategy. The primary goal shifts from a perfect anatomical dissection to damage control: removing all stones and as much of the diseased gallbladder as possible while deliberately avoiding dissection in the hazardous hepatocystic triangle where the common bile duct and hepatic artery reside.[6,7]

However, this procedure introduces specific complications, the most significant being bile leak. The source of the leak is typically the gallbladder remnant, specifically the unsecured cystic duct stump or the sutured/ligated infundibulum. In a classic total cholecystectomy, the cystic duct is identified, clipped, and divided. In STC, this is often impossible; the cystic duct may be obliterated by a large impacted stone (as in Mirizzi Syndrome) or simply inaccessible. Instead, the surgeon must close the gallbladder remnant as best as possible, leaving a potential source of leakage. The reported rate of bile leak after STC is significantly higher than after total cholecystectomy, ranging from 5% to 20%. This was mitigated in our case by the placement of a Penrose drain, which successfully managed the expected serosanguinous and biliary output postoperatively until it resolved spontaneously.[7]

The rationale for omental patch in Mirizzi syndrome

The use of an omental patch (omentoplasty) in this context is a sophisticated modification of the standard STC technique and is particularly well-suited for Mirizzi Syndrome. While commonly used in difficult cholecystectomies to cover the cystic duct stump, its application in sealing the entire gallbladder remnant in Mirizzi Syndrome is a crucial advanced maneuver.[7]

In a Type II Mirizzi Syndrome, a cholecystobiliary fistula is present, meaning the wall between the gallbladder and the common hepatic duct has been eroded. A simple STC that leaves a remnant would leave this fistula open, guaranteeing a high-volume, persistent bile leak. The omental patch serves multiple critical functions here:

Mechanical sealant

The vascularized omental flap is mobilized and sutured into the residual gallbladder cavity (as performed in this case with an "intravesicular patch"). This acts as a living, viable plug that seals the fistula site and covers the sutured margin of the gallbladder remnant, providing a first line of defense against leakage.[7]

Biological sealant and promoter of healing

The omentum is rich in blood and lymphatic supply, fibroblasts, and stem cells. It has a remarkable ability to adhere to inflamed surfaces, promote angiogenesis (formation of new blood vessels), and facilitate healing through neovascularization and fibrosis. It effectively "walls off" the area, encouraging the body to seal the leak from within.[7]

Infection control

While a risk exists (as previously discussed), the omentum's immunogenic properties—containing macrophages and other immune cells—also help to localize and combat any potential infection emanating from the contaminated biliary field.[8]

Therefore, in this case, the omental patch was not merely an option but a necessary component of the surgical strategy. It transformed a high-risk STC with a certain bile leak into a controlled procedure. The successful outcome, evidenced by the rapidly decreasing and ultimately ceasing drain output, underscores the effectiveness of this technique.[8]

CONCLUSION

This case successfully demonstrates that with meticulous preoperative planning, endoscopic expertise for biliary control, and a tailored surgical approach, excellent outcomes can be achieved even in challenging clinical scenarios. The decision to perform a subtotal reconstituting cholecystectomy with an omental patch was paramount in avoiding a catastrophic bile duct injury and bile leak. This technique acknowledges the principle that the safest operation in a hostile field is often an imperfect one that controls rather than eliminates the disease process, relying on the body's own healing mechanisms, aided by surgical ingenuity, to achieve resolution. The use of the omental patch in this setting is a testament to advanced surgical management of complex biliary pathology.In conclusion, Mirizzi Syndrome demands a high index of suspicion in patients presenting with obstructive jaundice and a history of gallstones. Preoperative ERCP is invaluable for diagnosis, biliary decompression, and delineating the biliary anatomy. The surgical strategy must be tailored to the patient's condition and the anatomical findings, with subtotal cholecystectomy representing a safe and effective option in complex cases and high-risk patients to avoid major morbidity. This case successfully demonstrates that with meticulous preoperative planning and a collaborative approach between endoscopists and surgeons, excellent outcomes can be achieved even in challenging clinical scenarios.

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REFERENCES

1. Matsui Y, Hirooka S, Kotsuka M, Yamaki S, Yamamoto T, Kosaka H, et al. Use of a piece of free omentum to prevent bile leakage after subtotal cholecystectomy. Surgery. 2018;164(3):419–23.
2. Koo JG A, Tham HY, Toh EQ, Chia C, Thien A, Shelat VG. Mirizzi Syndrome—The Past, Present, and Future. Medicina.2023;60(1):12.
3. Wu J, Cai SY, Chen XL, Chen ZT, Shi SH. Mirizzi syndrome: Problems and strategies. Hepatobiliary Pancreat Dis Int. 2024;23(3):234–40.
4. de'Angelis N, Catena F, Memeo R, Coccolini F, Martínez-Pérez A, Romeo OM, et al. 2020 WSES guidelines for the detection and management of bile duct injury during cholecystectomy. World J Emerg Surg. 2021;16(1):30.
5. Antoniou SA, Antoniou GA, Makridis C. Laparoscopic treatment of Mirizzi syndrome: a systematic review. Surg Endosc. 2010;24(1):33-9.
6. Khan KS, Sajid MA, McMahon RK, Mahmud S, Nassar AHM. Hartmann's Pouch Stones and Laparoscopic Cholecystectomy: The Challenges and the Solutions. JSLS. 2020;24(3):e2020.00043.
7. Beltrán MA, Csendes A, Cruces KS. The relationship of Mirizzi syndrome and cholecystoenteric fistula: validation of a modified classification. World J Surg. 2008;32(10):2237-43.
8. Zhao J, Fan Y, Wu S. Safety and feasibility of laparoscopic approaches for the management of Mirizzi syndrome: a systematic review. Surg Endosc. 2020;34(11):4717-26.

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