

Role of MR Imaging in A Rare Biliary Tract Obstruction : Mirizzi Syndrome

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ABSTRACT

Background: Mirizzi syndrome is a rare issue where the bile duct gets blocked. It can be tricky to diagnose until surgery and many cases go unnoticed. An MRI test called MRCP is useful for spotting bile duct problems non-invasively. Case Report. A 36-year-old man was admitted to the hospital with upper right abdominal pain, jaundice, fever, nausea, vomiting, and dark urine. Tests revealed high bilirubin levels and raised liver enzymes. An MRCP scan found multiple stones blocking his bile ducts. After cholecystectomy and stone removal, doctors diagnosed him with Mirizzi Syndrome type IV.

Conclusions. Mirizzi syndrome is a rare condition causing jaundice from bile duct blockage. It's crucial to diagnose it before surgery to avoid complications. MRCP is an effective tool for spotting bile duct problems and is almost as good as ERCP. It accurately detects bile stones and may replace ERCP for this purpose..

Keywords: Mirizzi Syndrome; MRCP; ERCP; Biliary Tract; Biliary Tract Obstruction

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INTRODUCTION

Mirizzi syndrome is a rare condition caused by the obstruction of the common bile duct or common hepatic duct by external compression from multiple impacted gallstones or a single large impacted gallstone in Hartman's pouch. Presenting symptoms are similar to cholecystitis but may be confused with other obstructing conditions such as common bile duct stones and ascending cholangitis due to the presence of jaundice. Preoperative diagnosis is often difficult and usually missed. ⁽¹⁾

Endoscopic retrograde cholangiopancreatography (ERCP) is currently the 'gold standard' for the diagnosis of biliary obstruction. It is one of several invasive direct cholangiography techniques. However, it is an imperfect diagnostic tool and other procedures may be more appropriate gold standards for diagnosis in the future. Magnetic resonance cholangiopancreatography (MRCP) is noninvasive methode an alternative to diagnostic ERCP for imaging the biliary tree and investigating biliary obstruction. The use of MRCP in diagnosing biliary obstruction may avoid the use of unnecessary invasive procedures but but has the disadvantage that it cannot be used during interventions. ⁽²⁾

CASE REPORT

A 36-year-old male was admitted to emergency room with right upper quadrant pain that refer into his back in the last 5 weeks. He was icteric associated with fever, nausea, vomiting and dark urine since a week before. The history and physic examination were unremarkable except for positive Murphy's sign. At the time of admission, laboratory data showed total bilirubin of 8,9 mg/dL, SGOT of 91 IU/L and SGPT of 62 IU/L. The patient underwent an

ultrasonography of his abdomen and revealed a finding of a multiple cholelithiasis with cholecystitis and hepatosplenomegaly. MR imaging showed choledocholithiasis and cholelithiasis that leads to CBD-cysticus junction obstruction along with cholecystobiliary fistula. On MRCP demonstrated multiple stones of the cysticus duct, proximal and distal common bile duct which causing obstruction and dilation of biliary system on its proximal side. From the cholecystectomy and choledocholithotomy procedures confirming Mirizzi Syndrome type IV with cholelithiasis and choledocholithiasis. Cholescopy also performed in this patient.

DISCUSSION

Mirizzi syndrome is a rare complication of gallstone disease and secondary to the obliteration of the infundibulum of the gallbladder, Hartmann's pouch, or cystic duct in close proximity to the common hepatic duct, causing obstruction of the common hepatic duct by extrinsic compression. The incidence of Mirizzi syndrome was 0.1-2,7% in patients with cholelithiasis ⁽³⁾. Ultrasonography is non-invasive and widely available and it has been recommended as the best screening method. Magnetic resonance imaging (MRI) and magnetic resonance cholangiography (MRCP) are highly effective tools for detecting and characterizing gallstones, particularly in complex cases where other imaging modalities may fall short. The additional advantage of magnetic resonance imaging is that it can show the extent of pericholecystic inflammation and aid in the differentiation of Mirizzi syndrome from other gallbladder pathologies such as gallbladder malignancy ⁽⁴⁾. It can show typical features of Mirizzi syndrome such as extrinsic compression

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of the CHD, a stone in the CHD, dilatation of the intrahepatic ducts and CHD with normal distal CBD. ⁽⁵⁾ In our case, the ultrasonography showed multiple cholelithiasis on a gall bladder and a +/- 0,62 cm in size of cholelithiasis in the neck of the gall bladder (Fig 1 and 2). Two days later patient undergo MR Imaging that has been successfully diagnosed Mirizzi syndrome. On T2-weighted images without fat suppression were more informative in tissue characterization. In considering the limitations of MRCP, short-T2 material in the lumen of bile ducts is not easily differentiated from a true stone or other obstructive lesion. This is a consequence of water imaging with only bright or dark signal permitted. ⁽⁶⁾ In our patient, there is irregular wall thickening of gall bladder along with fluid intensity on perigallbladder with multiple stones in cystic duct, proximal and distal CBD, which showed hypointense on T1W1/T2W1 sequences and unrestricted diffusion area on DWI which causing obstruction and dilation of biliary system on its proximal side. From MR we have also found a hepatomegaly with multiple segmental cystic dilatation intrahepatic bile duct on V, VI, VII and VIII segment which showed hypointense on T1W1, hyperintense T2W1, T2

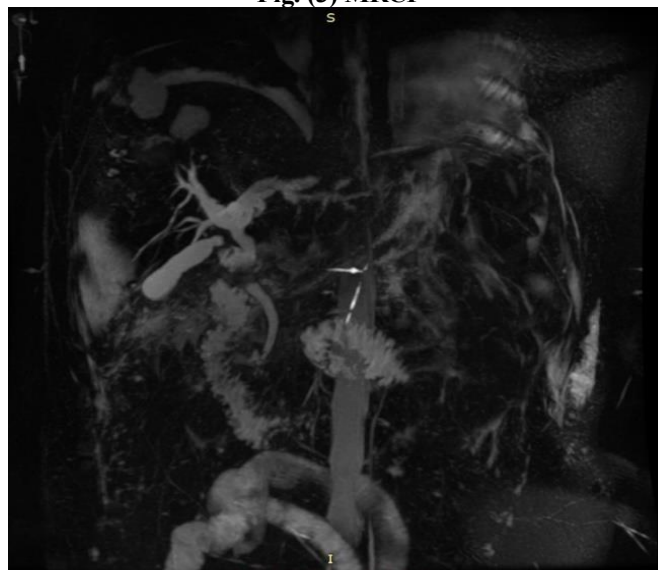
shine through positive (+) on contrast administration and there is enhancement from central portal radicle showed central dot sign supporting Caroli Disease (Fig. 6) From cholecystectomy and choledocholithotomy procedures, gall bladder contracted with irregular wall thickening, stones on the neck of gall bladder and forming fistula with CBD (Mirizzi Type IV), dilatation of CBD. There are also palpable multiple cysts on hepar with diameter +/- 1 cm. ERCP is currently the gold standard for diagnosing biliary obstruction and it is recommended that MRCP can be used as a secondary tool in cases where ERCP is unsuccessful or contraindicated ⁽⁷⁾. MRCP is recommended because it has the advantages of non-invasiveness and visualization of the proximal duct in case of complete obstruction, especially when therapeutic procedure is not anticipated. There is evidence that MRCP stands up well to comparisons with diagnostic ERCP, for the diagnosis of many biliary abnormalities. If preliminary tests, such as EUS or computed tomography, clearly indicate the need for therapeutic ERCP, then the use of diagnostic MRCP is probably unwarranted



Fig. (1) Ultrasonography

Fig. (2) Ultrasonography

Fig. (3) MRCP



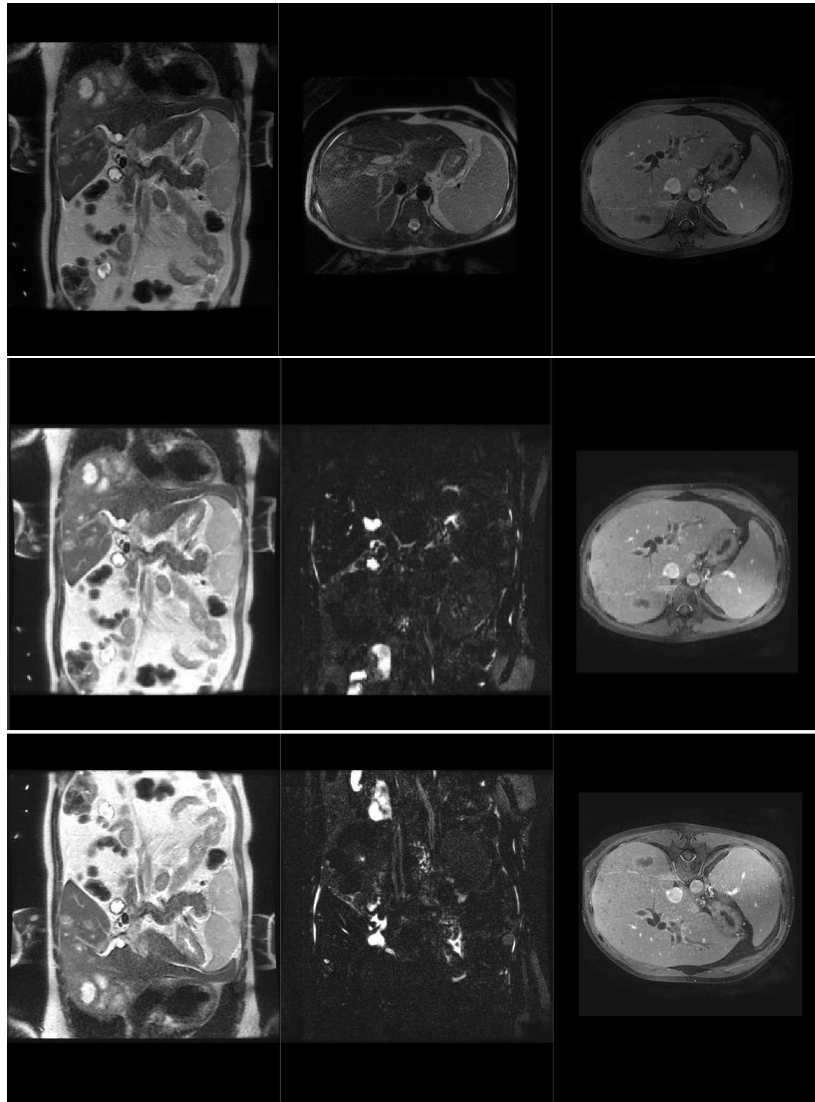


Fig. (4) (5) (6) Abdominal MRI and MRCP in sequence

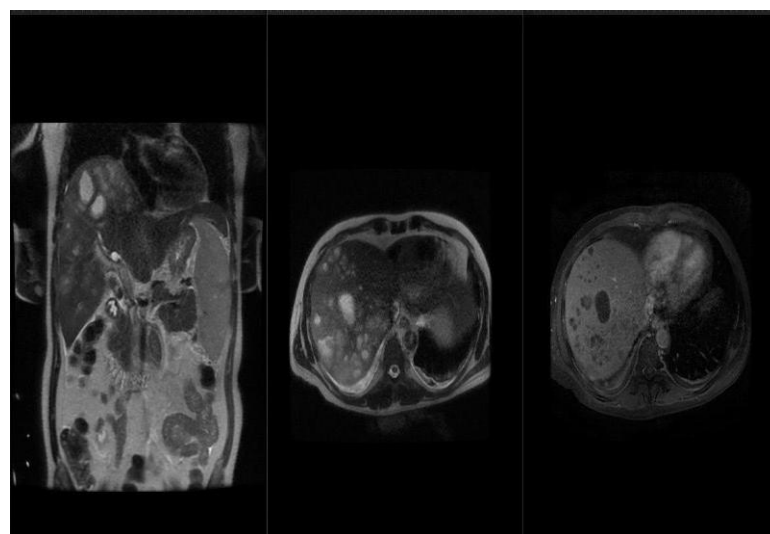


Fig. (7) Multiple Segmental Cystic Dilatation Intrahepatic Bile Duct

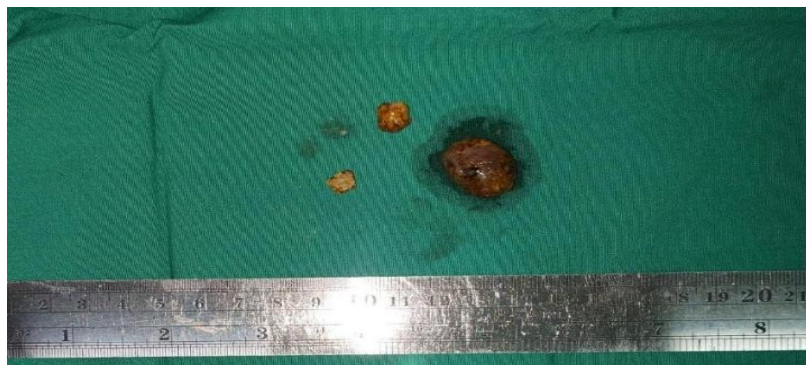
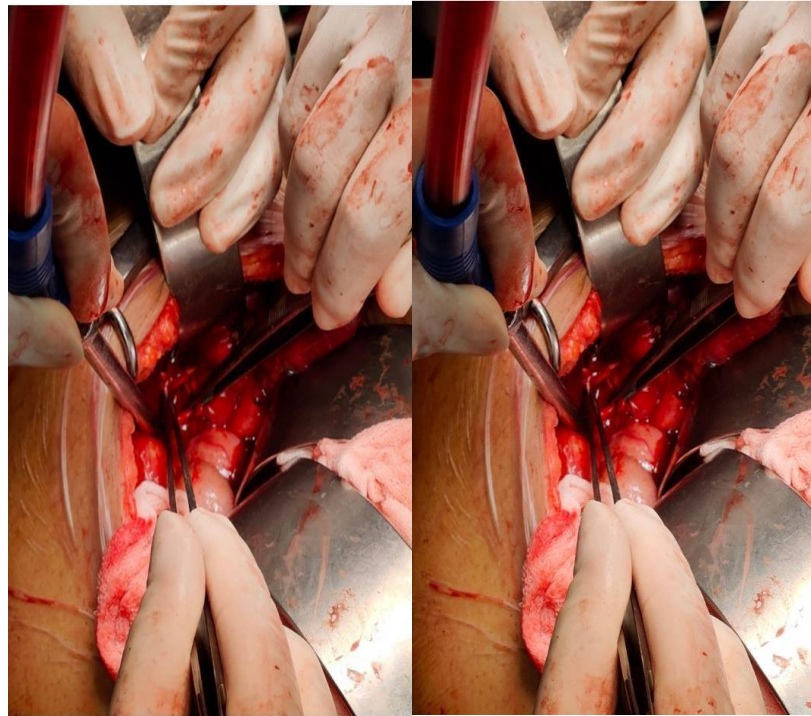


Fig. (8) Durante Op

CONCLUSION

Mirizzi syndrome is a rare but well-described cause of jaundice obstructive. Preoperative diagnosis of the syndrome is crucial in order to avoid complications of a cholecystobiliary fistula, or unknown cholecystoenteric, as well as biliary lesions iatrogenic due to the chronic inflammatory nature of the process. MRCP is a comparable diagnostic investigation in comparison to ERCP for diagnosing biliary abnormalities. ⁽²⁾ MRCP had a high sensitivity, specificity and accuracy of 91%, 98% and 97%, respectively in the diagnosis of choledocholithiasis and diagnostic accuracy similar to that of ERCP and that it has the potential to replace ERCP in the diagnosis of bile duct stones. ^(2,3)

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