

## Mirizzi's Syndrome: Revisiting the Findings on MRCP.

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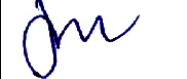

### Abstract:

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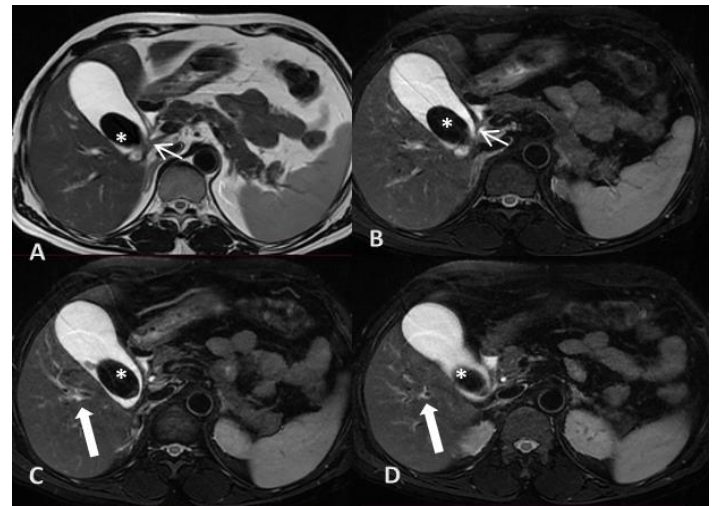


## Description:

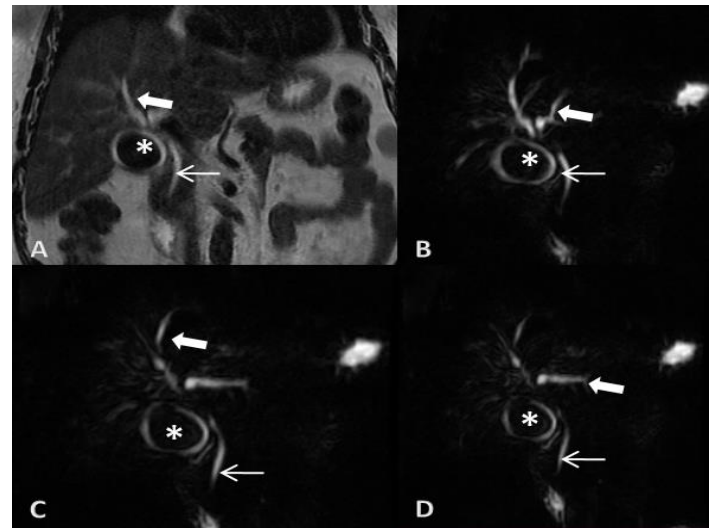
Mirizzi's syndrome is an uncommon entity that is defined as common hepatic duct (CHD) obstruction caused by extrinsic compression from an impacted stone in the cystic duct or in the gallbladder neck. [1-2] This syndrome occurs in 0.05 to 4% of patients with gallstones. [3] Approximately 50 to 70% of patients with Mirizzi's syndrome are women because of the higher incidence of gallstones. The gallbladder is connected to the cystic duct by its neck portion, which drains into the common bile duct (CBD). Sometimes large gallstones can become impacted in the neck of the gall bladder or in the cystic duct. These gall stones cause common hepatic duct obstruction and secondary duct inflammation, leading to frequent episodes of cholangitis. Rarely, chronic inflammation may cause bile duct wall necrosis and erosion leading to chole-cystobiliary fistula. [4] Patients with Mirizzi's syndrome may present with right upper quadrant pain, fever and jaundice. Classical Magnetic resonance cholangiopancreatography (MRCP) findings show a largely impacted gallstone in the gallbladder neck or in the cystic duct, inflamed hydroptic gallbladder causing proximal dilatation of the extra and intrahepatic biliary tree. Csendes et al. classification is useful for surgical planning. Type I is extrinsic compression in the common hepatic duct by impacted stone in the neck or cystic duct or absence of cystic duct, Type II is Cholecystocholedocal biliary fistula (CCBF) involving a one- third of the CHD wall circumference, type III is CCBF with over two-thirds of the CHD wall circumference, type IV is CCBF involving the whole CHD wall circumference and type V describes any of above with a cholecystoenteric fistula.

Definite treatment of Mirizzi's syndrome is cholecystectomy, and in the case of fistula, hepato- jejunostomy or duodenostomy can be done.

A 33-year old male presented to our institute with complaints of pain in the right upper quadrant region with 2-3 episodes of vomiting and fever. On clinical examination, the patient had yellowish discoloration of skin and eyes. The patient was advised for ultrasonography (USG) of the abdomen and routine blood investigations. The USG revealed a large impacted stone in the gall bladder with wall oedema and mild intrahepatic biliary radicles dilatation. On blood investigations, bilirubin was increased (direct bilirubin 6.5 mg/dl, total bilirubin 8.5 mg/dl), and alkaline phosphatase level was increased to 100 U/L. After that, the patient was advised for MRCP to evaluate for CBD, which couldn't be assessed on USG due to obscuration by bowel gases. MRCP depicted a large hypointense filling defect at the neck of the gall bladder representing a calculus. It was causing obstruction to the normal pathway of biliary drainage, making the gall bladder over distended. [Figure.1]The calculus was compressing the common hepatic duct near the hilum with dilatation of intra and extra biliary radicals.[Figure 2] Thus, a diagnosis of type I Mirizzi's syndrome was made, and the intra-operative appearances were compatible with imaging findings(cholecystectomy). The patient recovered well after the surgery and doing fine.



**Figure 1:** (A and B) axial t2w sections from MRCP abdomen, demonstrating a hypointense filling defect in the gall bladder suggestive of calculus (asterisk). There is compression of the proximal CBD (white arrows) by the calculus. (C and D) axial t2w sections from MRCP abdomen reveals dilated intra-hepatic biliary ducts (thick white arrows).



**Figure 2:** Coronal sections of T2W (A) and reformatted 3D MRCP (B, C and D) of abdomen showing hypointense filling defect suggestive of calculus (asterisk). There is non-visualization of compressed proximal segment of CBD with dilatation of IHBR (thick white arrows) and normal calibre distal CBD (white arrows) respectively.

## Learning Points/Take Home Messages (2-3 bullet points)

1. Mirizzi's syndrome is an unusual but very important surgical condition which requires precise pre-operative diagnosis.
2. Mirizzi's syndrome should be diagnosed pre-operatively to reduce the iatrogenic biliary damage.
3. MRCP is the modality of choice for the diagnosis of Mirizzi's syndrome and the preferred non-invasive investigation, which reveals location of gall stones, inflammation, common bile-duct narrowing, and fistulae and in IHBR dilatation.



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