



ACCURACY OF MAGNETIC RESONANCE CHOLANGIOPANCREATOGRAPHY (MRCP) IN EVALUATION OF BENIGN BILIARY DISORDERS

Radiodiagnosis

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ABSTRACT

Evaluation of biliary tract disorders is necessary, as it is the most common cause of obstructive jaundice, which involves various imaging modalities. MRCP has emerged as a non-invasive and highly sensitive approach in the evaluation of pancreaticobiliary system, in patients with surgical jaundice as it is an effective alternative to ERCP, which is invasive.

KEYWORDS

Magnetic resonance cholangiopancreatography, Biliary obstruction, Cholelithiasis, Cholecystitis, Choledochal cyst.

INTRODUCTION:

Obstructive jaundice due to biliary tract disorders is often the common complaint of patients, of which the most common cause is cholelithiasis.

Other benign causes of obstructive jaundice include choledocholithiasis, choledochal cyst, strictures, calculi, cholecystitis, acalculous cholecystitis and gall bladder polyps.

Evaluation of suspected biliary obstruction involves a variety of imaging modalities including Ultrasonography (US), Computed Tomography (CT), and invasive techniques like Endoscopic Retrograde Cholangiopancreatography (ERCP) and Percutaneous Transhepatic Cholangiography (PTC).

Compared with the US and CT, ERCP is more accurate but is invasive, technically difficult, operator dependent, and associated with complications and procedure related morbidity.

MRCP has emerged as an effective, non-invasive, highly sensitive alternative approach to ERCP in the evaluation of the pancreaticobiliary system because of the lack of need for sedation, i.v. Contrast and radiation exposure and because of its ability to delineate lesions at all levels.

AIMS & OBJECTIVES

Evaluation of spectrum of findings in cases of biliary disorders on MRCP.

Evaluation of the role of MRCP in surgical management and outcome of biliary disorders.

MATERIALS AND METHODS

Study Design: Hospital-based prospective study

Study Sample: 30 patients

Inclusion Criteria: 30 patients of different age groups with clinical suspicion of biliary disease were selected.

Exclusion Criteria: Patients with cardiac pacemakers, implants, claustrophobia and malignant biliary disorders.

Equipment: 1.5 Tesla MRI GE.

MRCP Technique

The MRCP technique was performed with heavily T2-weighted turbo spin-echo sequences and fast gradient echo sequences on 1.5T MRI GE after a 4hr fasting using a phased-array body coil.

FIESTA sequences and 3D Reformatted (MPR, MIP) images were acquired for better visualization of ducts.

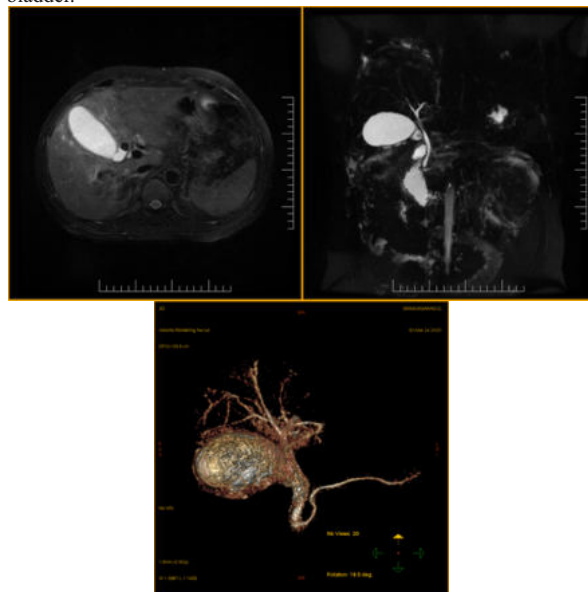
The coronal plane was used to provide a Cholangiographic display, and the axial plane is used to evaluate CBD.

IMAGING FINDINGS

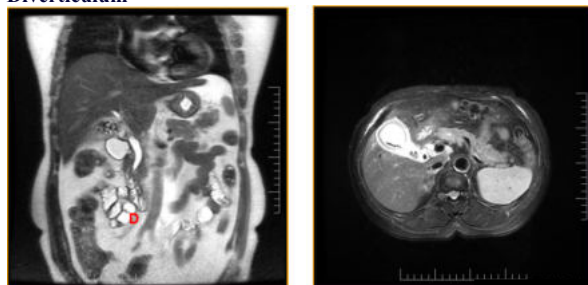
Case of cholelithiasis with distension of gall bladder

A 49 yr. Old male patient presenting with jaundice MRCP findings: Axial T2 WI, Coronal T2 WI, and 3D volume-rendered images

showing calculus in the gall bladder neck with distention of gall bladder.

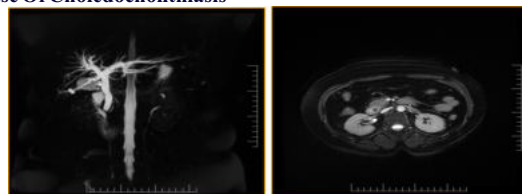


Case Of Acute Calculus Cholecystitis With Duodenal Diverticulum



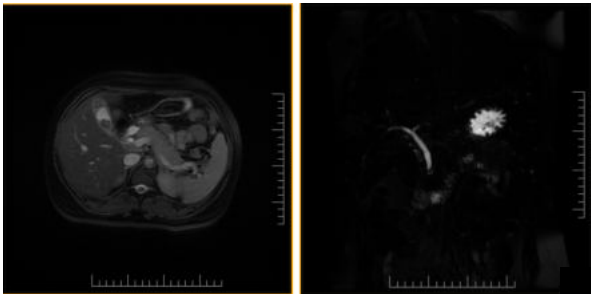
A 42 yr. Old female patient presenting with severe abdominal pain and jaundice with elevated liver function tests MRCP findings: Coronal T2 SSFSE, Axial T2 WI images showing duodenal diverticulum(D) and calculi with in the gall bladder body, neck with features of cholecystitis.

Case Of Choledocholithiasis



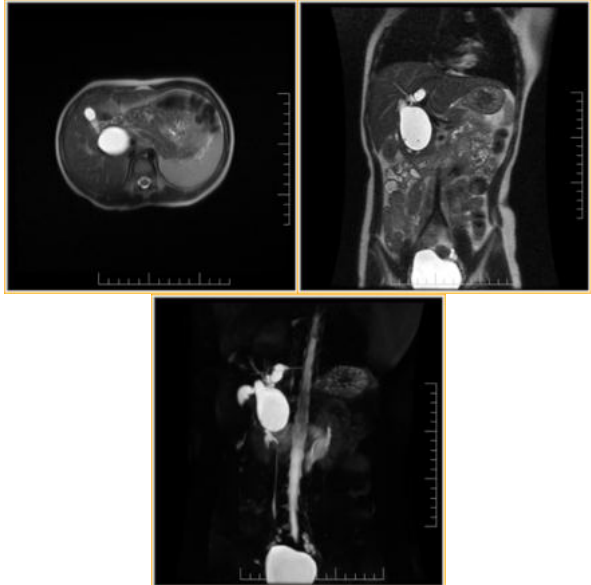
A 40 yr. Old female patient presenting with features of obstructive jaundice. MRCP findings: Coronal 3D MIP image, Axial T2 WI showing calculus within the distal CBD with dilatation of common bile duct, cystic duct, common hepatic duct, and Intrahepatic biliary radicle dilatation (IHBRD).

Case Of Stricture Of Distal CBD



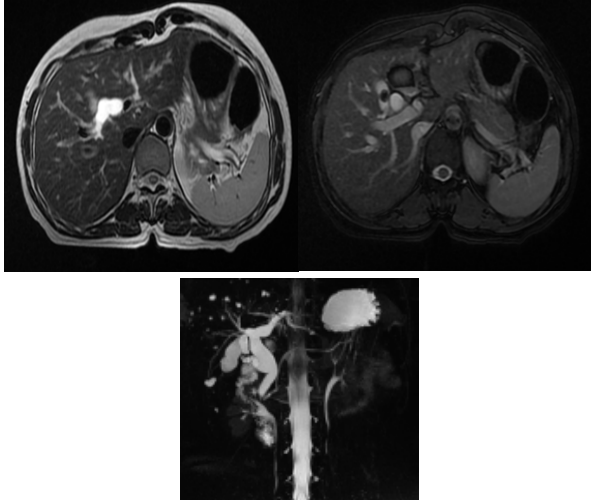
A 25 yr. Old female patient presenting with intermittent abdominal pain and jaundice. MRCP findings: Axial FIESTA, Coronal 3D reformatted images showing stricture of the distal part of common bile duct, with mild dilated common bile duct, cholelithiasis

Case of type I choledochal cyst



A 7 yr. Old female patient presenting with palpable abdominal swelling and jaundice. MRCP findings: Axial T2 WI, Coronal T2 SSFSE, 3D MIP images showing fusiform dilatation of common hepatic, bile ducts (CBD, CHD).

Case of type IV choledochal cyst



A 40 yr. Old female patient presenting with jaundice. MRCP findings: Axial T2 WI, Axial FIESTA & Coronal 3D images showing cholelithiasis, dilatation of intrahepatic and extrahepatic bile ducts, common hepatic, bile ducts (CHD, CBD) (Type IV choledochal cyst).

DISCUSSION

In this study, 30 patients with biliary disorders were diagnosed. Out of 30, 12 Males affected (40%) & 18 Females affected (60%), Female predominance. Out of 30 patients, 6 patients are of age 7 -20yrs, 12 patients are in the age group of 20-40 yrs, 12 are in the age group of 40 - 70yrs.

MRCP Findings Of 30 Patients:

TYPE OF BILIARY DISEASE	NUMBER OF PATIENTS	SENSITIVITY OF MRCP COMPARED TO ERCP/HPE/SURGICAL FINDINGS
CHOLELITHIASIS	8	100%
CHOLEDOCHOLITHIASIS	6	100%
CBD STRICTURES	4	75%
CHOLEDOCHAL CYST	2	100%
CHOLELITHIASIS WITH CHOLECYSTITIS	6	100%
ACALCULUS CHOLECYSTITIS	2	100%
GALL BLADDER POLYP	2	100%
TOTAL	30	

CONCLUSION

Thus, MRCP is an effective, non-invasive, and highly sensitive investigation in the evaluation of biliary disorders in patients with surgical jaundice, an alternative to ERCP, which is invasive.

Successful outcome in diagnosing biliary pathology on MRCP depends on knowledge of technique and careful evaluation of wall of the duct, ductal lumen, and surrounding soft tissue structures.

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