



ROLE OF MAGNETIC RESONANCE CHOLANGIOPANCREATICOGRAPHY(MRCP) IN EVALUATION OF PANCREATICOBILIARY PATHOLOGIES.

Radiology

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ABSTRACT

Background: MR Cholangio-Pancreatography (MRCP) is evolving as an effective non-invasive imaging technique for examining patients with pancreatic or biliary pathologies. **Objective:** To determine the role of MRCP as non-invasive imaging modality for diagnosis of pancreatobiliary diseases, in diagnosing lower biliary tract pathologies, pancreatic duct pathologies. **Methods:** A prospective study conducted in Navodaya Medical College & Research Centre, Raichur for one year. 30 patients were enrolled in the study, their MRCP was performed following ultrasonography. **Results:** MRCP diagnosed the following pathologies- cholelithiasis, choledocholithiasis, chronic pancreatitis, carcinoma, choledochal cyst, CBD stricture, emphysematous cholecystitis and GB perforation. **Conclusions:** MRI serves as very accurate and non-invasive, non-ionizing imaging method for evaluation of pancreato-biliary anatomy and pathology. It decides whether the patient requires ERCP and thus cuts down the rate of 'negative' ERCP.

KEYWORDS

MRCP, Pancreatobiliary

INTRODUCTION

Magnetic resonance cholangio -pancreatography (MRCP) was introduced in 1991, as a non-invasive method of imaging the biliary tree. Although endoscopic cholangiopancreatography (ERCP) has been the mainstay for diagnosing and treating pancreato-biliary disease, complications such as pancreatitis, cholangitis, haemorrhage and duodenal perforation have limited its use as a routine diagnostic test¹. In fact, MRCP is the examination of choice in a setting where ERCP is difficult or impossible. It is also useful in cases with severe biliary obstruction to evaluate the ducts proximal to the obstruction².

Now a days MRCP is widely used as a primary noninvasive imaging modality in the diagnosis of obstructive biliary pathologies. It plays a primary role in its workup and therapeutic operative planning.³ It makes use of heavily T2 weighted pulse sequences, thus exploiting the inherent differences in the T2 weighted contrast between stationary fluid filled structures in the abdomen (which have long T2 relaxation time) and adjacent soft tissue (which has a much shorter T2 relaxation time).^{4,5} Heavily T2-weighted fat suppressed sequences are used to produce images, in which static fluid is hyperintense, and background signal is suppressed. These images are suitable for postprocessing into projection images that resemble direct cholangiogram produced by ERCP or percutaneous transhepatic cholangiopancreatography.⁶

AIMS & OBJECTIVES:

To describe features of pancreatobiliary diseases on MRCP. To help in deciding further course of management. To identify the anatomical variants. To prove the MRCP is one of the best imaging modalities for evaluation of pancreato-biliary diseases.

MATERIALS AND METHODS:

The study included 30 patients attending OPD or admitted in Navodaya Medical College & Research Centre, Raichur. MRCP was performed using PHILIPS ACHIEVA 1.5 T Ultra-compact, Superconducting, Active shielded magnet.

Inclusion criteria:

Pain abdomen, deranged bilirubin level, dilated IHBR and detection of mass in pancreato-biliary region on USG

Exclusion criteria:

Claustrophobia, patients with cardiac pacemaker/aneurysmal clips, elderly, children and debilitated patients in whom breath holding is not possible and detection of mass in pancreato-biliary region on USG

RESULT:

Disease	No of patients	Percentage
Cholangiocarcinoma	2	6.6
Strictures	2	6.6
Choledochal cyst	2	6.6
GB carcinoma	3	10
Cholelithiasis	4	13.2
Choledocholithiasis	4	13.2
Cholelithiasis + Choledocholithiasis	4	13.2
Chronic pancreatitis	3	10
Acute pancreatitis	3	10
Emphysematous cholecystitis	1	3.3
Periampullary carcinoma	1	3.3
Metastasis to GB	1	3.3

30 patients underwent MRCP investigation during study period out of which: 7 patients were diagnosed as carcinoma with 2 patients diagnosed as cholangiocarcinoma, 3 patients having gall bladder carcinoma which includes one patient with associated cholangitic abscesses in both lobes of liver, one patient had periampullary ca and one had metastasis in GB fossa, 2 patients had choledochal cysts of which one had pancreatitis due to rupture of choledochal cyst, 2 patients presented with strictures, of which 1 was benign, one was malignant, 12 patients had calculus either in GB or CBD. 3 patients had chronic pancreatitis and 3 had acute pancreatitis & 1 patient had emphysematous cholecystitis.

DISCUSSION:

The most common presenting complaints of the subjects in our study was jaundice (92%) which is consistent with the study by Verma et al.⁷ Evaluation of suspected biliary obstruction has traditionally involved a variety of imaging modalities including Ultrasonography (US), Computed Tomography (CT) and invasive cholangiography. Ultrasound is the initial screening tool and has limitations especially in the evaluation of the distal CBD where bowel gas, debris, fluid in the duodenum and obesity can degrade the image quality.

CT scan also has its share of limitations, especially in demonstrating two important pathologies, biliary stones and biliary strictures. CT has a sensitivity of only 90% for detecting biliary stones. ERCP is a very operator dependent and invasive procedure and it is associated with 1-7% related morbidity and 0.2%-1% mortality. In view of limitation of US and CT and invasiveness of PTC, IVC and ERCP there is need for an imaging modality which is non invasive and provides high resolution projection images of the biliary and pancreatic duct. MRCP

is a non-invasive imaging modality that provides good visualization of the hepato-biliary system.

Advantages of MRCP over ultrasound:

Provides high resolution images of biliary tree. Diagnostic images both above and below obstruction are possible. 3-D images of biliary tree can be obtained which can help in diagnosis and treatment planning. Can be used in obese patients, children and those patients who are poor sonographic candidates.

Advantages of MRCP over CT:

Provides high resolution images of biliary tree. 3-D images of Biliary tree can be obtained which can help in diagnosis and treatment planning. Pure cholesterol stones are iso- or slightly hypo-attenuating relative to bile, making them difficult to detect on CT. Stones as small as 3 mm are visualized on MRCP. Accurate in the diagnosis of anatomic variants of biliary tree. Ability to detect pancreatic divisum. Characterization of strictures (benign/malignant)

CONCLUSION:

MRI serves as an accurate and non-invasive, non-ionizing imaging method for evaluation of pancreatobiliary anatomy and pathology. Combination of MRI and MRCP allows safe surgical management decisions. Potentially useful in patients undergoing biliary enteric anastomosis for knowing the level and extent of strictures. Very useful tool in case of obese patients and children. There is now enough evidence to suggest that the efficacy of MRI and MRCP is at par with that of ERCP and can be considered as the gold standard for evaluation of the pancreatobiliary system.

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