|| Print ISSN: 2589-7837 || Online ISSN: 2581-3935 ||
International Journal of Medical Science and Diagnosis Research (IJMSDR)
Available Online at www.ijmsdr.com
PubMed (National Library of Medicine ID: 101738825)
Volume 3, Issue 7; July: 2019; Page No. 154-156
Original Research Article
crossref DOI: https://dx.doi.org/10.32553/IJMSDR/v3i7.35

ROLE OF MRCP IN OBSTRUCTIVE JAUNDICE

Dr. Ravindra R. Kalode
Assistant Professor, Department of Radio-Diagnosis, Dr Panjabrao Deshmukh Memorial Medical College, Amravati, Maharashtra
Conflicts of Interest: Nil
Corresponding author: Dr. Ravindra R. Kalode

Abstract:
Background: Jaundice can be defined as the yellow discoloration of the skin and the skin as well as the sclera. It is due to the accumulation of bilirubin in the mucous membranes and the skin[i]. It is divided into obstructive (surgical) and non-obstructive (medical). Further, when the site of the conjugation of bile in the liver cells and the entry of bile into the duodenum through ampulla is blocked, it is defined as obstructive jaundice.
Aim: To evaluate the diagnostic value and accuracy of MRCP in the diagnosis of obstructive jaundice
Methods: The study was conducted at the Department of Radio-diagnosis of the Dr. Panjabrao Deshmukh Memorial Medical College and hospital, Amravati. The duration of the study was from December 2016 to November 2018. Twenty patients were chosen for the scope of the study who presented with clinical & biochemical features of obstructive jaundice. All the patients were evaluated by Magnetic resonance imaging-Magnetic resonance cholangiopancreatography (MRI-MRCP). The imaging was done using the 1.5T MRI machine (Wipro GE Signa Excite).
Results: The most common cause of obstruction jaundice in the majority of cases was Tumours, i.e. 45%. It was followed by choledocholithiasis (35%), benign CBD strictures (10%) and lymph nodal mass (10%).
Conclusion: It was concluded that MRI-MRCP is a non-invasive technique that is highly sensitive and aids in the detection biliary obstruction. Further, it eases the treatment process by helping in the identification of the level and cause of obstruction as well.

Introduction

Jaundice can be defined as the yellow discoloration of the skin and the skin as well as the sclera. It is due to the accumulation of bilirubin in the mucous membranes and the skin[ii]. It is divided into obstructive (surgical) and non-obstructive (medical). Further, when the site of the conjugation of bile in the liver cells and the entry of bile into the duodenum through ampulla is blocked, it is defined as obstructive jaundice. The type of bile duct block may be either intrahepatic or extrahepatic[iii]. Furthermore, malignant jaundice can be identified as the tumours that arise from the pancreas, biliary tree, and secondary metastases in the liver or porta hepatis lymph nodes. Obstructive jaundice is very challenging as it is associated with high incidences of morbidity and mortality[iv].

Over the past couple of years, there have been useful advancements in the diagnosis of obstructive jaundice, which was otherwise difficult to identify. However, with the invention of MRCP, the identification of obstructive jaundice became relatively easier for the radiologists[v]. It is one of the non-invasive techniques used for the identification of malignant obstructive jaundice. MRCP can be extended as Magnetic Resonance Cholangiopancreatography. It is special type of MRI that is used for obtaining elaborative images of the hepatobiliary and pancreatic systems, including the liver, gallbladder, bile ducts, pancreas and pancreatic duct[vi]. In the following paper, the focus would be laid on the role of MRCP in the diagnosis of obstructive jaundice.

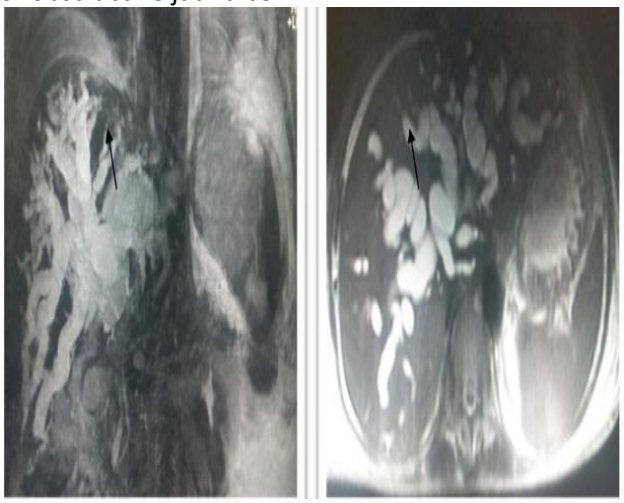

Figure 1: Shows marked intrahepatic biliary radicle dilatation (black arrows) on coronal and axial T2 W MR images

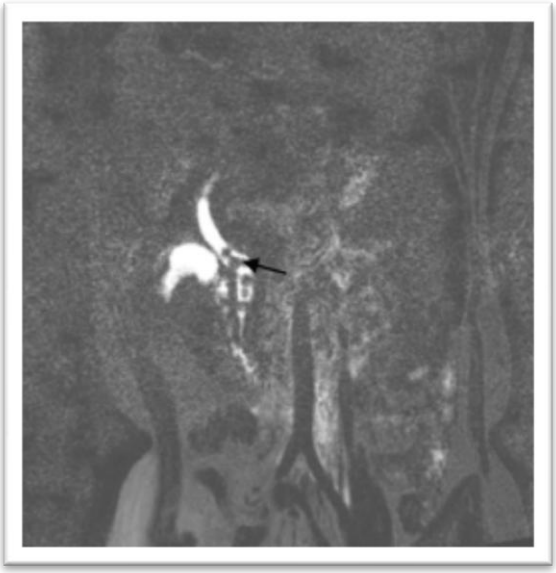

Figure 2: Multiple common bile duct calculi (black arrow) as seen on MRCP image

Figure 3: Shows a gall bladder mass (black arrow) in the region of the distal body and neck on coronal T2 WI

Aim

To evaluate the diagnostic value and accuracy of MRCP in the diagnosis of obstructive jaundice

Material and methods

The study was conducted at the Department of Radio-diagnosis of the Dr. Panjabrao Deshmukh Memorial Medical College and Hospital, Amravati. The duration of the study was from December 2016 to November 2018. Twenty patients were chosen for the scope of the study who presented with clinical & biochemical features of obstructive jaundice. Data collection regarding patient age, sex, address and specific imaging findings were obtained in each case and recorded on a special protocol form. All the patients were evaluated by Magnetic resonance imaging-Magnetic resonance cholangiopancreatography (MRI-MRCP). The imaging was done using the GE Signa Excite 1.5T MRI machine. A body coil was used for the examination. Conventional MRI of the upper abdomen was done, including T1 and T2 with or without fat suppression technique. I.V. contrast medium was given, if required (Gadolinium DTPA in a dose of 0.1 mmol\Kg as a bolus). Prior to MRCP imaging, the patients were kept empty stomach for 4-6 hours. Written consent was taken from all the patients before including them for the study. The Magnetic resonance cholangiopancreatography findings were correlated with the clinical history, examination, biochemical tests and surgical findings (if any)/ endoscopic retrograde cholangiopancreatography accordingly.

Results

Table 1: Detection of ductal dilatation

Modality	Intra hepatic biliary radical dilatation IHBRD)	CBD dilatation	IHBRD+ CBD dilatation	Total no. of cases
MRI-MRCP	8	1	11	20

Table 2: Detection of the level of obstruction

Level of Obstruction	No. of Cases	MRCP (no. of cases)
Porta hepatis	7	7
Prox. CBD	2	2
Distal CBD	9	9
Total	20	20

Table 3: Cause of Obstruction

Cause of Obstruction	No. of Patients	MRCP
CBD calculi	7	7
Tumours	9	9
Benign CBD strictures	2	2
Lymph nodal mass	2	2
Total	20	20

In the study, involving 20 patients, the most common level of obstruction was found to be at the distal common bile duct (CBD). Through MRCP, it was easy to diagnose the level of obstruction. The most common cause of obstruction jaundice in the majority of cases was tumours, i.e. 45%. It was followed by choledocholithiasis (35%), benign CBD strictures (10%) and lymph nodal mass (10%). The most common cause of obstructive jaundice is bile duct calculi. The detection of the cause of obstruction was detected in all 20 cases, i.e. it showed 100% accurate results.

Discussion

In the current study, the accuracy of MRCP in the detection of ductal dilatation, level of obstruction and cause of obstruction was 100% respectively. As per the current study, the most common site of obstruction was found to be distal common bile duct in 55.1% of the cases. Similar results were found in the study of Bhavesh et al. (2015)[vii] where the common site of obstruction was found to be distal common bile duct in 50% of the patients. Further, Safa Al- Obaidi et al. (2007) also showed similar results[viii]. The most common cause of obstruction in the current study was pancreatico-biliary tumours (45.5%), followed by choledocholithiasis (38%). Similar results were shown in the study of Upadhyaya et al. (2006)[ix]. In contrast to the current study, Mubarak et al. (2012) found that the most common cause of obstruction jaundice was choledocholithiasis[x].

Conclusion

From the study, it was concluded that MRI-MRCP is a non-invasive technique that is highly sensitive and aids in the detection biliary obstruction. Further, it eases the treatment process by helping in the identification of the level and cause of obstruction as well. Through this technique, it was possible to produce High-resolution images of the biliary tree along with identifying the areas below and above the obstruction. This further helps the doctor in following a treatment plan accordingly.

References

1. [i]Scharsshmidt GF, Goldberg HI, Schmid R. Approach to the patient with cholestatic -jaundice. N Engl J Med. 1983; 308(25): 1515-9.
2. [ii]Scharsshmidt GF, Goldberg HI, Schmid R. Approach to the patient with cholestatic -jaundice. N Engl J Med. 1983; 308(25): 1515-9.
3. [iii]El-Gendy FM, Hassane FM, Khattab AA, El-Lahony DM, Ashour NM. Predictive ability of first-day serum bilirubin and haptoglobin for subsequent significant hyperbilirubinemia in healthy-term and near-term newborn. Menoufia Med J 2014; 26:127–131.
4. [iv]Ma AH. Analysis of 17 cases of cholangitis by ERCP. Chinese J Endosc 2008; 14:669–670.
5. [v]Glockner JF. Hepatobiliary MRI: current concepts and controversies. J Magn Reson Imaging. 2007; 25(4): 681-95
6. [vi]Di Cesare E, Puglielli E, Michelini O, Pistoi MA, Lombardi L, Rossi M, et al. Malignant obstructive jaundice: comparison of MRCP and ERCP in evaluation of distal lesions. Radiol Med 2003; 105: 445-53.
7. [vii]Bhavesh Goyani, Bhagvati Ukani et al. Ultrasonography and magnetic resonance cholangiopancreatography correlation in patients with obstructive jaundice. IJMSPH 2015 : 4 (7); 1010-1016.
8. [viii]Safa Al-Obaidi, Mohammed Ridha Alwan Al-Hilli et al. The Role of Ultrasound and Magnetic Resonance Imaging in the Diagnosis of Obstructive Jaundice. The Iraqi Post Graduate Medical Journal 2007: 6 (11).
9. [ix]Upadhyaya V, Upadhyaya DN, Ansari MA, Shukla VK. Comparative Assessment Of Imaging Modalities In Biliary Obstruction. Ind J Radiol Imag.2006; 16(4): 577-82.
10. [x]Mubarak Ali, Ishtiaq Ahmed et al. Diagnostic accuracy of magnetic resonance cholangio-pancreatography in evaluation of obstructive jaundice. JPMA 2012; 62: 105.