MRCP FINDINGS IN OBSTRUCTIVE JAUNDICE

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ABSTRACT

Objective: To evaluate causes of obstructive jaundice on MRCP.

Methods: An Analysis of 55 patients presenting with obstructive jaundice at Radiology Department HMC Peshawar is carried out from March 2005 – September 2005. MRCP was the main diagnostic tool in all the cases. The objective of the study was to find out the causes of obstructive jaundice on MRCP using 1.5 T MRI. The MRCP was evaluated for biliary channel dilatation, presence of stricture, filling defect or any soft tissue mass, level of obstruction in ductal system and thus overall diagnostic impression.

Results: 35 patients were males and 20 were females. They were divided into four age groups i.e. 0-20 years (childhood and adolescence), 21-40 years (young adult), 41-60 years (middle age) and above 61 years (old age). Choledocholithiasis was the most common cause of obstructive jaundice i.e. (45.45%) followed by carcinoma Pancreas (16.36%) and Cholangiocarcinoma (12.72%).

Conclusion: MRCP is a non invasive Diagnostic tool which will not only tells us about the cause and level of obstruction but also helps us in selection of those patients who require therapeutic procedure. Hence it is recommended that MRCP should be indicated in patients suspected of having obstructive jaundice.

Key Words: MRCP, obstructive jaundice, cholestasis, Diagnosis, Jaundice, Choledocholithiasis.

INTRODUCTION

Jaundice (lcterus) is yellowish discoloration of sclera, mucous membranes as a result of excessive serum bilirubin and is usually detectable when bilirubin is greater than 30-60 µmol/l (normal range < than 17µmol/l)[1].

Obstructive Jaundice also known as cholestatic jaundice is one of the common referral causes to Radiology Department for diagnostic purposes[2]. The term "Obstructive Jaundice" implies the partial or complete obstruction to the flow of bile and its components into the intestinal tract[3]. Cholestasis may occur within the hepatic ductules and ducts (hepatic cholestasis) or there may be mechanical cause in the extra hepatic biliary system (extra hepatic cholestasis). It is the latter group of conditions that are usually referred to as cases of obstructive jaundice.

MRCP is an application of MR imaging that is a simple, accurate and non-invasive method[4]. For evaluation of obstructive jaundice it can provide high quality multiplanar imaging of pancreatico-biliary ductal system. It offers noninvasive replacement for diagnostic application of ERCP without any oral or I/V contrast agents[5]. Currently the diagnostic accuracy of MRCP is considered to be equivalent to that of ERCP for a spectrum of benign and malignant pancreatic and biliary ductal system[6].

Although ultrasound and computed tomography are the initial non-invasive methods for diagnosis of hepatobilliary obstruction, however the accuracy of these techniques is limited because of low sensitivity for diagnosis of stones in common bile duct or detection of strictures that are common causes of obstruction and are not good as direct cholangiography in determining the exact cause and level of obstruction[7,8].

MATERIAL AND METHODS

This descriptive form of study was conducted in Radiology department, Post Graduate Medical Institute, Hayatabad Medical Complex Peshawar, in collaboration with department of Surgery and department of Gastroenterology, Hayatabad Medical Complex.

A total of 55 patients who presented with obstructive jaundice were analyzed between March 2005 to September 2005. Convenient sampling was adapted for the purpose of study. The sample included hospitalized patients of all ages and both sexes presenting with clinical and biochemical obstructive jaundice.

MRCP was the main diagnostic tool in all the cases. The objective of the study was to find out the Diagnostic accuracy of MRCP in determining the cause of the obstructive jaundice.

MRCP was acquired with 1.5 T MR scanner (Magnetum Symphony.Siemens. Germany) A2D multi-slice T2 weighted breath hold sequence with a quadrature (QD) spine coil. MR cholangiograms were acquired, heavily T2 weighted FAST Spin Echo sequence and 3D HASTE sequences using 4-16 seconds breath hold

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techniques Fat suppression and parallel saturation bands applied.

Coronal slabs in the hilar plane were post processed using a maximum intensity pixel projection (MIP) algorithm.

The MRCP images were evaluated for biliary channel dilation, presence of stricture, filling defect or any soft tissue mass, level of obstruction in hepato-biliary and pancreatic ductal system and thus overall diagnostic impression.

A detailed proforma was designed for data collection, history and record of subject patients.

RESULTS

This study included patients of all ages and both sexes presenting with clinical and biochemical obstructive jaundice. The MRCP was evaluated for biliary channel dilatation, presence of stricture, filling defect or any soft tissue mass, level of obstruction in ductal system and thus overall diagnostic impression.

35 patients were males and 20 were females. They were divided into four age groups i.e. 0-20 years (childhood and adolescence), 21-40 years (young adult), 41-60 years (middle age) and above 61 years (old age).

Besides jaundice, pruritis and abdominal pain were found to be the most common symptoms i.e. 50% each, followed by anorexia and palpable abdominal mass. Lesions were grossly classified as benign and malignant.

DISCUSSION

This study includes 55 patients with age ranging from 01 to 84 years. The mean age of presentation is 42 years. Maximum number of patients were in the 40-60 years age group. This is comparable to a study conducted by Iqbal and workers.[9]

In my study, male to female ratio is 1.75:1. A study

Table 1. Sex Distribution

S.No	SEX	No. of Patient	%Age
1.	Male	35	63.63%
2.	Female	20	36.36%
Total No. of Patients		55	99.99%

Table 2. Age distribution

S.No	Age Groups In Years	No. of Patients	%AGE
1	0-20 years	02	03.63%
2	21-40 years	16	29.09%
3	41-60 years	26	47.27%
4	61 and above	11	20%
Total No. of Patients		55	99.99%

Table 3. Ateological stratification of obstructive jaundice

S.No	ETIOLOGY	No. of Patients	%Age of Total
Lesions	0-20 years	02	03.63%
1	Choledocholithiasis	25	45.45%
2	Benign stricture (post-cholecystectomy)	02	3.63%
3	Carcinoma Pancreas	09	16.36%
4	Periampullary Carcinoma	04	7.27%
5	Cholangiocarcinoma	07	12.72%
6	Carcinoma Gall Bladder	06	10.90%
7	Choledochal cyst	01	1.81%
8	Lymphoma	01	1.81%
Total No. Of Cases		55	99.97%

by Mohammad Khurrum and colleagues[10] showed male to female ratio of 1.07:1 which is comparable to the study, however a study done by Rosch T et al showed male to female ratio 1:1.38, this could be due to cultural differences, as there is a high chance that males get to reach for hospital treatment more often in our setup while female are not that privileged.[11]

Grossly two etiology groups were found- benign and malignant. In benign diseases CBD stones formed 45.45% of the total causes. Most of the stones were in lower CBD in females and age group of 40-60 years. A study done by Ijaz Ahmed also found CBD stones to be the most common cause of obstruction in age group of 40 to 60 years.[12]

Malignant disease formed 49.09% of the total causes. Munir K and workers showed this figure to be 51.0% in their study[7]. Malignancy was most commonly found in male patients and older patients, a similar high incidence of malignant disorders in male and older age groups had been reported in other studies by Ijaz and workers and Dwivedi M[13].

CONCLUSION

So to conclude MRCP is a non invasive Diagnostic tool which will not only tell us about the cause and level of obstruction but also helps us in selection of those patients who require therapeutic procedure. Hence it is recommended that MRCP should be indicated in patients suspected of having obstructive jaundice.

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