ORIGINAL ARTICLE

Diagnostic accuracy of ultrasound in the diagnosis of choledocholithiasis taking surgical findings as gold standard

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ABSTRACT

Choledocholithiasis is the presence of a gallstone within the bile ducts (including common hepatic duct and common bile duct).

Objectives: The main objective of the study is to find the diagnostic accuracy of ultrasound in the diagnosis of choledocholithiasis taking surgical findings as gold standard.

Material and Methods: This cross sectional study was conducted at Department of Radiology, Bahawal Victoria Hospital/QAMC Bahawalpur during from May 2020 to January 2021. The data was collected through non probability consecutive sampling technique.The data was collected from 95 patients. These patients had been advised MRCP with clinical suspicion of Choledocholithiasis. Once report obtained and diagnosis of choledocholithiasis was confirmed then patients were referred to the surgery department.

Results: The data was collected from 95 patients and we reviewed records from all patients treated for choledocholithiasis. Records were obtained from the hospital database to assess the frequency of acute biliary pancreatitis in silent gall-stones. Choledocholithiasis was diagnosed based on characteristics signs and symptoms, amylase and lipase test. The mean age of the patients were 48.5 who were admitted in the general surgery department of the hospital.

Conclusion: It is concluded that MRCP can be considered as the most reliable, non-invasive, operator and patient independent tool in large repertoire of available methods for detection of Choledocholithiasis

INTRODUCTION

Obstructive jaundice is a common surgical problem that occurs when there is an obstruction to the passage of conjugated bilirubin from liver cells to intestine. Jaundice and pain are the most common presenting complaints in patients with hepatobiliary disease. Intense biliary lot sicknesses cause huge bleakness and mortality, and about 2% of all admissions to emergency clinic are for hepatobiliary illnesses[1]. Intense pancreatitis (0.54% of all confirmations) and intense cholecystitis (0.48%) are the main signs for hospitalization. MRCP is a significant noninvasive imaging investigation in the preoperative assessment of patients with obstructive jaundice. It assumes an essential part in the workup and helpful employable arranging of obstructive jaundice[2]. Choledocholithiasis is the presence of a gallstone inside the bile channels (counting normal hepatic conduit and basic bile pipe). Choledocholithiasis can bring about cholestasis for example hindrance or easing back of the bile stream and obstructive jaundice.Choledocholithiasis is the commonest reason for biliary obstacle. Manifestations of choledocholithiasis incorporate yellow staining of skin and sclera (jaundice), dirt hued stools, right hypochondrium torment, tingling, sickness and spewing[3]. Optional biliary cirrhosis can happen if cholestasis isn't soothed and consequently there is earnestness to discover causative factor prompting obstructive jaundice. Ultrasonography is generally the main investigation for assessment of side effects related to choledocholithiasis and over 70% of gallstones are discovered unexpectedly on ultrasound and patients are typically asymptomatic. Be that as it may, ultrasound is administrator just as persistent ward[4]. Ultrasound has simple openness, speed, simplicity of execution and ease. The demonstrative exactness of U/S in separating obstructive from non-obstructive jaundice is assessed to be high in the request for about 90%[5]. MRCP has a high affectability and particularity of 98% each in finding of obstructive jaundice when contrasted with ultrasound which has affectability and explicitness of 88% each individually. As per an examination 17.1% of instances of jaundice are because of obstacle normally with contribution of pancreatic and biliary framework[6,7]. Deterrent of pancreatobiliary framework is liable for advancement of obstructive jaundice. It is a typical clinical issue and it is critical to assess it rapidly for brief treatment and forestall intricacies[8]. Apparently and subsequent to going through different web crawlers, scant data was recovered on the analytic exactness of ultrasonography in assurance of associated cases with biliary block[9].

MATERIAL AND METHODS

This cross sectional study was conducted inBahawal Victoria Hospital/QAMC Bahawalpur during from May 2020 to January 2021. The data was collected through non probability consecutive sampling technique.All patients presenting with clinical features of choledocholithiasis, age group 18-45 years and either gender were included. Patients with history of surgical intervention in the abdomen in the last one month, pregnant women, not willing to participate, patients of chronic liver disease were excluded. The study was conducted after approval from hospitals ethical and research committee. All patients presenting to

OPD with high suspicion of necrotizing pancreatitis was included in the study. The data was collected from 95 patients. These patients had been advised MRCP with clinical suspicion of Choledocholithiasis. Once report obtained and diagnosis of choledocholithiasis was confirmed then patients were referred to the surgery department. During surgery the presence of Choledocholithiasis was observed using clinical observation intra-operatively. Biasness was considered by taking exclusion criteria for all the variables that may affect the results of this study. The collected data was entered on the designed proforma and statistical analysis of the data was done. The data was collected and analysed using SPSS version 20.0. All the values were expressed in mean and standard deviation.

RESULTS

The data was collected from 95 patients and we reviewed records from all patients treated for choledocholithiasis. Records were obtained from the hospital database to assess the frequency of acute biliary pancreatitis in silent gall-stones. Choledocholithiasis was diagnosed based on characteristics signs and symptoms, amylase and lipase test. The mean age of the patients were 48.5 who were admitted in the general surgery department of the hospital. From total 95 patients, 41(43.1%) male and 54(56.8%) female developed choledocholithiasis based on the detection of gall stones in the biliary tract by abdominal ultrasonography or by retrograde cholangiopancreatography (MRCP). As we can see from the results, frequency of acute biliary pancreatitis was higher in females and in elder adults.

Table 01: Frequency of choledocholithiasis in selected patients

Age range	choledocholithiasis	% age	Biliary pancreatitis	%age
15-20	12	12.7	08	8.4
21-25	10	10.6	10	10.5
26-30	5	5.31	09	9.4
31-35	10	10.6	29	30.5
36-40	13	13.82	20	21.3
41-45	20	21.27	09	9.4
46-50	10	10.6	05	5.43
Above 50	14	14.89	05	5.43
Total	94	100	95	100

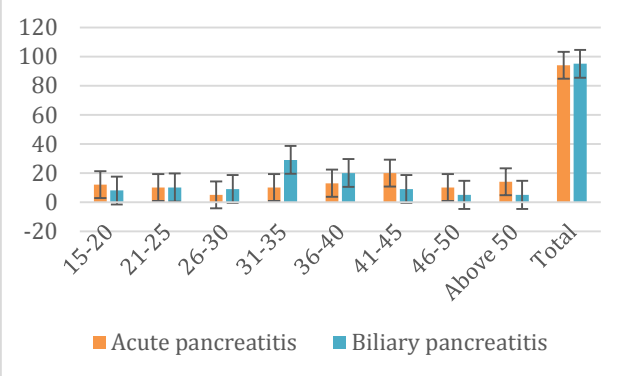

Fig. :

In this study, MRCP detected positive choledocholithiasis among 65 patients and per operation diagnosed positive choledocholithiasis among 30 patients.

Table 02: Findings of MRCP while taking surgical findings as gold standards

Surgical findings	MRCP		
	Positive	Negative	Total
Positive	48	13	61
Negative	17	17	34
Total	65	30	95

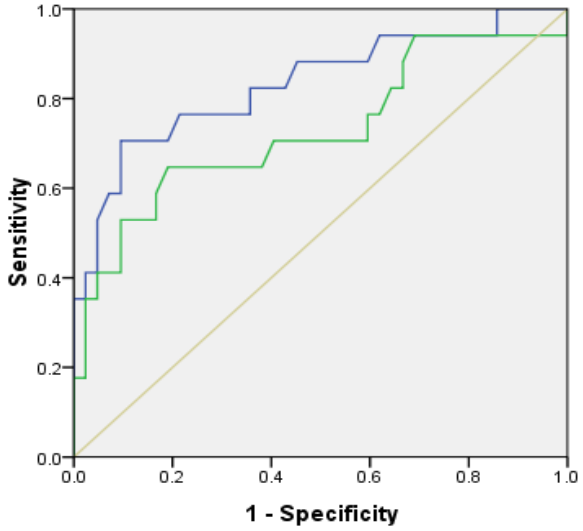

Figure 1: ROC curve for the sensitivity and specificity of MRCP taking surgical findings as gold standards

DISCUSSION

Choledocholithiasis, a condition depicted as presence of stone in common bile duct is a relatively prevalent condition and may present as jaundice, biliary colic and abnormal liver function tests or in some cases the patient may remain completely asymptomatic[9]. The administration requires indicative estimates like stomach ultrasound, Computed Tomography (CT) mid-region, attractive reverberation cholangiopancreatography (MRCP) and endoscopic retrograde cholangiopancreatography (ERCP).Treatment is generally careful yet can be moderate in situations where medical procedure is contraindicated[10]. An examination by A Guarise et al. reported thatin associated patients with choledocholithiasis MRCP is precise adequately to supplant ERCP. The outcomes are subject to measure of the calculi. Barring the calculi under 6 mm in distance across the examination finished up the affectability, particularity and precision were 100%, 99% and 99%, separately[11]. Jhong.et al. surveyed the capacity of MRCP to recognize to choledocholithiasis and exhibited that the affectability for distinguishing choledocholithiasis declined with widened bile pipes (bile pipe measurement in excess of 10 mm). The outcomes in our examination showed that MRCP, is being 95.2% touchy[12]. Essentially, Kaltenthaler.et al. announced affectability and particularity for

choledocholithiasis as 93% and 94% separately. Nonetheless, hazard of entanglements related with ERCP could be limited in such patients with the utilization of MRCP. In another examination planned to research the indicative precision of MRCP in hepatobiliary messes where Positive and negative prescient qualities for choledocholithiasis were 100%, 95.3%, 100% and 97.9%, consequently marking MRCP as an expected substitute of ERCP[13].

CONCLUSION

It is concluded that MRCP can be considered as the most reliable, non-invasive, operator and patient independent tool in large repertoire of available methods for detection of Choledocholithiasis

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