Ultra-Sonographic Prediction of The Causes & Level of Obstruction in the Diagnosis of Obstructive Jaundice

Pandit SP,* Panthi **
*Senior Consultant Radiologist, **Cl.Prof. of Radiology. Consultant Physician.

ABSTRACT

INTRODUCTION: Jaundice is a clinical condition in which the body fluid and tissue, particularly skin, eyes takes on yellowish color as a result of excess of bilirubin. The evaluation of patient with surgical Jaundice frequently involves the stepwise performance of several imaging techniques. This study is to provide sufficient diagnostic and anatomic information to allow appropriate treatment and to evaluate the predictive value of USG in the diagnosis of causes and level of obstruction.

METHODS: In a non randomized prospective study of 35 cases with bile duct obstruction different radiological modalities were compared for their capability to demonstrate the level and cause of obstruction.

RESULT: The level of obstruction was correctly indicated by USG in 94%, by PTC in 91% and by CT in 83%. The cause of obstruction was correctly indicated by USG in 83%, PTC in 68% and CT in 58% of the patient.

DISCUSSION: Several modalities have been suggested for the diagnosis of suspected bile duct obstruction & biliary tree malignancy among them USG is the initial most useful modality to confirm or exclude the cause & level of obstruction.

CONCLUSION: USG when combined with CT, the accuracy of diagnosis is more than 98%. PTC & ERCP are useful in equivocal cases.

KEY WORDS: Biliary obstruction, CT, FNAC, USG.

INTRODUCTION

The incidence of surgical jaundice is increasing caused by neoplastic, stone, stricture The bile duct obstruction is commonest finding either acquired or congenital anomalies of biliary. Most of the patients presented with jaundice, abdominal pain, itching & weight loss. Clinical examination of the patient followed by biochemical test were performed in all cases. When isolated elevation of Alkaline Phosphatase was present, even in absence of liver dysfunction, it is an indication of biliary obstruction & needs further investigation but raised bilirubin level is an insensitive test.

Correspondence:
Dr Swoyam Prakash Pandit MD
Senior Consultant Radiologist, NAMS, Bir Hospital
E-mail: swoyampandit @ hotmail.com.

Now a day more sensitive modalities for investigation of biliary system has been used among them USG is the primary modality with accuracy of >90%.

The accuracy of USG to diagnose dilated intra hepatic bile duct is 97% & grouped (N=1-3mm) into 3 gradeGrade I Central dilatation, Grade II moderate or intermediate, Grade III marked dilated IHBD extending up to the peripheral 1/3 rd of liver parenchyma. Likewise extra-hepatic biliary duct is also evaluated by USG. CBD is dilated when 8 mm or more in non-cholecystectomised & more than 10mm in post cholecystectomised patient but PTC or ERCP is needed for evaluation of distal end of CBD. The stricture of CBD is grouped into 3 types by USG. Type I smooth tapering with proximal dilatation, Type II abrupt cut off of CBD, Type III-presence of echogenic nodules without acoustic shadow. In small lesion per-operative USG is useful to see the lesion & may be
an additional technique in operation theater in the future. Obstruction of biliary tree has been divided into 3 levels. I-Intra-hepatic, II-Supranpancreatic & III-Intra-pancreatic, likewise cause is divided into 3 group-Neoplastic, Benign & Indeterminate.

CT is reasonably accurate & provide more diagnostic information in obese patients & in the presence of excessive bowel gas. Non-operable cases or irresectable malignant obstruction are managed by external/internal biliary drainage either PTCD or endoscopical prosthesis. FNAC is the tool for tissue diagnosis of malignancy from USG guided.

METHODS

Non-randomised prospective study with known or suspected bile duct obstruction was carried out in the department of Radiology & imaging in tertiary health care center over a period of 1 year who presented with features of obstruction or suspicious of obstruction. Different modalities as USG, PTC, CT, ERCP, PTCD and USG guided FNAC were done. Unwilling to participate, non-dilated bile duct & unfit for investigations cases were excluded in the study.

RESULTS

Various tests and measurements has been done. CT was done in equivocal cases for staging & FNAC for confirmation. The iatrogenic stricture of CBD (23%) had previous history of surgery.

<table>
<thead>
<tr>
<th>Table 1. Presenting symptoms of patients were</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal pain</td>
</tr>
<tr>
<td>40%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2. Accuracy rate of detection of level &amp; causes of obstruction by various imaging modalities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEVEL</td>
</tr>
<tr>
<td>Hilar</td>
</tr>
<tr>
<td>Suprapancreatic</td>
</tr>
<tr>
<td>Distal</td>
</tr>
<tr>
<td>Indeterminate</td>
</tr>
<tr>
<td>CAUSE Neoplastic</td>
</tr>
<tr>
<td>Benign</td>
</tr>
<tr>
<td>Indeterminate</td>
</tr>
</tbody>
</table>

DISCUSSION

This research was conducted in tertiary health care center, Nepal, over a period of one year to evaluate the ultrasonic prediction of the cause & level of obstruction. Among many modalities, USG is the modality of choice to locate the level & possible cause of obstruction. A similar type of study was done by Fay and Laung et al. in San-Fransisco in 110 case over a period of 15 months and showed the high efficacy of identifying level (91.8%) & cause (70.9%) by USG. Malignancy was a common cause of obstruction and demonstrated the tumor in 90% and level of obstruction in 96%. All cases were participated regularly, 54% were male and 46% female with high frequency in 40-60 years of age group, median age of 55 years. The incidence of malignancy was high in 40-60 years age group and benign below 40 years. The common site of obstruction is suprapancreatic level and commonest cause is malignancy. .USG is the most reliable in defining the cause of dilatation of bile duct. ERCP is the most appropriate imaging modality for post-cholecystectomy syndrome and CBD stone with accuracy rate of 86%. Paired sample test was conducted between USG and CT. It showed no significant differences. When USG is combined with clinical finding or CT, it provides more accurate diagnosis. Suspicious or equivocal cases must be confirmed by FNAC.

CONCLUSION

After detailed clinical assessment, USG was done in all cases. The age ranged from 24–86 years. Male have a higher incidence. The incidence of malignant condition was 52%, benign 31% & indeterminate was 17%. USG has higher accuracy rate in the diagnosis of malignancy, slightly lower in benign condition. Likewise, for the level of obstruction, it correctly diagnosed intra-hepatic &
supra-pancreatic level but lower accuracy in the distal level. CT has higher accuracy for distal level. When combined USG & CT, have an accuracy rate of more than 98%. The sensitivity, specificity & overall accuracy of USG to detect the cause & level of obstruction is higher than other modalities. CT has more accurate in late enhanced CT(8-10 mins) for Cholangiocarcinoma. Therefore USG, with clinical assessment, can be utilised as a first line of diagnostic approach. It has also advantage in the management of patient for drainage tube or stenting into the biliary ducts before surgical intervention.

REFERENCES