# DIAGNOSTIC ACCURACY OF OBSTRUCTIVE JAUNDICE ON UUTRASONOGRAPHY AT AYUB HOSPITAU COMPUEX

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*A variety of diagnostic tools like ultrasound, computer tomography, ERCP, endoscopic ultrasonography, laparoscopic ultrasound and PTC are being used for finding the cause, severity and diagnosis of obstructive jaundice. The limitations of each of them are there. In our circumstances ultrasound is frequently available with adequately trained expertise. Ultrasonography is an important tool for the diagnosis of obstructive jaundice. The diagnostic accuracy varies from centre to centre. This study was designed to assess the diagnostic accuracy of ultrasonography in the diagnosis of obstructive jaundice at Ayub Teaching hospital. The patients reporting for ultrasound who were diagnosed as obstructive jaundice were followed up and the diagnosis made by ultrasonography was compared with the findings at laparotomy. It was found that the diagnostic accuracy on ultrasound for obstructive jaundice was 85. 71%.*

## INTRODUCTION

With the help of ultrasonography, one is able to differentiate the jaundice due to intrahepatic disease from the jaundice due to extra hepatic disease.[1] Dilated intra hepatic bile ducts and/or a dilated common bile duct would suggest an obstructive cause for jaundice. The majority of patients with obstructive jaundice will show dilated intra hepatic biliary radicles. The upper most limit for the size of common bile duct is 7 mm/ Dilated bile radicles usually suggest extra hepatic obstruction. If a dilated common bile duct is present, the obstruction must be direct to porta hepatis. This is usually due to choledocholithiasis or a carcinoma of head of pancreas. If there is dilation of the bile radicles without any change in the size of common bile ducts, then the cause of obstruction is usually at the porta hepatis.

## MATERIALS AND METHODS

This study was carried out at Radiology- department and Surgical B unit of Ayub Teaching Hospital Abbottabad. The study included patients who were diagnosed clinically and biochemically to have obstructive jaundice. The cases were collected over a period of two years. Only those patients were included whose follow up was possible.

The performance characteristics of ultrasonography for obstructive jaundice was then calculated using 2x2 table and by using the predictive value test.

## RESULTS

67 patients were scanned for suspected obstructive jaundice. Out of those 42(62.68%) were diagnosed as having obstructive jaundice on ultrasonography (Table-1). The source of obstruction could be detected by ultrasonographically in 29 patients only. Out of these 19 had calculus disease while 10 had suspected pancreatic lesion. All 42 patient had laparotomy. 36 patients were found to have a different cause of extra biliary obstruction (Table-2). Comparison of the diagnostic accuracy has been depicted in table-3 showing different sources of obstruction.

**Table-1: Number and Percentage of Patients Diagnosed to have Obstructive Jaundice On Ultrasound.**

| Total patients referred | No. of patients diagnosed as obstructive jaundice on u/s | % |
|---|---|---|
| 67 | 42 | 62.68 |

**Table-2 Number and Percentage of Patients Confirmed to have Obstructive Jaundice on Laparotomy**

| No of patients diagnosed as obstructive jaundice on u/s | No of obstructive jaundice patients continued on laparotomy | % |
|---|---|---|
| 42 | 36 | 85.71 |

**Table-3 Comparative Analysis of Source of Obstruction Found at Ultrasound and Laparotomy Findings**

| | U/S | On Lapar-otomy | Diagnostic accuracy predictive value |
|---|---|---|---|
| Total no of cases where a source of obstruction could be found. | 29 | 36 | + predicting on value. |
| Calculus disease causing obstruction | 19 | 26 | — |
| Pancreatic tumor | 10 | 07 | — |
| Other causes e.g. Ca gall bladder | 02 | 03 | — |

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**Table-4: Source of Obstructive Jaundice.**

| Test Result | Obstructive Jaundice | | Total |
|---|---|---|---|
| | Present (1)+) | Absent (D-) | |
| Positive (T+) | a=36 True positive | b=6 False positive | a+lr-42 |
| Negative (T-) | c=2 False negative | d=23 True negative | C + d |
| Total | A - c=38 | B + d=29 | A + b-c – d = 67 |

**Table-5: Performance Characteristics alculations of Whr.**

| Test Characteristic | Formula using the 2x2 Table | Value |
|---|---|---|
| Sensitivity | a/(a-b) | 0.94 |
| Specificity | d/(b+d) | 0.79 |
| False negative | e(a+e) | 0.05 |
| Positive predictive value | a/(h+d) | 0.2 |
| Negative predictive value | a/(c+d) | 1.33 |

## DISCUSSION

Ultrasonography is being used very frequently for diagnosis of obstructive jaundice. The diagnostic accuracy depends on the expertise of the sonologist. The presence of gas fluid and food in the intestine and abdominal cavity also affect the accuracy of diagnosis. Demonstration of dilated bile ducts by sonography or CT scan indicates biliary obstruction.

Different studies show 80-90% results of ultrasound for diagnosis of obstructive jaundice[2] Because of much low cost sonography is preferable to CT or MRI as a screening test. CT is contra indicated in pregnant patients and MRI is contra indicated in patients with pace makers and other metallic devices. Sonography can detect gall stones with a sensitivity of 95%.' Our study is unique in the sense that it gives a comparative analysis of accuracy of this noninvasive and cheap procedure in diagnosis of a very common clinical condition.

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