

**Research Article****A Study on Symptology and Accuracy of Trans abdominal Ultra sonography in Common Bile Duct Stone****Dr Jatinkumar B. Modi<sup>1</sup>, Dr Kunal C. Modi<sup>2</sup>**<sup>1</sup>Senior resident, Department of Surgery, GMERS (Gujarat Medical Education and Research Society) Medical College, Gotri Main Road, Gotri, Vadodara, Gujarat, India 390021<sup>2</sup>Senior resident, Department of Surgery, GMERS (Gujarat Medical Education and Research Society) Medical College, Sola, S.G. highway, Ahmedabad, Gujarat, India 380016**\*Corresponding author**

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**Abstract:** Patients of common bile duct (CBD) stone mostly present with abdominal pain in the upper or middle-upper abdomen, fever, jaundice (yellowing of the skin and eyes), and loss of appetite, nausea and vomiting. When a gallstone is stuck in the bile duct, the bile can become infected. The bacteria from the infection can spread rapidly. It can move into the ductal system and then into the liver. It can become a life-threatening infection. The pain caused by gallstones in the bile duct can be sporadic, or it can linger. The pain may also be mild at times and then suddenly severe. Severe pain may require emergency medical treatment. The most severe symptoms are commonly confused with a cardiac event. If patient have symptoms, a doctor will want to verify the presence of a gallstone in the common bile duct. At that time first imaging tests is Trans abdominal ultrasound (TUS). This study is aimed to find out incidence of different symptoms in patients of CBD stone and find out the accuracy trans abdominal ultra sonography in CBD stone. The method is A Prospective randomized study was conducted in civil hospital on 50 patients who were diagnosed as common bile duct stones by trans abdominal ultra sonography. CBD exploration by open operative method acted as definitive test for measurement of accuracy trans abdominal ultra sonography. The results in my series of study symptoms of patient having choleo cholithiasis were abdominal pain in right hypo chondrium (100%), clinical jaundice (92%), anorexia, nausea, vomiting (76%), fever (44%), yellow urine (56%) and pruritus (40%). The accuracy trans abdominal ultra sonography was 94%. In conclusion CBD stone, patients mostly presents as abdominal pain, fever, clinical jaundice and nausea, vomiting. Combination of these like symptoms helps in diagnosis as CBD stone. But these are verified by trans abdominal ultra sonography which is can act as first line investigation. But the ERCP is best investigation in CBD stone because it can cure the disease.

**Keywords:** CBD stone, Different symptoms, Tran abdominal ultra sonography.

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**INTRODUCTION**

CBD stones may be classified as primary or secondary. Primary stones arise de novo in bile duct (15%) and occur in the setting of bile stasis as in:

- Benign biliary strictures,
- Sclerosing cholangitis,
- Choledochal cyst disease,
- Sphincter of Oddi dysfunction

Secondary stones are similar in composition to gallbladder stones and occur by migration along the biliary system from the gallbladder and make up to 85% of stones [1, 2, 3].

Gallstone formation occurs because certain substances in bile are present in concentrations that approach the limits of their solubility. When bile is concentrated in the gallbladder, it can become supersaturated with these substances, which then

precipitate from solution as microscopic crystals. The crystals are trapped in gallbladder mucus, producing gallbladder sludge. Over time, the crystals grow, aggregate, and fuse to form macroscopic stones. Occlusion of the ducts by sludge and/or stones produces the complications of gallstone disease. The 2 main substances involved in gallstone formation are cholesterol and calcium bilirubinate [2, 4, 5].

Symptoms of a blocked bile duct may be abrupt and severe (for example, when a gallstone blocks the whole drainage system all at once), or they may appear slowly many years after bile duct inflammation started [6]. Bile duct diseases often cause symptoms related to liver products backing up and leaking into the blood stream. Other symptoms result from the bile ducts' failure to deliver certain digestive juices (bile salts) to the intestines, preventing the absorption of

some fats and vitamins [7]. Symptoms of a blocked bile duct include:

- Yellowing of the skin (jaundice) or eyes (icterus)
- Itching (not limited to one area; may be worse at night or in warm weather)
- Light brown urine
- Fatigue
- Weight loss
- Fever or night sweats
- Abdominal pain, especially common on the right side under the rib cage
- Greasy or clay-colored stools
- A diminished appetite [8, 9]

It must be stressed that the clinical judgement should always be exercised and should not be allowed to be overruled by the test tubes and the calorimeters, for the results of the letter can only be usefully interpreted against an overall clinical picture gained by a history and physical examination. The routine employment of certain investigations should be followed as it is a useful guide during treatment [10].

**Ultrasonography:** It has applications in the analysis of almost every disease process and has become the first line procedure of choice in hepato biliary disease.

Ultrasound is based on “Electrical production of high frequency sound waves which, when directed at anatomic areas are reflected back from tissue density interfaces. The strength of this reflection is based primarily on the relative elasticity and content of collagen of the two tissues. The reflected waves are connected to voltage image for graphic display” [11, 12].

U.S.G. in biliary tract disease: Most now consider ultra sonography with its capacity to demonstrate biliary dilatation, the procedure of choice for the first line evaluation of the patient with jaundice [13]. In the presence of the dilated intra hepatic biliary tree, obstruction (past or present) is implicit and is commonly associated with tumour, stricture or stones. The major importance of U.S.G. at present is the immediate identification of dilated ducts and recognition of this as a surgical cause for jaundice, as opposed to intra hepatic conditions such as cirrhosis, multiple metastasis or hepatitis [14, 15].

**Objectives of the Study:**

The aims and objectives of our study are to find out incidence of different symptoms in CBD stone patients and to find out accuracy of trans abdominal ultra sonography for diagnosis of CBD stone.

**MATERIALS & METHODS**

A prospective randomized study was conducted of 50 patients in civil hospital, ahmedabad. All were indoor patients with diagnosis of

CBD stone by trans abdominal ultra sonography. Each patient was study in detail with relevant clinical history, examination, laboratory investigations and management. CBD exploration by open surgical method acted as definitive test for measurement of accuracy Tran’s abdominal ultra sonography.

**RESULTS AND DISCUSSION**

Out of 50 patients, age ranged from 20 to 60 years.

**Table-1: Age Incidence**

Age of Patient	No. of Patients	Percentage
20-30 yrs	8	16%
31-45 yrs	17	34%
46-60 yrs	25	50%

Incidence was maximum in 45-60 yrs age group(25 out of 50) followed by 31-45 yrs group(17 out of 50) and then 20-30 yrs age group(7 out of 50).

**SEX INCIDENCE**

Out of 50 cases, 37 were females and 13 were males with female: male ratio was 2.8:1.

**Table-2: Frequency Of Symptomatology**

Symptoms	No Of Patients	Percentage
Asymptomatic	0	0%
Abdominal pain	50	100%
Fever	22	44%
Jaundice	41	92%
Anorexia, Nausea, Vomiting	38	76%
Tenderness	45	90%
Pruritus	20	40%
Yellow urine	28	56%
Clay color stool	8	16%
Palpable Gall bladder	1	2%
Weight loss	0	0%

Most commonly patients presented as abdominal pain mostly in right hypochondrium (100%) followed by clinical jaundice (92%), anorexia, nausea, vomiting (76%), and fever (44%). Out of these 50 cases 41 patients were presented with clinically jaundice but 9 patients having no clinically jaundiced and biochemically s.bilirubin level 2 to 3 mg%.

**Table-3: Accuracy Of Transabdominal Ultrasonography**

Performed In No of Cases	Pathology In No of Cases (CBD Stone)	Same Pathology On Exploration No Of Cases	Percentage Of Accuracy
50	50	47	94%

Only in 3 patients who were diagnosed as CBD stone by Trans abdominal ultra sonography CBD stone was not found in open surgical CBD exploration method. So in my study ultra sonography was remain the first line of investigation as it is safe, simple, and inexpensive, non invasive procedure with accuracy of diagnosis more than 94%.

#### CONCLUSION

The incidence of choledo cholithiasis is common in females compare to the male with maximum age incidence between 45 to 60 yrs. Pain in abdomen, clinically jaundice, fever, anorexia ,nausea. Vomiting are main presenting symptoms of CBD stone. Tenderness in right hypo chondrium was present in 90 % of patients and palpable gallbladder in 2% of patients.

Ultrasonography is the first line investigation or primary investigation in disease of extra hepatic biliary system especially in detection of stones in gallbladder and common bile duct. All patients with common bile duct stones were undergone C.B.D. exploration. In 3 out of 50 patients stones were not found in common bile duct intra operatively. That's way accuracy of Trans abdominal ultra sonography was 94%. But there are limitations of ultra sonography like it is a operator dependant than most other techniques and is difficult for uninitiated to interpret. Less diagnostic for clinicians, USG are limited by obesity, overlying ribs, intestinal gas, impossible in presence of bulky dressings, open wounds or drainage tubes. So, the ERCP is best investigation in CBD stone because it can cure the disease.

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