

Original Research

Assessment of gall bladder diseases using USG

¹Dr. Deep Shankar Parasar, ²Dr. Sunil Kumar Dubey

^{1,2}Assistant Professor, Dept. Of Radiology, Narayan Medical College and Hospital, Sasaram, Bihar, India;

ABSTRACT:

Background: Gall bladder diseases are common among all age groups. Gallbladder stones often may be found during a routine examination or medical procedure. The present study was conducted to assess gall bladder diseases using USG. **Materials & Methods:** 104 patients of gall bladder diseases underwent gallbladder examination was performed with a 3.5-5 MHz probe by scanning in subtotal position. **Results:** Out of 104 patients, males were 46 and females were 58. Common pathologies were gall stone with sludge in 45, cholecystitis in 32, polyps in 17 and benign tumors in 10 patients. The difference was significant ($P < 0.05$). Common clinical findings were nausea/vomiting in 69, fever in 78, pain in 102, jaundice in 45 and unusual stool or urine in 62 patients. The difference was significant ($P < 0.05$). **Conclusion:** Ultrasound is non-invasive and the least expensive imaging modality that is highly sensitive and specific in the assessment of the gallbladder wall and luminal content.

Key words: Gall bladder diseases, Probe, Ultrasound

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Corresponding Author: Dr. Sunil Kumar Dubey, Assistant Professor, Dept. Of Radiology, Narayan Medical College and Hospital, Sasaram, Bihar, India;

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INTRODUCTION

Abdominal pain can result from abnormalities in gall bladder, kidneys, pancreas, stomach, duodenum, spleen etc. All these conditions can be diagnosed easily via sonographic procedure. Other cases cannot be properly diagnosed with ultrasound such as uncomplicated peptic ulcer disease, acute myocardial infarction and basal pneumonitis.¹

Gall bladder diseases are common among all age groups. Most of the people don't have symptoms. Gallbladder stones often may be found during a routine examination or medical procedure.² However, when the stone is large size and blocks the cystic duct or the common biliary duct, the patient may have a pain in the form of cramp in the upper right quadrant. This is known as a biliary colic. The pain go away if the stone move down the duodenum. Symptoms that may occur include: Pain in the right upper quadrant or in the upper center. This pain can be constant, in the form of cramp, sharp, or may spread to the back, fever, pallor of the skin. Other symptoms that appear during this illness include: Nausea and vomiting.³

Ultrasound is the first imaging test used for detection of gallbladder and bile duct abnormalities. This test is non-invasive, uses no dyes, and is not painful.

Ultrasound produces good images of the small ducts in the liver and the higher part of the major bile duct.⁴ Ultrasonography is the most helpful imaging modalities used for the diagnosis of gallstone disease. It is safe, rapid, and relatively inexpensive and involves no radiation exposure. It is the image of choice for patients with suspected biliary colic. Positive findings include stones, thickening of the gallbladder wall, pericholecystitis.⁵ The present study was conducted to assess role of USG in diagnosis of gall bladder diseases.

MATERIALS & METHODS

The present study was conducted among 104 patients of gall bladder diseases of both genders. All were enrolled after they gave their written consent.

Demographic data of each patient such as name, age, gender etc. was recorded. Gallbladder examination was performed with a 3.5-5 MHz probe by scanning in subtotal position. Patient move his clothing away from abdomen and warm gel was applied to the area. With the patient in the supine position we started scan with the probe in longitudinal plane, the probe orientate cephalic and asking patient holding breath. Once the gallbladder is clearly identified, we obtained

longitudinal and transverse views of the gallbladder. Results of the study thus obtained were assessed statistically. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 104		
Gender	Males	Females
Number	46	58

Table I shows that out of 104 patients, males were 46 and females were 58.

Table II Distribution of gall bladder pathologies

Pathologies	Number	P value
Gall stones with sludge	45	0.05
Cholecystitis	32	
Polyps	17	
Benign tumor	10	

Table II, graph I shows that common pathologies were gall stone with sludge in 45, cholecystitis in 32, polyps in 17 and benign tumors in 10 patients. The difference was significant (P< 0.05).

Graph I Distribution of gall bladder pathologies

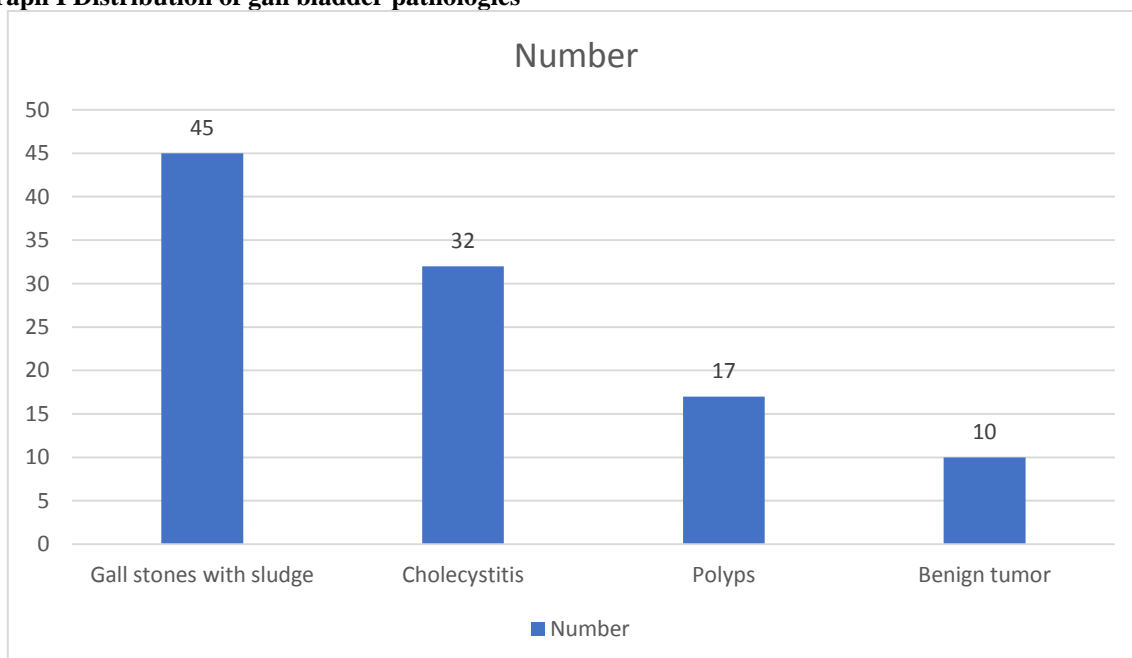


Table III Clinical features

Clinical features	Number	P value
Nausea/vomiting	69	0.04
Fever	78	
Pain	102	
Jaundice	45	
Unusual stool or urine	62	

Table III shows that common clinical findings were nausea/vomiting in 69, fever in 78, pain in 102, jaundice in 45 and unusual stool or urine in 62 patients. The difference was significant (P< 0.05).

DISCUSSION

A common disorder is Gallbladder stones and is usually asymptomatic. Some patients show biliary colic, and often severe pain in the epigastrium or right upper quadrant, and sometimes between the scapula due to temporary obstruction of the cystic duct with a gallstone. In case the cystic duct obstruction persists,

the patient may develop cholecystitis.⁶ The presence of cholecystitis was best diagnosed by ultrasound; images normally indicate the presence of gallstones, pericholecystic fluid and a thickened wall of gallbladder. Ninety to ninety-five percent of all cases of acute cholecystitis are caused by obstruction of either the cystic duct or the neck of the gallbladder by

gallstones.⁷ Acute cholecystitis occurs in only approximately 20% of patients who have gallstones. This means that most gallstones are asymptomatic. Thus, right upper quadrant pain in a patient who has gallstones often is caused by something other than acute cholecystitis.⁸ Furthermore, studies have shown that only 20%–35% of patients presenting with right upper quadrant pain are subsequently shown to have acute cholecystitis. In cases with symptomatic gallstones and a negative ultrasound examination, endoscopic ultrasound may be helpful. Tumors occurring in gallbladder are either benign or malignant.⁹ The present study was conducted to assess role of USG in diagnosis of gall bladder diseases.

In present study, out of 104 patients, males were 46 and females were 58. Kola et al¹⁰ included 150 cases of GB pathologies which were surveyed by ultrasound using spatial digital iU22 Philips Convex probe 3.5 MHz. All patients were evaluated with ultrasonography following the international scanning guidelines and protocols. The age of the patients is between (26 - 89) years, 76 Patients (50.60%) were males and 74 patients (49.40%) were females. Range of age group of accumulation for gallstone presence was (26 - 58) years and most common in females than males. Incidence of gallstone are 88% (58.7%) patients (female 34.7% and 24% male). And ratio of incidence is between female to males 13:9. Other pathologies of gallbladder were found to be cholecystitis 16.60%, polyp with sludge 16.60%, benign tumor 1.30%, normal 6.70% Ultrasonography is a single imaging modality sufficient for evaluation of patient with suspected gallbladder pathologies which can provide information about the presence of gallstone and more over about site and cause of biliary tract obstruction. Ultrasound is highly sensitive and specific means for diagnosis of the gallbladder stones. Sensitivity and specificity of ultrasound in evaluation of gallstones high (97.7%,95. 6%) respectively. Confirmation of gallbladder stones in this study is done by cholecystectomy and CT scan.

We found that common pathologies were gall stone with sludge in 45, cholecystitis in 32, polyps in 17 and benign tumors in 10 patients. Gupta et al¹¹ conducted a study on 120 patients visited the department for abdominal ultrasonography. The procedure was done using different types of ultrasound units with 3.5 MHz and 5 MHz curve linear probes. Results: Out of 120 patients, 70 were males and 50 were females. The difference was non- significant ($P > 0.05$). Age group 11-20 years consisted of males (4) and females (8). Age group 21-30 years consisted of males (11) and females (9). Age group 31-40 years consisted of males (17) and females (10). Age group 41-50 years

consisted of males (13) and females (8). Age group 51-60 years consisted of males (15) and females (7). Patients > 60 years consisted of males (10) and females (8). The difference was non- significant ($P > 0.05$). Out of 120 patients, 35 were diagnosed with cholelithiasis. The prevalence was 29.1%. Out of 35 patients diagnosed with cholelithiasis, males were 20 and females were 15. Other abnormalities were wall thickening (27), slightly contraction (12), enlarge gall bladder with mass (10), acute acalculous cholecystitis (14), hepatic cyst (4) and pericholecystic edema (18).

CONCLUSION

Author found that ultrasound is non-invasive and the least expensive imaging modality that is highly sensitive and specific in the assessment of the gallbladder wall and luminal content.

REFERENCES

1. Allen-Mersh, T.G., Motson, R.W. and Hatley, W. Does It Matter Who Does Ultrasound Examination of the GB? *British Medical Journal*. 1985; 291: 389-390.
2. Huffman, J.L. and Schenker, S. Acute Acalculous Cholecystitis—A Review. *Clinical Gastroenterology and Hepatology*. 2009; 8: 15-22.
3. Ryu, J.K., Ryu, K.H. and Kim, K.H. Clinical Features of Acute Acalculous Cholecystitis. *Journal of Clinical Gastroenterology*. 2003; 36: 166-169.
4. Bree, R.L. Further Observations on the Usefulness of the Sonographic Murphy Sign in the Evaluation of Suspected Acute Cholecystitis. *Journal of Clinical Ultrasound*. 1995; 23: 169-172.
5. Theodoro, D. Hepatobiliary. In: Ma, O.J., Mateer, J.R. and Blaivas, M., Eds., *Emergency Ultrasound*, McGraw-Hill, New Delhi. 2007; 177-186.
6. Bennett, G.L. and Blathazar, E.J. Ultrasound and CT Evaluation of Emergent Gallbladder Pathology. *Radiologic Clinics of North America*. 2003; 41: 1203-1216.
7. Rumack, C.M., Wilson, S.R. and Charboneau, J.W. *Diagnostic Ultrasound Volume 1*. 3rd Edition, Elsevier Mosby, Philadelphia. 2005.
8. Trowbridge, R.L., Rutkowski, N.K. and Shojania, K.G. Does This Patient Have Acute Cholecystitis? *JAMA*. 2003; 289: 80-86.
9. Kubota, K., Bandai, Y., Noie, T., et al. How Should Polypoid Lesions of the Gallbladder Be Treated in the Era of Laparoscopic Cholecystectomy? *Surgery*. 1995; 117: 481-487.
10. Kola S, Kola I, Pirraci A, Beqiri A. Role of Ultrasonography in the diagnosis of the gallstones. *WebmedCentral RADIOLOGY* 2013;4(10):004432.
11. Gupta S, Jain AK. Ultrasonography as an imaging technique for the diagnosis of gall bladder disorders: A clinical study. *J Adv Med Dent Scie Res* 2017;5(1):79-82.