(e) ISSN Online: 2321-9599
(p) ISSN Print: 2348-6805

ORIGINAL ARTICLE

ULTRASONOGRAPHY AS AN IMAGING TECHNIQUE FOR THE DIAGNOSIS OF GALL BLADDER DISORDERS: A CLINICAL STUDY

Shishir Gupta[1], Ashok Kumar Jain[2]

[1]Associate Professor, [2]Assistant Professor, Department of Radiodiagnosis, TSM Medical College, Lucknow, Uttar Pradesh, India

ABSTRACT:

Background: Pain in abdominal may be due to abnormalities in gall bladder, kidneys, pancreas, stomach, duodenum, spleen etc. Cholecystitis and cholelithiasis are common disorder and is usually asymptomatic. Ultrasound is non-invasive and is not painful technique. The present study was conducted to evaluate occurrence of different gall bladder pathologies and the efficacy of ultrasound in detecting gall bladder disorders especially gall stones. **Materials & Methods:** This study was conducted in the department of Radio-diagnosis in year 2015. It included 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 cholecystits (14), hepatic cyst (4) and pericholecystic edema (18). **Conclusion:** Ultrasonograph is preferred imaging modality for the diagnosis of diseases of gall bladder especially cholelithiasis and cholecystitis. It is non invasive, inexpensive and safest technique.

Key words: Cholecystitis, Cholelithiasis, Ultrasonograph

Corresponding Author: Dr. Shishir Gupta, Associate Professor, TSM Medical College, Lucknow, Uttar Pradesh, India

This article may be cited as: GuptaS, 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.

Access this article online	
Quick Response Code	Website: www.jamdsr.com
	DOI: 10.21276/jamdsr.2017.5.1.16

INTRODUCTION

Pain in abdominal may be due to abnormalities in gall bladder, kidneys, pancreas, stomach, duodenum, spleen etc. Cholecystitis is a common disorder and is usually asymptomatic. Patients may 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.[1]

For the diagnosis of abdominal pain, we have different diagnostic modalities. Among all, ultrasound is preferred one. It does not cause any radiation damage to patient as x rays are not used in this technique. Ultrasound is non-invasive and is not painful. Ultrasound is effective in diagnosis of cholelithiasis, pericholecystic fluid and a thickened wall of gallbladder. Ultrasound produces good images of the small ducts in the liver and the higher part of the major bile duct.[2]

In cases of symptomatic gallstones and a negative ultrasound examination, endoscopic ultrasound is preferred.[3] Papillomas, adenomyomas, or cholesterol polyps are benign tumors of gall bladder. Whereas malignant tumors are uncommon, cholecystectomy for patients with polyps larger than 10 mm seems warranted. If gall-bladder is not detected, scan with high resolution and frequency linear or linear array transducers is mandatory. This minimizes missing tiny gallstones, especially in the funds of the superficial Gallbladder.[4]

The present study was conducted to evaluate occurrence of different gall bladder pathologies and the efficacy of ultrasound in detecting gall bladder disorders especially gall stones.

MATERIALS & METHODS

This study was conducted in the department of Radio-diagnosis in year 2015. It included 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 thus obtained were tabulated and subjected to statistical analysis using chi square test. P value < 0.05 was considered significant.

RESULTS

Table I shows that out of 120 patients, 70 were males and 50 were females. The difference was non significant (P > 0.05). Table II shows age wise distribution of patients. 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). Graph I shows that out of 120 patients, 35 were diagnosed with cholelithiasis. The prevalence was 29.1%. Graph II shows that out of 35 patients diagnosed with cholelithiasis, males were 20 and females were 15. Graph III shows other abnormalities were wall thickening (27), slightly contraction (12), enlarge gall bladder with mass (10), acute acalculouscholecystits (14), hepatic cyst (4) and pericholecystic edema (18).

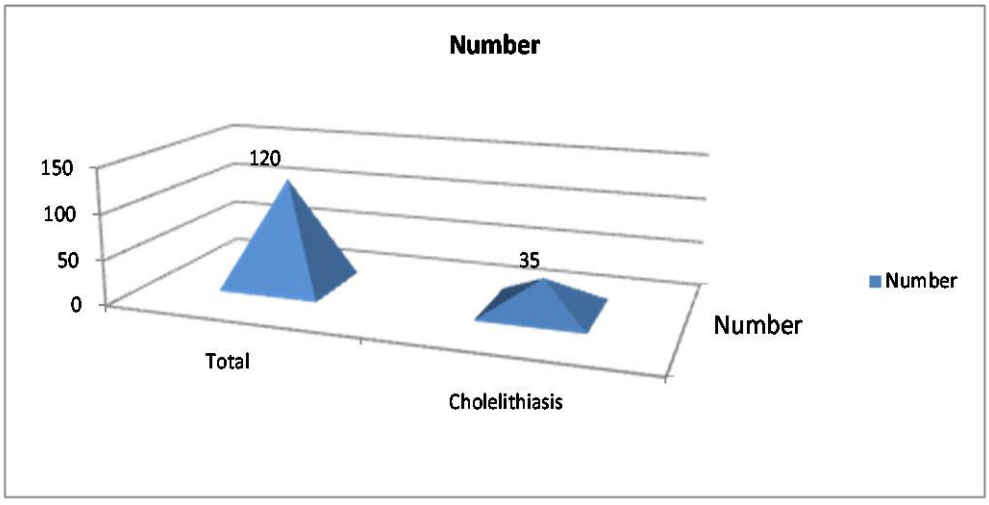
Table I Distribution of patients

Total – 120		
Male	**Female**	**P value**
70	50	0.2

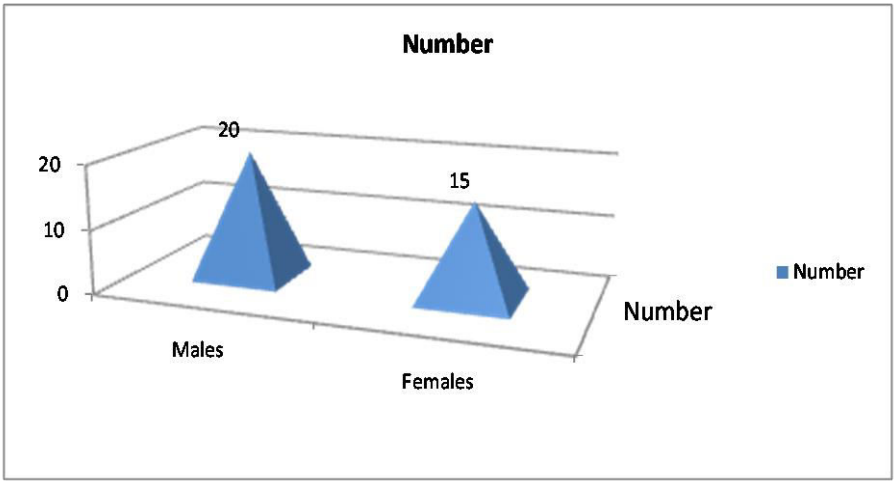
Table II Age wise distribution of patients

Age group (years)	Male	Female
11-20	4	8
21-30	11	9
31-40	17	10
41-50	13	8
51-60	15	7
>60	10	8
Total	**70**	**50**

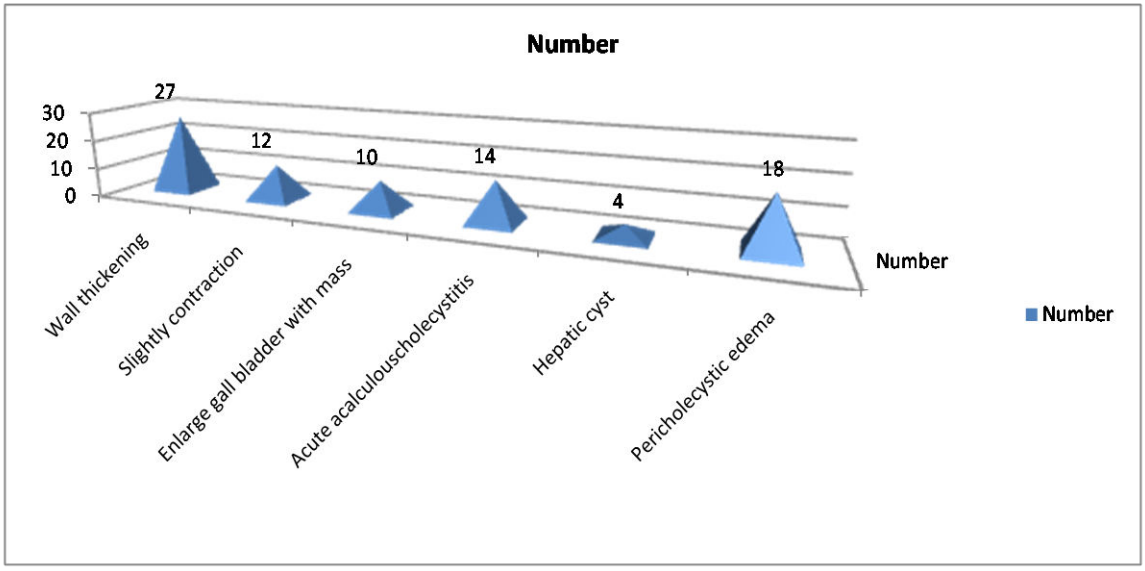
Graph I Prevalence of cholelithiasis



Graph II Distribution of cholelithiasis among males and females



Graph III Other abnormalities detected on ultrasonography



DISCUSSION

Ultrasonography is choice of diagnostic modality for gall bladder and biliary diseases. In acute cholecystitis, the gall bladder is distended, thick walled and tender, may show calculi and pericholecystic fluid collection. Whereas, in chronic cholecystitis the gall bladder is smaller than usual, with many stones and has thick fibrous echogenic wall.[5]

The present study was conducted to evaluate occurrence of different gall bladder pathologies and the efficacy of ultrasound in detecting gall bladder disorders especially gall stones. Out of 120 patients, 70 were males and 50 were females. We found that out of 120 patients, 35 were having cholelithiasis. The prevalence was 29.1%. Our results are in agreement with Huffman et al.[6] However, a study conducted by Ryu[7] in year 1995 found the prevalence rate of 45% which is higher than reported in present study. We found that males were 20 and females were 15 having gall stones. Bree et al[8] in his study found that females are more prone to developed gall stones as compared to males.

We also found other abnormalities such as wall thickening, slightly contraction, enlarge gall bladder with mass, acute acalculouscholecystits, hepatic cyst and pericholecystic edema. The study conducted by Theodoro et al[9] found pericholecystic edema to be the common cause of abdominal pain.

CONCLUSION

Ultrasonograph is preferred imaging modality for the diagnosis of diseases of gall bladder especially cholelithiasis and cholecystitis. It is non invasive, inexpensive and safest technique.

REFERENCES

1. Bennett, G.L. and Blathazar, E.J. Ultrasound and CT Evaluation of Emergent Gallbladder Pathology. Radiologic Clinics of North America. 2003; 41: 1203-1216.
2. Rumack, C.M., Wilson, S.R. and Charboneau, J.W. Diagnostic Ultrasound Volume 1. 3rd Edition, Elsevier Mosby, Philadelphia. 2005.
3. Trowbridge, R.L., Rutkowski, N.K. and Shojania, K.G. Does This Patient Have Acute Cholecystitis? JAMA. 2003; 289: 80-86.
4. 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.
5. Allen-Mersh, T.G., Motson, R.W. and Hately, W. Does It Matter Who Does Ultrasound Examination of the GB? British Medical Journal. 1985; 291: 389 390.
6. Huffman, J.L. and Schenker, S. Acute Acalculous Cholecystitis—A Review. Clinical Gastroenterology and Hepatology. 2009; 8: 15-22.
7. Ryu, J.K., Ryu, K.H. and Kim, K.H. Clinical Features of Acute Acalculous Cholecystitis. Journal of Clinical Gastroenterology. 2003; 36: 166-169.
8. 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.
9. Theodoro, D. Hepatobiliary. In: Ma, O.J., Mateer, J.R. and Blaivas, M., Eds., Emergency Ultrasound, McGraw- Hill, New Delhi. 2007; 177-186.

Source of support: Nil **Conflict of interest:** None declared