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Original Article

Role of CT in detection of Gall bladder lesions- A Radiographic study

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***ABSTRACT*:**
Background: The present study was conducted to assess the utility of CT in determination of gall bladder disorders. **Materials & Methods:** The present study was conducted on 45 patients of both genders. CT-Scan examination was performed in all patients on Philips 64-slice whole body scanner after giving oral and intravenous contrast as and when required. The axial scans with coronal and sagittal reformatting were done. **Results:** Out of 45 patients, males were 25 and females were 20. The difference was non- significant (P- 0.5). Common lesions were Gall bladder CA (10), distal cholangio CA (8), BG mass (12) and cholelithiasis (15). The difference was significant (P- 0.01). Sensitivity of CT was 94.2% and specificity was 95.1%. **Conclusion:** CT has high sensitivity and specificity in detection of gall bladder lesions. Its utility increases when other modalities fail to give better results.
Key words: CT, Gall bladder, Sensitivity.

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INTRODUCTION

The gallbladder is a thin-walled sac usually placed between both hepatic lobes consisting of three anatomic parts: the fundus, corpus, and infundibulum. The gallbladder ends in the cystic duct that is a passive conduit that in humans has a diameter of about 7 mm with a mucosa containing spiral valves (valves of Heister). This duct drains into the common bile duct without a sphincteric structure. The common bile duct courses through the head of the pancreas ending in the sphincter of Oddi, as it penetrates the duodenal wall where it forms the ampulla of Vater. The common bile duct has few unorganized muscle fibers. Neither the cystic duct nor the common bile duct has peristaltic motility.[1]

Other method is radioisotope scans (HIDA, DIDA, etc.) which is accurate identification of cystic duct obstruction. Simultaneous assessment of bile ducts is possible. However, it is contraindicated in pregnancy and when se Bi >103-205 uM/L. Cholecystogram yield low resolution. It is indicated for confirmation of suspected acute cholecystitis. It is less sensitive and less specific in chronic cholecystitis. It is useful in diagnosis of acalculous cholecystopathy, esp. if given with CCK to assess gallbladder emptying.[2]

It is an effective aid in determining the number, location, and the nature of such lesions and in monitoring their change in size over time. CT offers the best spatial resolution and the ability to study the entire liver in single breath.[3] Although current literature search shows that MRI has comparable rate in detection and classification of liver masses and gall bladder masses. However rapid availability and short scanning time made CT an ideal imaging technique. On CT scans the appearance of metastatic diseases depends upon the vascularity of the tumor compared to the normal liver parenchyma.[4]The present study was conducted to assess the utility of CT in determination of gall bladder disorders.

MATERIALS & METHODS

The present study was conducted in the department of Radio diagnosis. It consisted of 45 patients of both genders with gall bladder and bile duct disorders. All were informed

regarding study and written consent was obtained. Ethical clearance was obtained.

General information such as name, age, gender etc. was recorded. CT-Scan examination was performed in all patients on Philips 64-slice whole body scanner after giving oral and intravenous contrast as and when required. The Scan was done with 10 mm intervals. The axial scans with coronal and sagittal reformatting were done. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 45		
Males	**Females**	**P value**
25	20	0.5

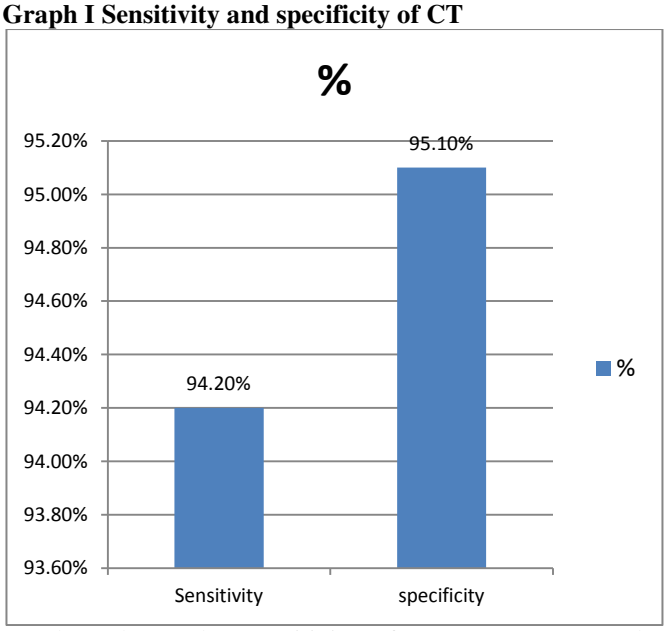
Table I shows that out of 45 patients, males were 25 and females were 20. The difference was non- significant (P- 0.5).

Table II Type of Lesions

Type of lesions	Number	P value
GALL BLADDER CA	10	0.01
DISTAL CHOLANGIO CA	8	
GB MASS	12	
CHOLELITHIASIS	15	

Table II shows that common lesions were Gall bladder CA (10), distal cholangio CA (8), BG mass (12) and cholelithiasis (15). The difference was significant (P- 0.01).

Graph I Sensitivity and specificity of CT



Graph I shows that sensitivity of CT was 94.2% and specificity was 95.1%.

DISCUSSION

CT of the biliary tract leads to accurate identification of dilated bile ducts, masses. Computed tomography is a primary imaging modality for enabling the detection and characterization of liver lesions and gall bladder masses. It is not limited by jaundice, gas, obesity and ascites. It yields high-resolution image. It gives guidance for fine-needle biopsy. Diagnostic limitations are extreme cachexia, movement artifact, ileus, partial bile tract obstruction, high cost, may not be readily available. It is contraindicated in pregnancy.[5]

Reaction to iodinated contrast may be seen, if used. It is highly indicated for evaluation of hepatic or pancreatic masses. It is procedure of choice in investigating possible biliary obstruction if diagnostic limitations prevent US. Ionizing radiation exposure at CT is associated with the risk of radiation induced cancer. This is a drawback of CT, especially as CT is increasingly being used in the diagnostic work-up of young patients.[6]

Out of 45 patients, males were 25 and females were 20. We found that common lesions were Gall bladder CA (10), distal cholangio CA (8), BG mass (12) and cholelithiasis (15). This is similar to et al.[7]

Chun et al[8] did retrospective analysis on 11 patients with XGC and 17 patients with gallbladder carcinoma in which the wall was thickened. The mean thickness of the gallbladder wall was 1.8 cm in patients with XGC and 2.1 cm in patients with gallbladder carcinoma. Intramural hypoattenuated nodules were seen in all patients with XGC but in only seven patients with gallbladder carcinoma. The mucosal line was observed in nine patients with XGC and in six with gallbladder carcinoma. The gallbladder wall was more diffusely thickened in patients with XGC than in patients with gallbladder carcinoma (seven of 17 patients). The occurrence of changes outside the gallbladder did not differ statistically significantly. Because of a statistically significant overlap of CT features, only when intramural hypoattenuated nodules occupy a large area of the thickened gallbladder wall can the diagnosis of XGC be highly suggestive. The diagnosis of XGC at CT may indicate a less aggressive surgical approach.

The sensitivity of CT was 94.2% and specificity was 95.1%. Havrilla et al[9] conducted a study in which 79 patients with suspected gallbladder disease underwent CT. First and second generation scanners were used to determine the efficacy of CT in detecting cholecystitis or cholelithiasis. Manifestations of gallbladder disease such as hydrops, opaque and non-opaque gallstones, chronic cholecystitis with thickened inflammatory walls, and secondary liver abscesses can be easily detected. It is a useful technique for individuals in whom the gallbladder has failed to opacity on oral cholecystography. The scanning method is described, and estimates of reliability are given including its accuracy, limitations, and place in the management of gallbladder disease, especially cholelithiasis. When conventional radiographic

examinations or ultrasound fail to give definitive diagnostic information, CT can be a useful alternative with an overall accuracy >80%.

CONCLUSION

CT has high sensitivity and specificity in detection of gall bladder lesions. Its utility increases when other modalities fail to give better results.

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Gall bladder perforation (GBP) is a rare life threatening complication of acute cholecystitis, which has high morbidity and mortality. Aim of the study: The aim of the study was to evaluate the role of multislice CT (MSCT) in the diagnosis of GBP and detection of its complications. Patients and method: Study included retrospective evaluation of 23 patients with GBP. All the patients were evaluated with abdominal ultrasonography and contrast-enhanced abdominal MSCT. Results: Twenty-three patients were reviewed over a period of 18 months: 7 patients with type I GBP, 16 patients with type II and Start studying Radiographic Caries Detection. Learn vocabulary, terms and more with flashcards, games and other study tools.Â -developed b/c we have fluoridated water which prevent demineralization, so there could be a lesion but it just hasn't demineralized enough to show up on radiograph. -detect, evaluate, and monitor lesions. 4 Radiographic Modalities Types: For optimal detection, the detector should be ____ to the teeth. 1. Intraoral (periapical and bitewing) 2. panoramic and tomography (TMJ) 3. Skull imaging 4. Cone beam Volume imaging. -parallel. Why can't you rely on Cone Beam CT for caries detection? -has darkening effect when there is a difference in density of adjacent material; Which radiograph In this investigation the efficacy of dental radiography for the detection of occult intraosseous lesions of the face and jaws was evaluated. An analysis of 30 million health insurance records indicated that the period prevalence of malignant lesions was less than 5 cases/million/year, and for benign lesions approximately 100 cases/million/year. Data from a controlled observerperformance study showed that radiographic sensitivities ranged between 50% and 80%. The cost per true-positive finding was estimated to be +8.6 million per malignant case and +430,000 per benign case.Â In this instance, a more thorough history and clinical examination would have revealed the need for a radiograph. Occult Disease z Oral Surg Oral Med Oral Pathol Oral Radiol Endod.