ORIGINAL RESEARCH

Ultrasonography versus computed tomography in evaluation of retroperitoneal masses

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ABSTRACT

Background: Pancreatic lesions refer to abnormal growths or changes in the tissue of the pancreas. The present study compared ultrasonography and computed tomography in evaluation of retroperitoneal masses. **Materials & Methods:** 90 patients of retroperitoneal masses of both genders underwent Ultrasound and MDCT. Parameters such as size, appearance, echotexture, vascularity and other findings were studied. **Results:** Out of 90 patients, males were 50 and females were 40. Clinical features were pain in abdomen in 36, lump in abdomen in 7, fullness of abdomen in 14, loss of appetite in 28, trauma in 3 and weight loss in 17 patients. The difference was significant ($P< 0.05$). Adrenal adenoma was detected correctly in 8 and 10, aortic aneurysm in 9 and 7, pheochromocytoma in 7 and 7 by USG and MDCT, renal abscess in 18 and 16, renal hematoma in 8 and 4, RCC in 7 and 7, complex renal cyst in 11 and 11 and pancreatic carcinoma in 10 and 7 respectively. The difference was non- significant ($P> 0.05$). **Conclusion:** For the purpose of assessing retroperitoneal lesions, USG is advised as a primary screening method, while CT is advised as a confirmatory method for determining the full extent of the lesion.

Key words: Retroperitoneal lesions, MRI, USG

INTRODUCTION

Pancreatic lesions refer to abnormal growths or changes in the tissue of the pancreas. These lesions can be benign (non-cancerous) or malignant (cancerous). They can vary in size, appearance, and clinical significance. Due to the pancreas' deep-seated location, diagnosing and treating pancreatic lesions can be challenging.[1] Pancreatic calcification, pseudocysts, extra-pancreatic phlegmons, bleeding, and pancreatic necrosis/abscess development may be signs of acute or chronic pancreatitis and might aid the radiologist in making a precise diagnosis. Pancreatic lesions are commonly detected through medical imaging such as ultrasound, computed tomography (CT) scans, magnetic resonance imaging (MRI), or endoscopic procedures.[2,3]

The initial imaging modality is USG since it is low-cost, widely accessible, and simple to use without using ionizing radiation, but the evaluation is still lacking because of the size of the tumors, which makes it difficult to clearly characterize the epicenter and its relationships to surrounding organs.[4] Due to its low cost, real-time interactions, absence of bioeffects, and widespread availability, ultrasonography (USG) is a suitable modality.[5] It can reveal details about the pancreas' size, location, and characteristics as well as details regarding pancreatic lesions, the size of bile and pancreatic ducts, and the location of obstruction. Due to its high cost, prolonged scan time, and constrained availability, MRI has disadvantages. Due to its spatial and temporal resolution and a wide range of applications, MDCT has been widely employed as a crucial pre-operative assessment in patients.[6] The present study compared ultrasonography and computed tomography in evaluation of retroperitoneal masses.

MATERIALS & METHODS

The present study consisted of 90 patients of retroperitoneal masses of both genders. All patients gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. In patients, ultrasound was performed with Seimens Acuson S2000 ultrasound machine. They were also

subjected to MDCT performed with 128 slice Toshiba CT machine. Parameters such as size, appearance, echotexture, vascularity and other findings were studied and both MDCT and USG were compared. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 90		
Gender	**Males**	**Females**
Number	50	40

Table I shows that out of 90 patients, males were 50 and females were 40.

Table II Clinical features

Clinical features	Number	P value
Pain in abdomen	36	0.01
Lump in abdomen	7	
Fullness of abdomen	14	
Loss of appetite	28	
trauma	3	
Weight loss	17	

Table II shows that clinical features were pain in abdomen in 36, lump in abdomen in 7, fullness of abdomen in 14, loss of appetite in 28, trauma in 3 and weight loss in 17 patients. The difference was significant (P< 0.05).

Table III Comparison of retroperitoneal masses by USG and MDCT

Diagnosis	Number	USG	MDCT	P value
Adrenal adenoma	10	8	10	0.58
Aortic aneurysm	9	7	9	
pheochromocytoma	7	7	7	
Renal abscess	18	16	18	
Rena hematoma	8	4	8	
RCC	7	7	7	
Complex renal cyst	11	11	11	
Pancreatic carcinoma	10	7	10	

Table III shows that adrenal adenoma was detected correctly in 8 and 10, aortic aneurysm in 9 and 7, pheochromocytoma in 7 and 7 by USG and MDCT, renal abscess in 18 and 16, renal hematoma in 8 and 4, RCC in 7 and 7, complex renal cyst in 11 and 11 and pancreatic carcinoma in 10 and 7 respectively. The difference was non- significant (P> 0.05).

DISCUSSION

Computed tomography plays an important role in the characterisation of retroperitoneal lesions by determining its location, origin, extent, composition (fat, calcification, and necrosis), enhancement pattern, effect on adjacent structures and distant metastases.[7,8] The characteristic imaging findings can help narrow down the differential diagnosis and therefore aids in treatment planning.[9,10]The present study was conducted to compare ultrasonography and computed tomography in the assessment of retroperitoneal masses.

We found that out of 90 patients, males were 50 and females were 40. Manoj et al.'s[11] evaluation of the effectiveness of USG and MDCT for locating and classifying retroperitoneal masses and for correlating USG and MDCT results. Both USG and MDCT were used to evaluate 72 patients who had the signs and symptoms of retroperitoneal masses. Size, appearance, echotexture, vascularity, and other ultrasound results were examined. The results were then contrasted with those of MDCT. Study factors from USG and CT that were displayed as percentages were examined for subjects. The accuracy was calculated using percentages. Compared to MDCT, USG demonstrated a higher accuracy of 76.4% in identifying and characterizing the retroperitoneal masses in the study's 72 individuals.

We found that clinical features were pain in abdomen in 36, lump in abdomen in 7, fullness of abdomen in 14, loss of appetite in 28, trauma in 3 and weight loss in 17 patients. In order to correlate various retroperitoneal tumour CT imaging findings with histological findings, Basvaraju et al[12] identified the retroperitoneal tumor in each patient, plain and contrast-enhanced CT scans were performed. Thirty patients were treated, including 17 (56.6%) men and 13 (43.3%) women. The seventh decade was the most often impacted age group, followed by the sixth decade. In 26 cases, histopathology supported the radiologic diagnosis. Eighty percent of the lesions were cancerous, and twenty percent were benign. The most prevalent tumors (11 instances, or 36.6% of cases) were primary retroperitoneal tumors. Lymphoma (four cases) and lymph node metastases (three cases) were the most prevalent primary

retroperitoneal tumors. The other four tumors were extra-adrenal neuroblastoma, liposarcoma, lymphangioma with paraganglioma. Only one example of the tumors was cystic, while the majority were solid tumors (29 cases). In 23 of the cases, heterogeneous enhancement was the predominant pattern of enhancement. Five cases involved the infiltration of a neighbouring organ, seven cases involved vascular encasement, and six cases involved distant metastases.

We found that adrenal adenoma was detected correctly in 8 and 10, aortic aneurysm in 9 and 7, pheochromocytoma in 7 and 7 by USG and MDCT, renal abscess in 18 and 16, renal hematoma in 8 and 4, RCC in 7 and 7, complex renal cyst in 11 and 11 and pancreatic carcinoma in 10 and 7 respectively. Thirty individuals who had symptoms and signs of probable pancreatic lesions were the subjects of a study by Gupta et al[13] in their study inflammatory lesions were identified on USG in 15 cases (or 50%), and on CT scan in 18 patients (or 60%). One instance had a provisional radiological diagnostic of localized pancreatitis based on the combination of USG and CT observations of inflammatory lesions, however FNAC revealed it to be an adenocarcinoma. On USG and CT scans, adenocarcinoma was tentatively diagnosed in 8 instances, lymphoma in 2, macrocystic adenoma in 1, and cystadenocarcinoma in 1. On FNAC, lymphoma was discovered in one case, while adenocarcinoma was demonstrated in ten patients. Therefore, 28 patients (93.7%) had the provisional radiological diagnosis that was accurate.

CONCLUSION

Authors found that for the purpose of assessing retroperitoneal lesions, USG is advised as a primary screening method, while CT is advised as a confirmatory method for determining the full extent of the lesion.

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