

ROLE OF ULTRASOUND IN DIAGNOSING ADNEXAL MASSES

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SUMMARY

Fifty patients of adnexal masses were selected at random for trans-abdominal ultrasonographic examination. Thirty seven patients (74%) were found to have ovarian pathologies. Benign ovarian tumour in 22 (18 epithelial and 4 teratomas), malignant ovarian tumours in 12 and non-specific ovarian cysts in 3 patients. Other pathologies were : pelvic inflammatory disease -5 patients, pedunculated leiomyomas-4 patients, ectopic pregnancy-3 patients and lithopedion in 1 patient. On surgical/HPE verification accuracy of US was found to be 86%. However, it was highly sensitive in diagnosing PID, pedunculated leiomyoma and ectopic pregnancy. There was wide overlap of the echopattern of serous and mucinous cystadenomas in present series and in 1 patient mucinous cystadenoma and showing solid echopattern not reported earlier.

INTRODUCTION

Ultrasound is the investigative modality of choice to reliably image the heterogenous group of different pathologies constituting adnexal masses. Common among these are :- physiological ovarian cysts, ovarian tumours, tubo-

ovarian masses, hydrosalpinx, ectopic pregnancy, subserous/broad ligament leiomyomas and endometriomas (Fleischer et al, 1982).

MATERIAL AND METHODS

50 patients of adnexal masses were selected at random for transabdominal ultrasound (TAS) using 3.5 MHz linear and sector transducer. Age of the

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patients ranged between 13-72 years, mean age being 37 years. However, 38 (76%) patients were in age group of 21-50 years. 46 (92%) patients were married.

Clinical Presentation : 40 (80%) patients presented with pain in abdomen, 24 (48%) with lump in abdomen whereas 17 (34%) had menstrual disturbance.

Besides US, plain X-ray abdomen was done in 5 patients, I.V.P. in 7 patients and pregnancy test in 3 patients. All 50 patients had surgical and histopathological verification.

RESULTS

US diagnosis have been shown in Table I

Out of 18 cystic benign epithelial

tumours 15 were unilateral and 3 were bilateral, all measuring .10cm or more in atleast one dimension. Eleven of the unilateral and 1 of the bilateral lesions group were, unilocular, anechoic, smooth walled tumours; 2 patients were having associated finding of torsion in 1 patient and contralateral hydrosalpinx in an other patient. Six patients had multilocular cystic masses having few scattered echoes, whereas papillary projection was noted in another patient.

Four patients having cystic or complex masses with hyperchoic foci or dermoid plugs with acoustic shadows were diagnosed as teratomas. Out of the 12 patients diagnosed to have malignant ovarian tumours (6 unilateral and 6 bilateral). 9 had cystic masses with thick irregular

Table I
US Diagnosis of Adnexal Masses

Sr. No.	US Diagnosis	No. of patients	Percentage of total
(A)	Ovarian Pathologies		
(1)	Benign tumours		
	- Cystic epithelial tumours	18	
	- Teratoma	4	22
(2)	Malignant ovarian tumours		
	- Cystic	9	
	- Solid	3	12
(3)	Nonspecific ovarian cysts	3	6%
(B)	Pelvic inflammatory disease	5	10%
(C)	Pedunculated leiomyomas	4	8%
(D)	Ectopic pregnancy	3	6%
(E)	Lithopedian	1	2%
	Total	50	100%

septae and/or solid nodules; whereas 3 patients had mainly solid masses, 2 patients were found to have secondaries in the liver and 7 patients had ascites.

Cystic masses of less than 6 cm were detected in 3 patients out of which 1 patient was having bilateral masses filled with low-level echoes. These 3 patients were labelled as having non-specific ovarian cysts as no specific diagnosis could be given.

Surgical/HPE Correlation of US Findings : On surgical correlation, US diagnosis was confirmed in 18 epithelial cystic tumours, the remaining 4 patients were found to have :- malignant ovarian tumours - 2 patients, pelvic abscess - 1 patient and cystic teratoma in - 1 patient. Associated findings of torsion and contralateral PID were also confirmed. All the 4 patients diagnosed as teratomas on US was confirmed on surgery.

US diagnosis of malignant ovarian tumour was confirmed in 9 (75%) out of 12 patients. In remaining 3 patients masses were found to be benign.

In 3 patients diagnosed as non-specific cysts on US, laparotomy revealed, endometriosis - 1 patient, torsion of ovary - 1 patient and follicular cysts in 1 patient.

In all the 5 patients having complex echogenic adnexal masses, the US diagnosis of PID was confirmed at surgery, however no differentiation could be made ultrasonographically between pyogenic and tubercular infections.

Four patients reported to have pedunculated leiomyomas lying separate from the uterus were also confirmed at

surgery. All these patients were clinically diagnosed as solid ovarian tumours. US diagnosis of ectopic pregnancy was also found to be correct in all 3 patients. Clinically in only 1 patient ectopic pregnancy was suspected, the remaining 2 were diagnosed as T.O. masses.

Our patient diagnosed to have a lithopedion on US was proved to be correct at surgery. Clinically it was suspected to be a solid ovarian tumour.

Clinical diagnosis was consistent with surgical/HPE diagnosis in 32 (64%) whereas ultrasound was accurate in 45 (90%) patients.

DISCUSSION

Although imaging by US has become increasingly important in many areas of radiology, perhaps nowhere has its impact been more keenly felt than in the diagnosis of disorders of female pelvis (Leopold et al., 1974). US gives 3 dimensional view of pelvis and gray scale processing has resulted in enhancement of soft tissue detail.

US appearances of serous cystadenoma and mucinous cystadenomas have been found to be quite distinct (Fleischer et al., 1978, Lees 1987, Achiron 1987 & Buy et al., 1991). Former being unilocular or bilocular cystic masses with clear fluid echogenicity whereas latter being multilocular masses with regular walls and septae, containing fluid of varying echogenicities.

In our study however such differentiation was not seen as 5 patients (out of 8) with mucinous cyst adenomas were having unilocular or bilocular cysts with clear or almost clear fluid echogenicity.

This fact has also been noted earlier by Walsh et al., 1979 & Moyle et al., 1983).

In 1 patient of mucinous cystadenoma solid echopattern was observed; on surgery egg white jelly like material was seen inside the mass. The evenly dispersed echogenic material within the fluid without evidence of layering can give diffuse echogenic US appearance leading to diagnosis of solid mass. (Thurber et al., 1979). Such finding has not been observed by other authors.

Dermoid plug has been reported in teratoma in 92% (Quinn et al., 1985), 80% (Buy et al., 1989), 55% Sisler & Siegel 1990) patients, whereas echogenic foci with acoustic shadowing were reported in 22.5% (Sandler et al., 1979), 38% (Laing et al., 1981) and 44% (Buy et al., 1989, Sisler and Siegel 1990). In our study dermoid plus was present in 50% patients had complex echopattern with hyperechoic foci was noted in 33% patients.

In malignant ovarian tumours, we observed complex echopattern with irregular septae and walls in 6 patients, solid in 2 and cystic with solid mural nodules in 2 patients. Both the patients with solid ovarian tumours were having dysgerminomas. In 1 patient well defined cystic anechoic mass was found to be papillary cystadenocarcinoma HPE. Luxman et al., (1991) reported 6% incidence of malignancy in completely anechoic ovarian cysts on postmenopausal women. In this patient hysterectomy had been done at 30 years of age because of multiple fibroids.

Cystic endometriosis can be confused with TO abscesses and simple ovarian

cysts as in the present study. However the error can be avoided if clinical setting of nulliparity dysmenorrhoea and menstrual disturbances were taken into consideration (Walsh et al. & Coleman et al., 1979).

Bilateral complex echopattern with bizarre appearances were found to be most common in PID. Anyhow we found no differentiating point between tubercular and pyogenic infection; as was also observed by Berland et al., (1982).

In patients suspected to have ectopic pregnancy US findings of non-cystic mass in adnexa and fluid in cul-de-sac associated with positive pregnancy test, the positive rate of US was reported to be 94% (Romero, 1988). Using similar criteria US was 100% accurate in present study.

In pedunculated leiomyomas also US could predict the nature of mass in all 4 (100%) patients. Satoskar et al. (1990) and Walsh et al. (1979) were accurate in 50% and 60% of patients respectively.

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