ROLE OF TRANSABDOMINAL SONOGRAPHY IN DIAGNOSTIC EVALUATION OF PELVIC MASSES

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ABSTRACT

Objectives: *To find out the accuracy of ultrasound in differentiating different pelvic masses*

Material and Methods: *This descriptive study was conducted in the department of Obstetrics and Gynaecology unit A, Khyber Teaching Hospital Peshawar during the years 2001-2002. Total 69 cases with the clinical suspicion of pelvic masses were included in the study. All the patients were admitted and underwent detailed clinical examination and then transbdominal Ultrasonography (US). Final diagnosis was confirmed at operation findings.*

Results: *Out of 18 (26.1%) cases of fibroid uterus on US, 14 (77.8%) cases were confirmed on laprotomy. US showed 14 cases of simple ovarian tumours and 11 cases of malignant ovarian tumours while postoperatively 13 and 12 cases had simple and malignant ovarian tumours respectively. Out of 10 cases of chronic ectopic pregnancy on US, 7 cases were confirmed on laprotomy. Dermoid cysts, haemtocolpos and haematometra were correctly diagnosed in all case. Diagnosis was misleading in 8/69 (11.6%) cases. Out of 4 cases misdiagnosed as fibroid on US, 3 cases had endometriotic cysts and one case had fibroma ovary. Three patients labeled as chronic ectopic pregnancy on US had pelvic abscess, right broad ligament hemorrhagic cyst and right broad ligament fibroid (one case each). One case of malignant ovarian tumour was misdiagnosed as simple ovarian tumour on US.*

Conclusion: *Ultrasonography can be helpful in the diagnosis of various pelvic masses. It can help the surgeon to plan the technique of surgery and anticipate intraoperative complications.*

Key Words: *Pelvic Mass, Transabdominal Ultrasound, Fibroid, Ovarian Tumour.*

INTRODUCTION

Ultrasonography (US) has important impact in the management of gynecological problems. Gynaecological ultrasound was first used by Donald et al in 1958 in the diagnosis of abdominal masses. Nowadays ultrasound is widely used as diagnostic tool in many gynaecological problems and is currently the modality of choice in the initial evaluation of gynaecological masses.[1,2] Ultrasonography helps to detect, localize and number the masses. It also gives important information about the structure, origin, internal consistency and the anatomic relationship to other pelvic organs. In some instances the nature of the tumour can be detected. Some of the pelvic masses may be missed on physical examination but identified by ultrasonographic examination conversely the identification of small myomas, ovarian enlargement and physiological cysts may lead to increased patient concern and even operations that might be unnecessary.

Transabdominal sonography (TAS) gives the global view of the pelvic organs. While transvaginal (TVS) adds specificity as it gives information regarding tumor, composition, texture, internal consistency and exact relationship with, other pelvic organs.[3,4] Major disadvantage of TVS is that effective focal zone of transducer is short, masses that are beyond the range of probe will not be clearly defined or will be missed completely. Most of the pelvic masses are correctly diagnosed on sonography due to their characteristic appearance such as fibroids or simple ovarian tumours.[5] Sometimes there may be confusion regarding the nature as well as exact location of masses, especially in cases of fibroma of ovary, endometriotic cyst or malignant ovarian tumours. In such circumstances application of more than one modalities will help in differentiation of different masses. TVS in combination with duplex helps in the differentiation of benign and malignant masses.[6-9] MRI helps in staging histopathologically proven neoplastic tumours, Moreover this modality is effective in the diagnosis of retropritoneal tumours.[10-13] However

CLINICAL DISTRIBUTION OF PELVIC MASSES

Clinical diagnosis	No. of Patients	%Age
Ovarian tumours	33	47.8
Uterine tumours	19	27.5
Ectopic pregnancy	11	15.9
Pelvic abscess	5	7.2
Right broad ligament cyst	1	1.4
Total	69	100

Table 1

due to its higher operational cost and limited availability it is not used as the modality for the initial evaluation of pelvic masses. Intraoperative sonography has been proved to have significant role in some rare conditions.[14] The gynaecological surgeons feel difficulty when surgery is performed on undiagnosed pelvic masses. Information gained by sonography is useful in guiding the surgeon through decision regarding surgical intervention. This study was conducted to find out the accuracy of ultrasound in differentiating different pelvic masses.

MATERIAL AND METHODS

This study was performed in Department of Obstetrics/ Gynaecology unit A, Khyber Teaching Hospital Peshawar during the year 2001-2002- Sixty Nine patients were included in study. The patients were admitted through Out Patient Department. Initial assessment was done by pelvic examination. A Proforma was made and clinical findings were documented. All the patients underwent TAS using 3.5 MH2 convex probe by the same person to remove the inter-observer error. Detailed findings regarding the site, size nature of the masses and their relation with other pelvic organs were documented. Malignant masses were diagnosed because of their characteristic appearance like bilaterality, solid and cystic areas, irregular margin and presence of free fluid in the pouch of Douglas. All patients underwent laparotomy and at laparotomy pelvic organs were explored.

The size of the masses, their consistency, texture, presence of blood vessels on their surfaces, extent of the involvement of other organs in cases of malignancy and presence of ascites was documented. Later on the intraoperative findings were compared with the ultrasound findings of the same case. In some cases histopathology report also helped in the confirmation of malignant masses. If the actual status of mass was established by sonography the diagnosis was confirmed. If the sonographic interpretation did on reveal the actual status of the mass. The diagnosis was classified as misleading.

RESULTS

The clinical diagnosis of 69 patients of various pelvic masses is shown is table No-1. The characterization of sonographic diagnosis and comparison of confirmed diagnosis is shown in table No.-2. Out of 18 (26.1%) cases of fibroid uterus on US, 14 (77.8%) cases were confirmed on laprotomy. US showed 14 cases of simple ovarian tumours and 11 cases of malignant ovarian tumours while postoperatively 13 and 12 cases had simple and malignant ovarian tumours respectively. Out of 10 cases of chronic ectopic pregnancy on US, 7 cases were confirmed on laprotomy. Dermoid cysts, haemtocolpos and haematometra were correctly diagnosed in all case. Diagnosis was misleading in 8/69 (11.6%) cases (Table 3). Out of 4 cases misdiagnosed as fibroid on US, 3 cases had endometriotic cysts and one case had fibroma ovary. Three patients labeled as chronic ectopic pregnancy on US had pelvic abscess, right broad ligament hemorrhagic cyst and right broad ligament fibroid (one case each). One case of malignant ovarian tumour was misdiagnosed as simple ovarian tumour on US.

DISCUSSION

Sonography is the diagnostic modality of choice for evaluation of patients with pelvic masses. It provides clinically important parameters which help the surgeons to plan the surgical technique. For example a 5cm irregular solid complex adnexal mass with ascites requires surgery while same size of cystic mass in young patient may not need surgery. Similarly

COMPARISON OF POSTOPERATIVE DIAGNOSIS AND ULTRASOUND FINDINGS

Diagnosis	Ultrasound Diagnosis	Postoperative Diagnosis
Fibroids	18	14
Simple ovarian tumours	14	13
Malignant ovarian tumours	11	12
Chronic ectopic pregnancy	10	7
Pelvic abscess	4	5
Endometriotic cyst	2	5
Acute ectopic pregnancy	4	4
Heametometra/Haematocolpos	3	3
Dermoid cyst	2	2
Choriocarcinoma	1	1
Fibroma ovary	0	1
Left broad ligament fibroid	0	1
Right broad ligament haemorrhagic cyst	0	1
Total	69	69

Table 2

DISTRIBUTION OF CASES WITH MISLEADING ULTRASOUND DIAGNOSIS

Ultrasound diagnosis	Final postoperative diagnosis	No of patients (N=8/69)
Fibroids uterus	Endometriotic cyst	3
Fibroid uterus	Fibroma ovary	1
Simple ovarian cyst	Malignant ovarian tumour	1
Chronic ectopic	Pelvic abscess	1
Chronic ectopic	Right broad ligament haemorrhagic cyst	1
Chronic ectopic	Right broad ligament fibroid	1

Table 3

pedunculated subserous fibroid may not require ovarian surgery but solid looking ovarian mass will need laparotomy. Pelvic masses in female are usually gynaecological but some non-gynaecological tumours like pelvic kidney or retroperitoneal sarcoma may cause problem.[14]

Fibroids are the commonest tumours which are easily diagnosed due to their classical sonograpic picture. The fibroids which create confusion on ultrasound are pedunculated fibroid, these are usually confused with fibroma ovary or broad ligament / retroperitoneal fibroids. In our study 14 out of 18 cases of fibroids were confirmed. There were four misleading cases; three were of endometriotic cyst and one fibroma ovary. Sometime submucous or subserous fibroid may be missed on TAS but if it is accompanied with TVS the sensitivity is increased. Feldele L et al[15] demonstrated the sensitively and specificity of TVS for the diagnosis of submucous fibroid to 100 % and 94 % respectively. This shows the added advantage of TVS as compared to TAS. In certain circumstances management of ovarian tumour create problem, like fibroma of the ovary may be confused with pedunculated fibroid as same happened in our study. Simple cyst adenomas or benign teratoma have characteristic appearance and are easily diagnosed. In above study simple ovarian cysts were diagnosed in 13 out of 14 (92.8%) cases while dermoid cysts were correctly diagnosis in 2 out of two patients. It is possible to suspect malignancy on the basis of ultrasonic image but a definite diagnosis always made by histopathology. In our study we detected 11 cases on ultrasound, while on laparotomy 12 cases were confirmed. One case of malignant ovarian tumour was misdiagnosed on ultrasound. All the malignant cases were confirmed by histopathology. Study done by Ong[16] has shown the sensitivity and specificity of ultrasound in detecting an ovarian mass to be 92% and 71% respectively. Ilyas has showed 100% sensitivity in picking up palpable adnexal mass but specifically was 85%.[17] Ahmad has reported correct diagnosis in 92.6% cases.[18] Ultrasound is capable of predicting benign disease with reasonable confidence but prediction of malignancy is less reliable. For the confirmation of malignancy other modalities like TVS, colour Doppler and MRI should be incorporated.[12,19-23] Study done by Schellins et al[23] has shown that combining the transvaginal B mode with colour Doppler sonography for the diagnoses of malignant masses raised the diagnostic accuracy to be 90% (sensitivity 86%, specificity 93 %). Other modalities like contrast enhanced sonography has also been used successfully in the confirmation of benign and malignant adnexal masses.[24] However Qureshi[25] has concluded that TAS should be the initial sonogrphic technique for routine evaluation of female pelvic masses . Ovarian endometrioses create problem in many cases, these may be misdiagnosed on TAS as fibroids or chronic ectopic pregnancy. Addition of TVS can help in the diagnosis of these cases. Study done by Weerakiet[26] has shown that in the detection of ovarian endometrioma the efficacy of TVS was 84.9 % with 92.3% sensitivity and specificity of 70.2%. In our study 3 cases of the endometriomas diagnosed on ultrasound were confirmed as fibroids. Congenital abnormalities of the uterus mostly obstructive like haematocolpos and haematometra are easily diagnose on ultrasound, in this study all 3 cases were correctly diagnosed. Most of the time diagnosis of the chronic ectopic is a dilemma. It may be confused with any pelvic mass. In our study acute ectopic pregnancy was correctly diagnosed in 4 cases. Three cases of chronic ectopic were misdiagnosed on ultrasound. Use of TVS has greatly enhanced the sonographic evaluation of patients with suspected ectopic pregnancy.[27] Study done by Turan[28] has concluded that TVS is sensitive in diagnosing chronic ectopic pregnancy but non-specific. The combined use of TVS, Beta hCG assay increases the diagnostic accuracy.

CONCLUSION

This was a small scale study and included all types of pelvic masses. Much larger studies are required with proper estimation of sensitivity,

specificity, positive and negative predictive value of Ultrasonography in differentiating various pelvic masses. It is however concluded that ultrasonography is helpful in the initial assessment of various pelvic masses. It also helps to differentiate the various types and nature of the masses. This can help the surgeon to make plan for surgery and anticipate any problem during surgery.

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