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Sonographic Evaluation of Endometriosis

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Introduction

Endometriosis is a common benign gynecological disorder manifesting during reproductive age. Endometriosis is characterised by growth of ectopic endometrial tissue outside the uterus. Endometriosis, first identified by Von Rokitansky in mid nineteenth century, a hormonally dependent disease where endometriotic tissues are found outside the uterus, mainly in pelvic peritoneum, although may also be found on ovaries, rectovaginal septum, ureter, rarely in urinary bladder, pericardium and pleura. Endometrial tissues found within myometrium of uterus is termed adenomyosis and regarded as a separate entity.

Dysmenorrhoea, dyspareunia, chronic cyclical & noncyclical pelvic pain and infertility are the main complaints of patients suffering from endometriosis. Sometimes pain during micturation or defecation can be the presenting symptoms if urinary bladder or bowel are involved in disease process. Endometriosis, primarily involves peritoneum and ovaries, can be classified as three types of lesions- superficial endometriosis, ovarian endometriomas and deeply infiltrating endometriosis (DIE). Role of ultrasonography (US), specifically trans vaginal sonography (TVS), trans rectal sonography (TRUS) in detecting endometriosis is extensively studied in recent years. Between various US techniques TVS being the most acceptable and convenient sensitive tool in diagnosis various types of endometriosis should be considered as first line method of evaluation. Recent studies show diagnostic accuracy of TVS in endometrioma and also promising results in diagnosing DIE in view of broad availability and good tolerability than TRUS.

Complete surgical excision of DIE lesions remain the mainstay of reducing painful functional symptoms thus complete and precise mapping of existing lesions preoperatively determine the success of complete surgical excision.

This case series study evaluate endometriosis on USG (trans abdominal and trans vaginal route), with most of cases were correlated on histopathological examination.

Objective

To evaluate the findings and site specific accuracy of USG in clinically suspected cases of endometriosis.

Methodology

This prospective cross sectional study of 40 patients were carried out in The Department of Radiodiagnosis, Patna Medical College and Hospital, Patna .Patients were referred from The

Department of OBG, Patna Medical College, Patna.

Inclusion criteria

- Patients in reproductive age group
- Patients presenting with chronic pelvic pain, infertility or other symptoms of pelvic endometriosis

Exclusion criteria

- Patients not clinically suspected to have endometriosis
- Patients not in the reproductive age group
- Patients suspected /diagnosed to have other pathology, eg.- ovarian tumour, genital malignancy etc.
- Patient not giving consent for the examinations
- Study tools:

US machine LOGIQ P3, GE HEALTH CARE with Probes, C5-2 Broadband curved array transducer: 5 to 2 MHz extended operating frequency range for TAS and C8-4 Broadband curved array transducer : 8 to 4 MHz extended operating frequency range, end-fire sector with 11 mm radius of curvature for TVS.

Result

Evaluation of site specific involvement of endometriosis & diagnostic ability of ultrasound

	No.of patients	Diagnosed by US
ovaries	26	26
scar	05	04
fallopian tube	01	00
uterosacral ligament	01	00
pod&pelvic peritoneum	01	00
all site involved	01	00

N - 40 ; Other pathology - 5

Discussion

In this case series study, 40 patients with clinical suspicion of pelvic endometriosis were studied. The patients who were suspected to have pelvic endometriosis after taking history and proper clinical examination were subjected to TAS and then TVS examination. Among the 40 patients endometriosis was diagnosed in most of the patients as per histopathological examination .35

patients were diagnosed endometriosis using usg specially ovarian while DIE needed other radiological & gold standard evaluation. The rest 5 patients were diagnosed to have different pathology, not endometriosis.

26 out of 40 cases were diagnosed as Endometriomas or chocolate cysts. On usg these were well defined thick walled cystic lesions with homogeneous diffuse internal hypoechog-enicity. Thick or thin septa, fluid - fluid levels, echogenic peripheral mural nodules and wall bright foci noted within many cysts. Mostly unilocular cysts seen. On Doppler US imaging the cysts appear hypovascular without internal flow.

5 out of 40 cases were diagnosed as scar endometriosis. TAS showed infraumbilical subcutaneous fat plane non compressible nodule having relatively irregular margins, heterogeneous echotexture with internal scattered hyperechoic echoes surrounded by a hyperechoic ring of variable width with few cystic areas .one case needed histopathological examination for confirmation

4 out of 40 cases presenting with pelvic symptoms showed presence of hypoechoic nodules/mass or linear thickening with or without regular contour at specific sites like ovary, scar, fallopian tube, uterosacral ligaments & pod signifies endometriotic involvement. The nodules were defined as 'Indian Head Dress'. These cases were diagnosed by other radiological modality, later excision and histopathology confirmed the diagnosis. Diagnosis of endometriosis was based on the presence of two or more of these histpathological features: endometrial epithelium ,endometrial glands, endometrial stroma and hemosiderin - laden macrophages

5 Out of 40 cases presenting pelvic symptoms showed different pathology on USG. In the 5 cases diagnosed to have different pathologies , the final diagnosis were 1 case of right ovarian simple cyst, 1 left ovarian simple cyst, 1 right parovarian cyst, 1case of chronic ectopic in left fallopian tube, and 1 case of right complex cyst.

Among the 40 diagnosed patients, Ovaries were found to be the commonest site of involvement (65%) followed by scar endometriosis (12.5%) on USG. Uterosacral ligaments, fallopian tube, POD & pelvic peritoneum and all site involvement in combination comprise (10%), which were evaluated on USG and required confirmation & extent on MRI & Histopathology for surgical purpose.

Conclusion

Presence of endometriosis is not uncommon in the population and chronic pelvic pain is the most common manifestation of this disease . Imaging procedure like USG always play an important role to diagnose correctly and to help in treatment procedure. There are utility of various ultrasound methods- TRUS, TVS and rectal endoscopic ultrasound, in detecting deep pelvic endometriosis. TAS can detect the ovarian endometriosis but TVS is preferred over all other methods and should be the first investigation due to its low cost and discomfort. TVS diagnose ovarian involvement (endometrioma) correctly with almost equal accuracy to other investigations. Scar endometriosis is also nearly diagnosed by USG in clinically suspected patients.

Though TVS should be the first investigation of choice in diagnosing endometriosis; But in diagnosing DIE such as involvement of uterosacral ligaments & POD; further radiological modalitiy is needed. Also, for complete surgical treatment a preoperative MRI study should be conducted to identify the spread of disease process and involvement of pelvic structures .

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