

TRANSVAGINAL SONOGRAPHY PRIOR TO LAPAROSCOPIC EXAMINATION HELPS TO DIAGNOSE DEEP OVARIAN ENDOMETRIOMA

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SUMMARY

Pelvic endometriosis has been reported to be associated with infertility in 15-25% of cases. It involves the pelvic mesenchymal tissue, ovaries and uterus in a progressive manner causing pain, dysovulation and corpus luteal dysfunction. Pelvic adhesion resultant from endometriosis has its own significant contribution towards causing progressively enhancing problem related to infertility. Early diagnosis for treatment, particularly with reference to restoration of fertility is imperative. Deep ovarian endometrioma larger than 1 cm adversely affects staging of this disease and at the same time diagnosis of such single lesion is often difficult with laparoscopy. This pre-laparoscopic transvaginal ultrasound study involving 165 patients successfully detects them in 37.5% of cases of pelvic endometriosis.

INTRODUCTION

Small intraovarian endometriotic deposits located deep, are sometimes missed by laparoscopy; leading to progression of disease. Accumulation of cyclical bleeding results in progressive enhancement of such

lesion which also causes peri-ovarian adhesion formation and dysovulation. Resultant complains of infertility and pain needs elaborate medical and surgical treatment. High resolution transvaginal ultrasound successfully detects these lesions, in early state, provided it is done at the right time of the cycle.

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AIM

To detect deep ovarian endometriotic deposits by pre-laparoscopic transvaginal ultrasound and confirm with 'blind proof-puncture' during diagnostic laparoscopy with intention of starting early treatment.

METHODS

A prospective study including 165 primary infertility patients (Table I) was undertaken

signals. Sample volume was set at a width of 1mm for pulsed Doppler studies. Laparoscopy was done by an equipment of Karl-Storz (7mm telescope). Ultrasound criteria for diagnosis of ovarian endometriotic cystic lesion was-

1) Thick - walled (smooth or irregular internally) intraovarian cyst of varying transverse diameter ranging between 13 to 36 mm. showing acoustic enhancement.

Table I
PATIENT PROFILE

Number of Patients	165
Type of infertility	Primary
Mean Age (range)	32.8 Years (27 - 39 Years 4 Months)
Mean Duration of infertility (range)	6.7 Years (4 Years 3 Months to 9 Years 8 Months)
No. of Patients with H/O Previous pelvic surgery	4

to detect deep seated ovarian endometriotic deposit using transvaginal and Doppler ultrasound (TVUS-CDS) - Ultrasound study was always done on D3-4 of cycle. They were then subjected to planned diagnostic laparoscopy. 'Blind proof puncture' of the ovary, said to contain the deposit, was done. Machine used for the grey scale sonography was Philips SDR 1550 X P with 5/7.5 MHz transvaginal probe and Ultramark 9 (ATL) with 5 MHz transvaginal probe for Doppler studies, for which colour pulse repetition frequency range was set at 400-1000 Hz and high pass wall filter was set at 50 Hz to eliminate low frequency

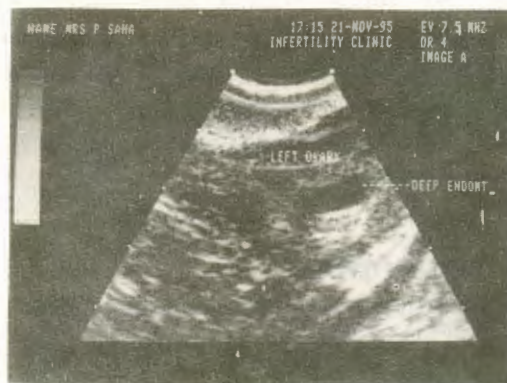


Fig. 1

2) Presence of internal septae - like echo

3) Debridinous internal "carpet" like echo.
 4) Cyst-in-cyst appearance
 5) Swirling movement within cyst seen sometimes along with fluid/fluid level.
 6) Association of similar spots in Pouch of Douglas, or on utero-sacral ligaments were also recorded.

7) Doppler studies showing peri-cystic scattered flow, continuous throughout cardiac cycles. Laparoscopic aspiration was attempted using 16 gauge needle (Casmed, UK) attached to suction device (Rocket of London-Craft's suction Pump) and aspirate sent for histopathology.

RESULTS ANALYSIS

Table IIa
RESULTS OF PELVIC VAGINAL SONOGRPHY

No: Studied	Features of Pelvic endometriosis (including ovarian)	Suspected deep ovarian endometriosis transverse diameter 13-36mm)	Doppler studies showing increased blood flow	Classical intra cystic "carpet" appearance	Multiple small deposits
165	42 (25.45%)	22 (13.33)	21 (12.72%)	18 (81.8%)	4 (9.52%)

Table IIb
RESULT OF LAPAROSCOPIC EXAMINATION AND ASPIRATION

No. studied	Number diagnosed as pelvic endometriosis	Apparent Ovarian syst.	Deep endometriosis diagnosed after aspiration, of chocolate or tarry coloured fluid	Staging (AFS classification -Revised 1985)	Failed to aspirate
165	48 (29.09%)	8 (16.66%)	18 (37.5%)	I - 09 (18.75%) II - 14 (29.16%) III - 23 (47.91%) IV - 02 (4.16%)	3

Out of the 165 patients exposed to the study, 42 patients showed obvious features of pelvic endometriosis by TVUS. Out of this, 22 were suspected to have deep ovarian endometriotic deposit by grey scale real time studies. The commonest feature was presence of homogenous granular "carpet" like echo reported by Kupfer et al 1992. Out of this 1 patient showed very poor vascular flow pattern on Doppler studies and was excluded. The rest of the 21 patients showed good continuous vascularity on D3-4 around the intraovarian cystic lesion. Mean resistance index (R) recorded in these areas was 0.58 and pulsatility index (PI) was 0.96. The position of the cyst within the ovary was evaluated by careful scanning and informed to the surgeon prior to laparoscopy.

Diagnostic laparoscopy detected pelvic endometriosis in 48 cases. Apparent surface ovarian cyst was seen in 8 cases, these were aspirated and sent for histological studies.

The ovaries of 21 patients diagnosed to have deep cysts by TVUS were punctured blindly and 1.5 - 16.8 ml (average 8 ml) 'chocolate' or tarry coloured fluid was obtained in 18 cases. Histopathology in these cases confirmed the preliminary diagnosis of endometriosis. In three cases attempt at aspiration failed 1) due to periovarian adhesion, making approachability difficult. 2) No aspirate obtained after 2 punctures.

DISCUSSION

Endometriosis is prevalent in 15-25% of infertile patients and 40-45% of premenopausal women with endometriosis suffer from infertility. It is associated with pain,

and dysmenorrhea which is not related to the severity of the disease. Many cases of unexplained infertility have been reported to be associated with early stage of pelvic endometriosis. Some patients are free of symptoms till quite late when existing disease, with its associated pelvic adhesion, poses a problem regarding treatment of disease and also with respect to restoration of fertility, which is probably affected by many possible mechanism of which LUF (Luteinised unruptured follicle), ovulatory dysfunction, poor corpus luteal function and mechanical effects of adhesion formation are important.

When this disease of unknown etiology affects only the deeper tissue of ovary, the staging is adversely affected immediately and any lesion greater than 1 cm is classified as stage III. It is difficult to diagnose these deep lesions with laparoscopy in the early stage. Taking a biopsy during laparoscopy also causes adhesion formation and scarring. But these undiagnosed menaces slowly bleed itself to destruction and steadily damages the gland to produce worse grade. The persistent haemorrhage also releases free iron which is extensively fibrogenic and gives increasing grade of adhesion, in the pelvic mesenchyma.

Treatment of established cases of endometriosis involves surgical and medical approach. Hormonal therapy instituted does not evoke excellent response from this ectopic functioning glandular tissue, possibly due to its altered nature of estrogen and progesterone receptors.

The best way to restore fertility in these cases therefore seems to be, early diagnosis followed by exposing the patient to one of the many assisted reproductive tech-

nologies now available, which has been reported by us previously to give good result in terms of pregnancy. Laparoscopic laser vaporisation has also given good results.

This series diagnosed 42 cases of pelvic endometriosis by TVUS-CDS and 48 cases by diagnostic laparoscopy in 165 subjects which is slightly higher than a previous report by Ghosh et al (1986) but similar to one reported by Wood GP (1983).

Out of these 48 cases, 'blind-proof-puncture' was tried in 21 cases of which the aspiration failed in 3 cases due to periovarian adhesions and failure to obtain aspirate. 18 aspirates of 'Chocolate' or 'tarry' coloured fluid was obtained which on histology confirmed their nature. TVUS-CDS done on D3-4 allows study of the ovary in its comparatively quiet, inactive period when chance of existence of physiological cystic entities like follicular

or corpus luteal cyst, a great sonographic mimic of early endometrioma is avoided.

CONCLUSION

Thus we conclude that, a pre-laparoscopic transvaginal ovarian sonography is immensely valuable in diagnosing deep ovarian endometrioma which otherwise could have been missed during diagnostic laparoscopic visualization. As discussed earlier it not only helps correct staging of disease, but directly influences planning of treatment.

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