A New Surgical-Ultrasound Scoring System Helps in Mapping Pelvic Deep Infiltrating Endometriosis and Predicts Surgical Difficulties

Errico Zupi
Department of Molecular and Development Medicine
University of Siena
Endometriosis
Do you know it when you see it?

The gold standard for the diagnosis of endometriosis has been visual inspection by laparoscopy, and the histological confirmation.

Because there is no good noninvasive test for endometriosis, there is often a significant delay in the diagnosis.

Imaging that confirms the presence of endometrioma or deep infiltrating endometriosis may help guide surgical or medical therapeutic approaches, particularly in cases of DIE.

It is essential the definition of a multidisciplinary surgical team that will carry out the procedure and to explain to the patient the risks and benefits that the operation offers.
From diagnosis..... to treatment

Clinical history

Pelvic examination
- Visual inspection
- Vaginal touch

Imaging
- Imaging is needed to evaluate the extension of the disease and to map the DIE lesions

Counselling

Adequate surgical or medical management

Assisted reproduction
A new ultrasonographic/surgery driven system in mapping the extent of deep endometriosis may be useful for preoperative planning and intraoperative management of symptomatic patient.
The aim of this study was to assess the accuracy of TVS in localizing pelvic DIE by comparing the TVS results with laparoscopic/histological findings utilizing a new standardized ultrasound/surgically driven scoring system.

“Endometriosis Surgical-Ultrasonographic Score System” (ESUSS)

- Extent of the disease
- Adequate management
- Counselling

Common definitions for a common language
prospective multicenter study 214 patients with confirmed hystological diagnosis of DIE

Inclusion criteria

TVS diagnosis of DIE with subsequent laparoscopic/histological confirmation

Main outcome Measures

Surgical confirmation of the ultrasonographic data in evaluating presence and localization of DIE

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This mapping system is based on the anatomical site where DIE could be found and was elaborated by surgeons and sonographer together in order to define exactly each site.
After surgery the operative report, the surgical ESUS and the mean operating time of each surgical procedure were recorded.
Sonographic DIE mapping

- adenomyosis
- endometrioma
- bladder
- parametrium
- USL
- bowel
- SRV
- adhesions
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Utilizing TVS and TRS (if needed):

- an accurate assessment of the vagina, particularly the areas of the posterior and lateral vaginal fornix
- the retrocervical area with torus and USL
- the parametria laterally
- the rectovaginal septum (RVS)

• Posterior compartment
Rectal sigmoid nodules were visualized as an irregular hypoechoic mass penetrating into the intestinal wall replacing its normal structure (hypoechoic and thin muscularis propria and hyperechoic submucosa/mucosa).

With respect to the posterior uterine wall, intestinal nodules located below the level of the insertion of uterosacral ligaments on the cervix were considered low rectal lesions.
In case of posterior nodules (torus and uterosacral ligaments, parametria, SRV, vaginal posterior wall) bilateral pararectal dissection was performed down to the inferior limit of the nodule, and then the rectum was separated from the posterior uterine and/or vaginal wall correlating the extent of excision with the degree of disease.

In cases of nodules infiltrating vaginal wall, a full-thickness excision was done suturing the defect laparoscopically or vaginally.
Upper rectal or the recto-sigmoid junction, possible to visualize by TVS till 3-4 cm above the uterine fundus

The ultrasound scan has low accuracy in detecting the infiltration to the mucosal layer, therefore TVS does not help surgeons in deciding whether to perform segmental or disc resection of the lesion.

More likely this decision depends on the diameters of infiltrating tissue and lumen stenosis.
In case of endometriotic lesions involving the **uterosacral ligaments**, special attention was paid to pelvic ureteral evaluation particularly in the paracervical area and by transabdominal ultrasound we evaluated always the renal pelvis. An ureteral involvement was recorded in case of lesions > 3 cm if located in the omolateral parametrium.
Lesions of the recto-sigmoid were removed by shaving or resection depending on the size and depth of infiltration of the bowel wall.

With segmental bowel resection, after an effective mobilization of the descending part of the sigmoid colon, a circular stapler was inserted and fixed in the bowel lumen to obtain the end-to-end or side-to-end anastomosis.

In few cases of a lower tract involvement a stoma was provided to avoid complications.
Anterior compartment (bladder):
The bladder was filled to better evaluate the structure of its wall and the presence of endometriotic nodules or adhesions. Nodules appeared as round shaped lesions with or without cystic areas and regular/irregular margins of the bladder wall, bulging towards the lumen.
Ureteral resection was done only in few cases of complete infiltration of its layers. In the majority of cases an accurate ureterolysis was performed with a successful dilatation of its distal part. When the ureter was involved close to the bladder wall the segment was resected and ureteral bladder implantation was done.
Bladder resection was performed with monopolar electrode cutting around the lesion and including a visible edge of normal tissue.
Endometriosis localizations

- Posterior DIE: 135 pz
- Anterior DIE: 2 pz
- Anterior DIE + Posterior DIE: 17 pz
- OMA + DIE: 60 pz
Endometriosis Surgical-Ultrasound Score System

Mean operating time

The score reflects the surgical difficulty.
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- to adopt a common language between different expert operators
- can give an accurate assessment of the extent of DIE with a high diagnostic accuracy
- best surgical approach and the potential need to involve other surgical specialists
- to establish a correct medical management
- properly inform patients of the extent of their disease and therapeutic options
- possibility to compare and share results between different centers