

# Preoperative assessment of rectosigmoid endometriosis: what imaging modalities are useful to the surgeon?

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## Introduction

Complete radiologic mapping of deep infiltrative endometriosis sites is crucial for case management.

In rectosigmoid assessment, the degree of rectal wall infiltration, the size of the rectal lesions, and the distance from the anal border can influence its surgical management.

## Objectives

To illustrate characteristic imaging findings with laparoscopic and pathologic correlations

To compare the value of

- transvaginal sonography (TVS)
- rectal endoscopic sonography (RES) under general anesthesia
- water enema computed tomography (WECT)
- pelvic magnetic resonance imaging (MRI)

in the assessment of rectosigmoid endometriosis and preoperative planning.

## Methods

Retrospective longitudinal study on 23 consecutive patients referred for surgical management of endometriosis between may 2009 and may 2011 at Paris Saint-Joseph Hospital.

They were underwent clinical examination, TVS, pelvic MRI, RES and WECT before videolaparoscopy.

MR imaging was performed with axial, sagittal and coronal T2-weighted sequences (fast spin-echo, repetition time : 6720 msec, echo time :123 msec), and axial fat-suppressed T1-weighted sequences, with or without administration of intrarectal US gel, without injection of gadolinium.

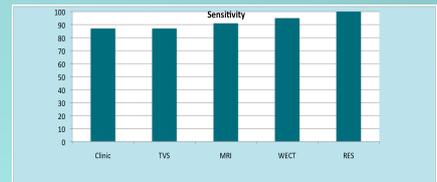
•CT was performed with water enema and intravenous contrast medium.

• TVS was performed without bowel preparation.

• RES was performed after a simple rectal enema, under general anesthesia.

All scans were analyzed by the same radiologist (E.P.), who has extensive gynecological experience.

The women were operated with histological evidence of superficial or deep rectosigmoid pathology. The preoperative reports of these methods were correlated with histopathological confirmation of endometriosis.



•We found in 20/23 women a clinical presentation suggestive of a digestive localization (rectal bleeding, dyschesia).

•TVS, MRI, WECT and RES correctly diagnosed intestinal endometriosis in 20/23 (87%), 21/23 (91%), 21/22 (95%), and 23/23 (100%) respectively.

•TVS and MRI allowed evaluation of the whole pelvic cavity, especially the ovaries and the uterosacral ligaments.

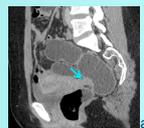
•TVS was limited in 3 cases : by pain (2 cases where the exam were impossible) and by the restricted field of view (one false negative).

•WECT is more accurate to diagnose rectosigmoid lesion and to search the other digestive localizations.

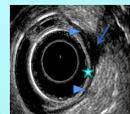
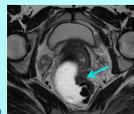
•RES also correctly diagnosed degree of rectal infiltration (subserous/muscular/submucosal/mucosal) in 15/20 cases (75%) and was critical to estimate the distance of endometrial lesion from the anal margin.

## Results

Case 1: Rectosigmoid endometriosis in a 28-year-old woman with dyschesia



Sagittal WECT (a), sagittal (b) and axial (c) T2-weighted MRI demonstrating an infiltrative and retractile nodule in the torus uterinus and the left uterosacral ligament (arrow). The rectum is retracted toward the retrocervical lesion.



RES (d) showing an irregular-shaped hypoechoic mass of the rectal wall (arrow). Involvement of the muscularis propria (hypoechoic and thin) was distinguished from that of the hyperechoic submucosa and mucosa (hyperechoic layer, star). Note the normal aspect of the muscularis propria (head of arrow) of the adjacent rectum.

At CT, MRI, RES and pathologic examination, the colon wall infiltration was graded as involving the muscularis propria layer of the rectum.

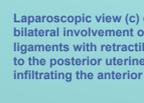
Case 2: Deep pelvic endometriosis in a 37-year-old woman with dyschesia and rectal bleeding



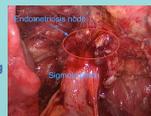
Sagittal TVUS (a) and WECT (b) demonstrating a retractile retrocervical lesion adhered to the posterior uterine wall and infiltrating the rectosigmoid junction. At sonography, the lesion is hypoechoic and irregular endometriotic lesion (arrow).



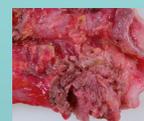
Notice that TVS and RES readily visualized the rectosigmoid junction just behind the torus uterinus.



Laparoscopic view (c) demonstrating bilateral involvement of the utero-sacral ligaments with retractile lesions adhering to the posterior uterine wall and infiltrating the anterior rectal wall.



Photograph (d) of the gross specimen showing marked thickening and fibrosis of the muscularis propria.



Medium-power photomicrograph (e and f) showing endometriotic glands and stroma (center). The endometriotic tissue is surrounded by fibrosis, degraded blood products and inflammatory debris.



## Conclusion

■ Depth of rectosigmoid wall infiltration is the main criterion determining patient management and is better assessed by RES.

■ Distance between the endometrial foci and the anal border is a crucial aspect of patient counselling, to estimate the risk of ileostomy. WECT and RES can assess this distance, RES is more accurate.

■ WECT is the only method to assess the plurifocal digestive lesions.

■ MRI and TVS are complementary for the other pelvic localizations.

## References

- Chamié et al. Findings of Pelvic Endometriosis at Transvaginal US, MR Imaging, and Laparoscopy. Radiographics (2011) vol. 31 (4) pp. E77-E100
- Ruffo et al. Laparoscopic colorectal resection for deep infiltrating endometriosis: analysis of 436 cases. Surg Endosc (2010) vol. 24 (1) pp. 63-67
- M.D et al. Diagnostic accuracy of physical examination, transvaginal sonography, rectal endoscopic sonography, and magnetic resonance imaging to diagnose deep infiltrating endometriosis. Fertility and Sterility (2011) pp. 1-9
- Bazot et al. Accuracy of transvaginal sonography and rectal endoscopic sonography in the diagnosis of deep infiltrating endometriosis. ... in Obstetrics and ... (2007)