

Added value of MRI to expert transvaginal ultrasonography in preoperative mapping of deep endometriosis: a prospective cohort study



Mira Rehal^{1,2*} mira.rehal@ki.se
Malin Brunes^{1,2} Chikako Suzuki^{3,4} Elisabeth Epstein^{1,2}

^{*}Presenting author. ¹Department of Clinical Science and Education, Karolinska Institute, South General Hospital, Stockholm, Sweden. ²Department of Obstetrics and Gynecology, South General Hospital, Stockholm, Sweden. ³Department of Diagnostic Radiology, Stockholm South General Hospital, Stockholm, Sweden. ⁴Department of Molecular Medicine and Surgery, Karolinska Institute, Stockholm Sweden.

Conclusion

Adding second-line MRI to expert TVS improved detection of bowel and uterosacral ligament endometriosis but reduced specificity. The diagnostic yield was greatest in women with prior abdominal surgery, supporting selective rather than routine use of MRI.

Introduction

Accurate preoperative mapping of deep endometriosis (DE) is essential for surgical planning. The added value of second-line magnetic resonance imaging (MRI) after expert transvaginal ultrasound (TVS) remains unclear.

Objectives

To evaluate whether second-line MRI improves diagnostic accuracy beyond expert TVS in the preoperative assessment of DE, and if prior surgery influences diagnostic performance.

Methods

- Prospective cohort including 221 women with suspected DE.
- 189 were examined with TVS, according to IDEA protocol. When DE was suspected/ inconclusive MRI was added.
- 107 underwent TVS + MRI + surgery.
- Surgical findings as reference standard.
- Combined imaging considered positive if either modality positive.

Results

Adding second-line MRI increased sensitivity for bowel and uterosacral ligament DE, but reduced specificity across all anatomical locations (Figure 1). MRI detected 6 of 11 bowel lesions missed by TVS, all located in the upper rectum or rectosigmoid. The added diagnostic yield of MRI in bowel lesions was significantly greater in women with prior abdominal surgery (n=55); sensitivity 86→100%, specificity 60→ 55%.

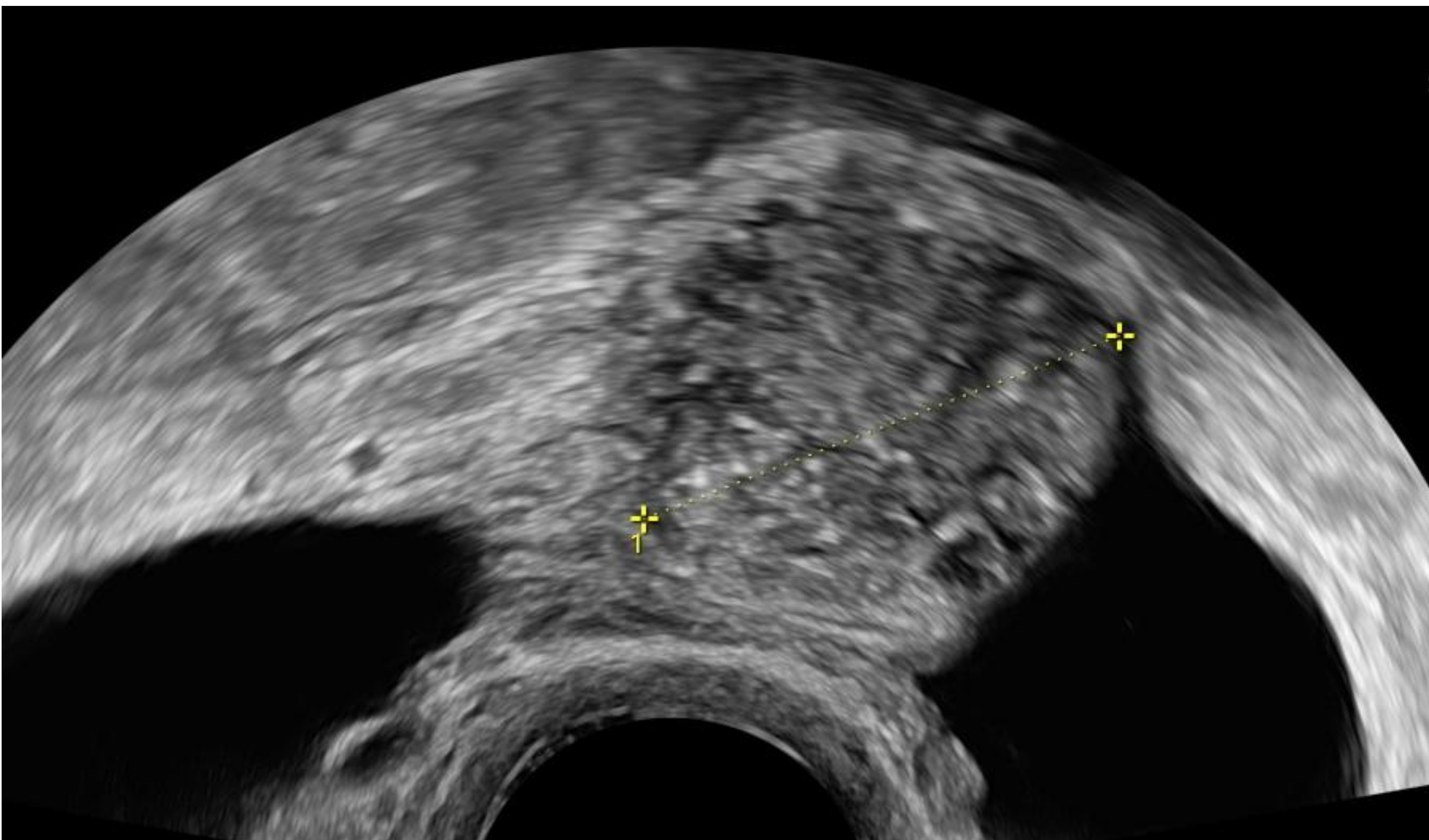


Image 1. Transvaginal ultrasound image of deep endometriosis in the urinary bladder.

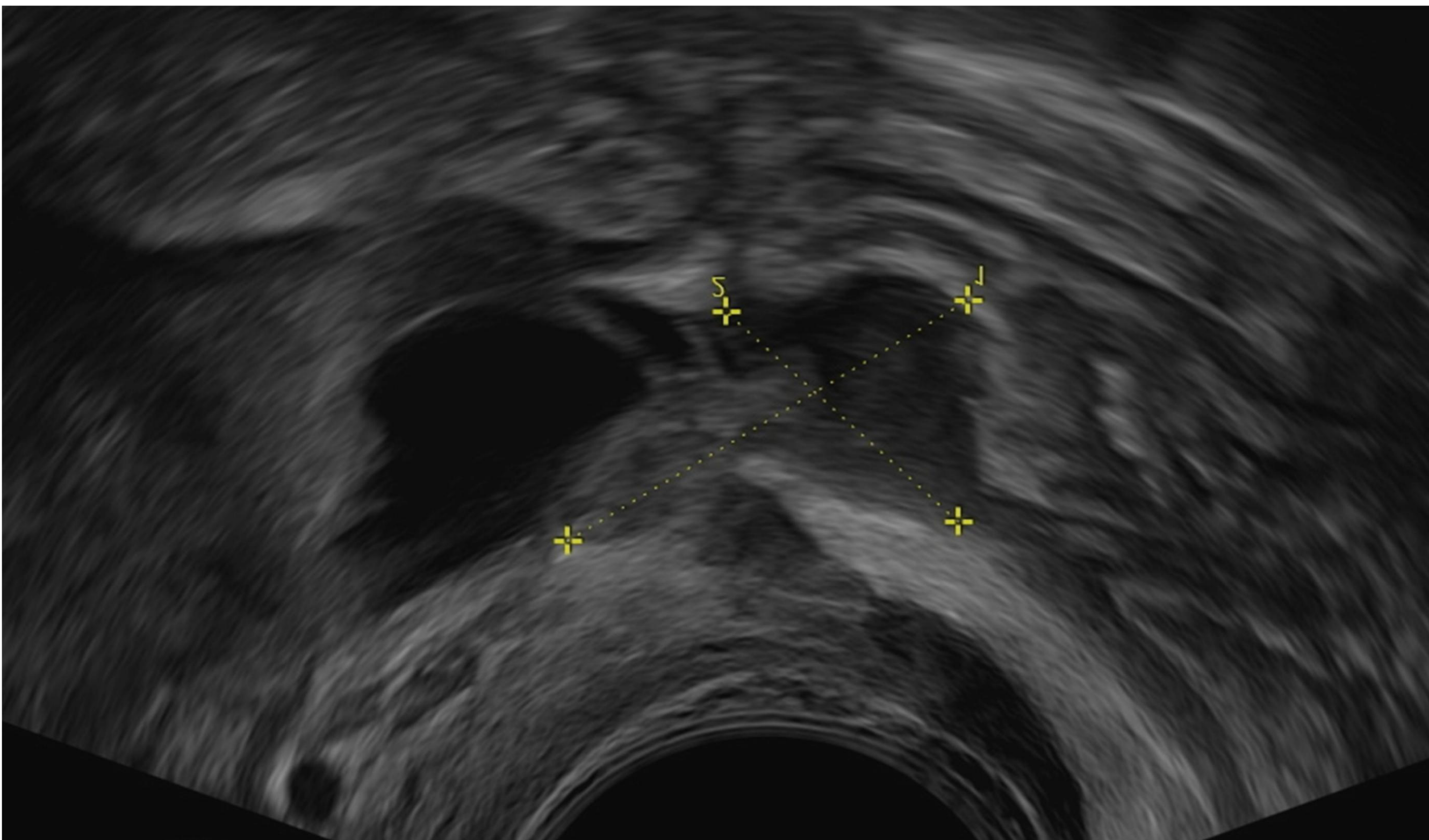


Image 2. Transvaginal ultrasound image of deep rectal endometriosis.

Change in diagnostic performance with addition of MRI to TVS

Absolute percentage-point difference: combined TVS and MRI versus TVS alone

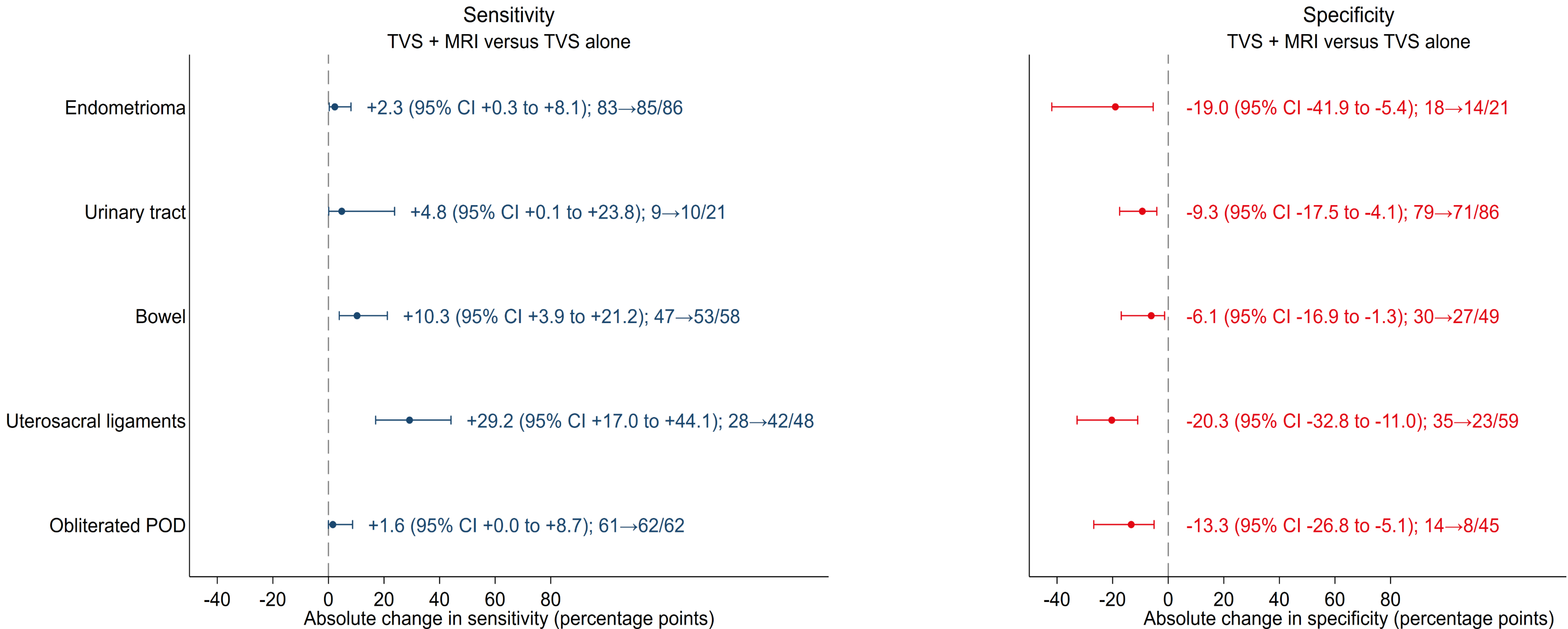


Figure 1. Dots represent absolute differences; horizontal lines represent 95% confidence intervals. POD = pouch of Douglas