

Optimizing the diagnosis of deep infiltrating endometriosis: the role of 3D transvaginal ultrasound with VCI-A and omniView modes



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Objective

To assess the diagnostic value of three-dimensional transvaginal ultrasound (3D TVUS), using Volume Contrast Imaging in the A-plane (VCI-A) and OmniView, for detecting posterior vaginal fornix deep infiltrating endometriosis (DIE) in a patient with cyclical anal pain and suspected menstrual rectal bleeding.

Case Report

A 34-year-old patient presented with severe cyclical anal pain and suspected rectal bleeding during menstruation. Colonoscopic biopsy was negative; however, clinical findings strongly suggested posterior compartment DIE. 3D TVUS with VCI-A and OmniView revealed a 0.89 × 0.88 cm hypoechoic nodule in the posterior vaginal fornix, allowing precise localization and targeted biopsy. Colposcopy confirmed bleeding nodules, with histology showing ectopic endometrial glands and stroma. Colonoscopy additionally identified a rectosigmoid lesion 5 cm from the anal verge, confirming multifocal disease.

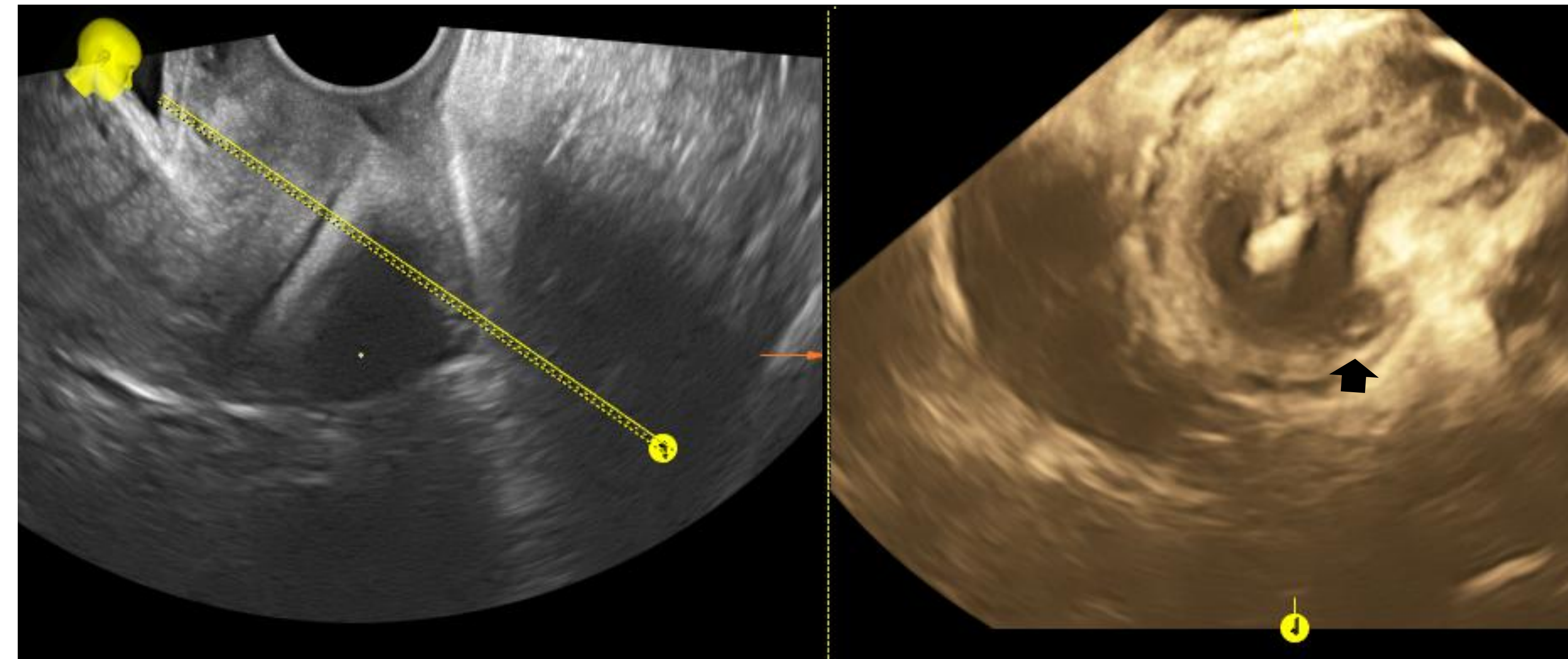


Fig1. Endometriotic nodule of the posterior vaginal fornix, inconspicuous on the sagittal view, is clearly delineated using Omniview with VCI mode (arrow)



Fig2. Colposcopic view of the posterior vaginal fornix showing an endometriotic nodule

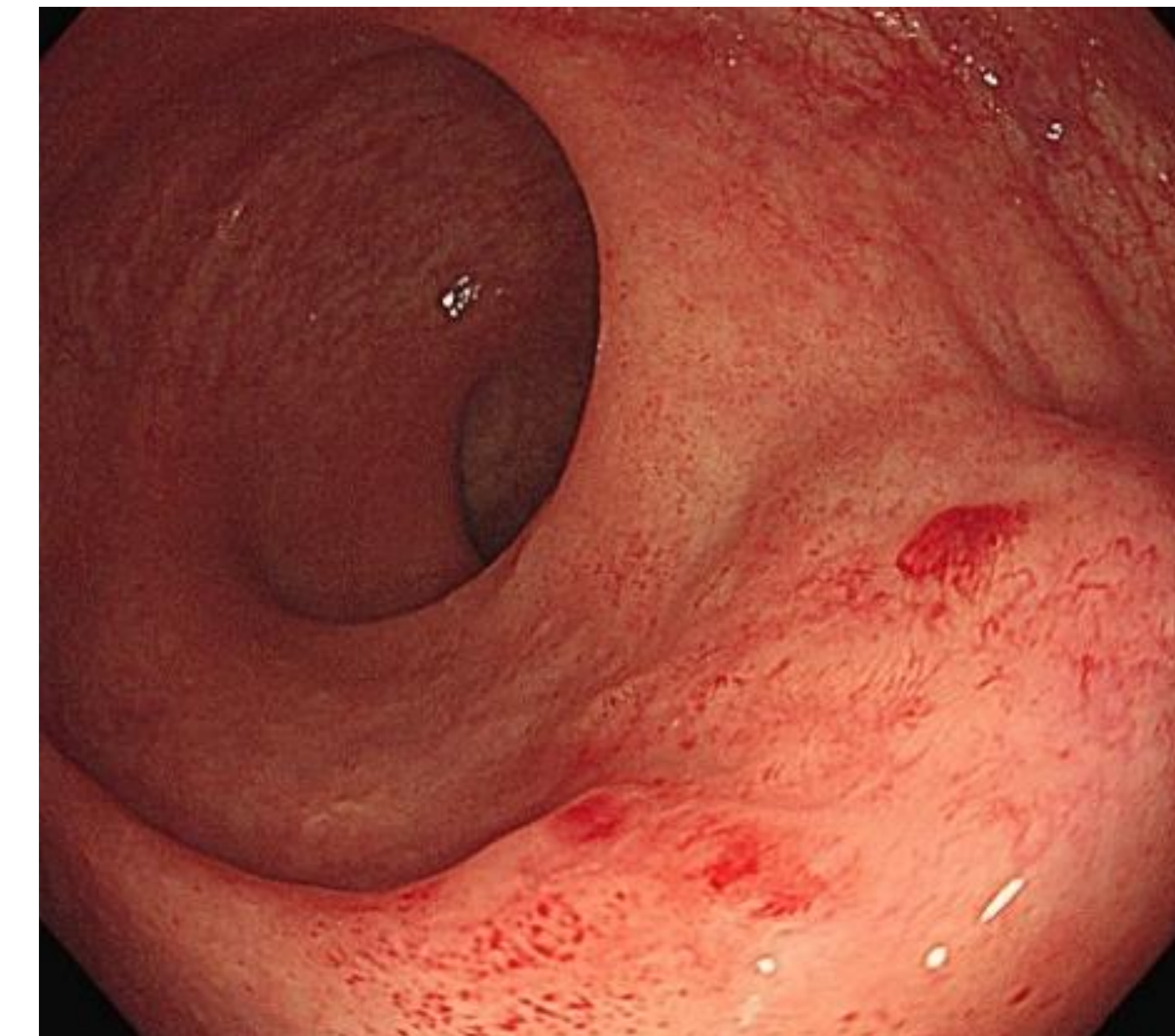


Fig3. Colonoscopic view showing multifocal endometriotic nodules in the rectosigmoid of the same patient

Discussion

This case underscores the superior diagnostic performance of 3D TVUS compared with conventional 2D imaging for posterior vaginal fornix lesions. The VCI-A mode enhanced tissue contrast, while OmniView enabled multiplanar reconstruction, allowing for a more complete and reliable evaluation of the lesion. Beyond this setting, the capacity of OmniView to provide accurate multiplanar visualization suggests particular value in anatomically challenging scenarios, such as a retroflexed cervix. Importantly, the ability of 3D TVUS to detect disease despite prior negative endoscopic biopsy highlights its clinical value and supports its integration as part of a multimodal diagnostic approach in complex cases.

Conclusion

3D TVUS with VCI-A and OmniView enhances visualization and precise localization of posterior compartment DIE, improving diagnostic accuracy, aiding surgical planning, and guiding targeted biopsy. It should be considered a first-line imaging tool, particularly in patients with retroflexed cervixes or inconclusive conventional findings.