

EVALUATION OF THE DIAGNOSTIC ACCURACY OF TRANSVAGINAL SONOGRAPHY IN THE DETECTION OF ADENOMYOSIS COMPARED TO MAGNETIC RESONANCE IMAGING

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Introduction

In adenomyosis, a benign uterine disorder, endometrial glands and stroma are pathologically evident within the uterine myometrium. These misplaced glands promote spiral vessel angiogenesis, smooth muscle hyperplasia and hypertrophy, resulting in thickening of the junctional zone, as well as generalized uterine enlargement when severe. While some women may be asymptomatic, the majority report heavy menstruation, dysmenorrhea, persistent pelvic pain, subfertility, and infertility. There are several typical sonographic and radiological signs that enable noninvasive diagnosis using transvaginal sonography (TVS) or magnetic resonance imaging (MRI). Transvaginal ultrasonography is a highly appealing choice for diagnosis because it is less invasive, inexpensive, and widely available. Image approaches for adenomyosis diagnosis have cleared the way for the deployment and monitoring of conservative surgery alternatives to hysterectomy.

Aim of the work

The aim of this work was to evaluate the diagnostic accuracy of TVUS in the detection of adenomyosis, in comparison to MRI as the gold standard.

Patients And Methods

This study was carried out on 25 patients referred to Department of Radiodiagnosis at Alexandria Main University Hospital, all of them underwent MRI and transvaginal ultrasound examinations. Patients were subjected to the following MRI sequences; Sagittal T2 weighted turbo spin echo (T2 TSE), Axial oblique T2 weighted turbo spin echo (T2 TSE), Axial oblique T1 weighted spin echo (T1 SE), Axial oblique T1 fat sat, Coronal oblique T2 weighted turbo spin echo (T2 TSE) with additional MRI sequences as follows; Diffusion weighted imaging and Susceptibility weighted imaging. Patients were also subjected to transabdominal and transvaginal ultrasound.

Results

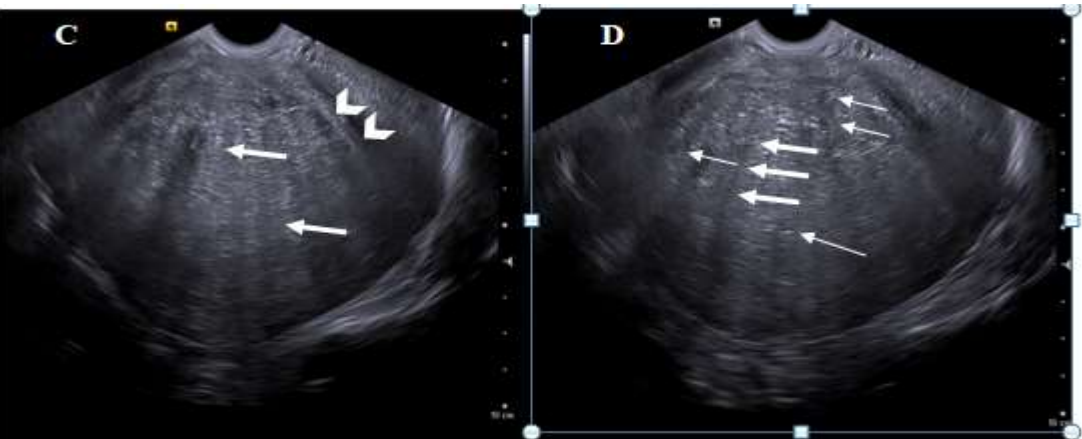
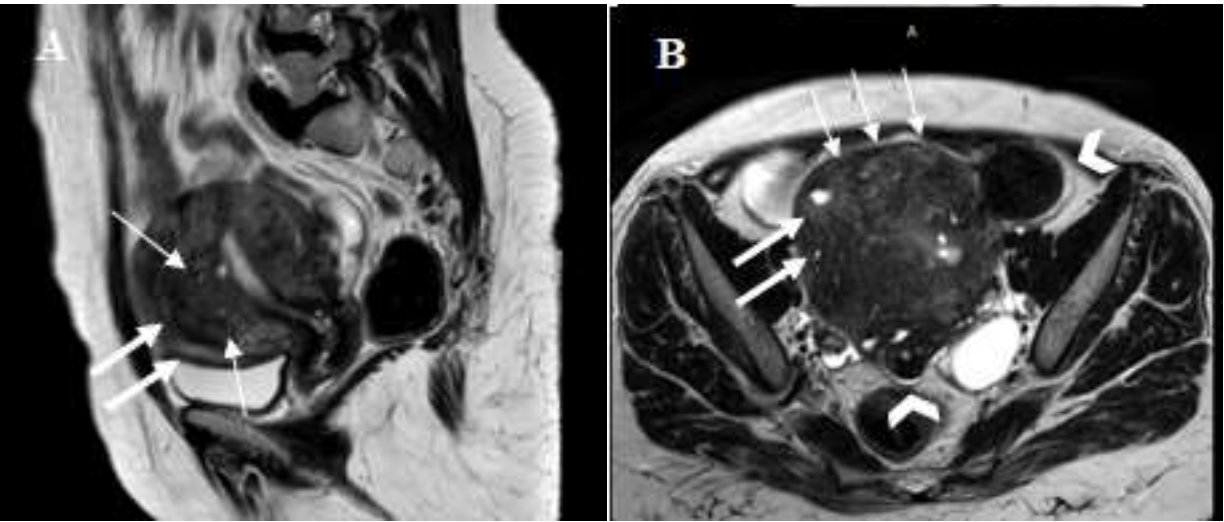
Out of 25 patients included in the study, 24 (96%) were positive for adenomyosis and could be diagnosed by TVUS, while only 1 (4%) was negative by TVUS compared to MRI. This lead to PPV (100%) and NPV (0%). While the TVUS sensitivity was found to be 96% in the total included cases (25 cases), it turned out to be 100 % in cases not associated with sizable huge fibroids (24 case).

Table (1): Relation between MRI and US (n=25)

US	MRI				Sensitivity	Specificity	PPV	NPV	Accuracy
	Negative (n=0)		Positive (n=15)						
	No.	%	No.	%					
Negative	0	0.0	0	4.0	96.0	–	100.0	0.0	96.0
Positive	3	0.0	12	96.0					

Table (2):Analysis of sensitivity TVUS (n=25)

TVUS	Sensitivity
In total cases	96 %
In cases without sizable huge fibroids	100 %



(A) Sagittal sections show bulky globular uterus with multiple hyperintense T2 myometrial/sub-endometrial cysts (arrows) with diffuse thickening in the TZ measuring 22 mm in maximum thickness (bold arrow). (B) Axial section shows a sizable focal adenomyoma seen inseparable from the TZ (arrows) showing multiple T2 hyperintense foci within the lesion (bold arrows) along with two T2 hypointense sub-serous (type 6) fibroids one noted at the anterior and the other at the posterior uterine walls (arrow heads). (C) and (D) TVUS axial view showing bulky globular uterus with sizable focal adenomyoma (arrow heads) showing venetian blind shadows and echogenic foci (bold arrows), (arrow heads) and multiple myometrial cysts (arrows)

Conclusion

TVUS is an effective and reliable diagnostic technique for adenomyosis. It is accurate and sensitive. TVUS can now be the primary imaging technique for adenomyosis diagnosis, and its widespread usage has resulted in a greater understanding of the disease's spectrum. In the majority of instances, TVUS can be utilised to confidently identify adenomyosis, especially if several US findings are present. In the absence of concomitant disorders, TVUS has a high accuracy in the diagnosis of adenomyosis, according to our findings. However, patients with concomitant myometrial disorders such as sizable fibroids, had lower sonographic accuracy. In women who have further lesions, MRI is advised.