

Background

Adenomyosis is a condition affecting gravid and non-gravid uterus ranging from being asymptomatic to causing menorrhagia, pelvic pain and dysmenorrhea. Although it can affect a women's quality of life starting from puberty, it is most frequent in parous women in their middle to late forties.

The diagnosis of adenomyosis is based on clinical suspicion, radiological findings and histopathology. Radiological findings on ultrasound include heterogenous myometrium, myometrial cysts, an enlarged soft but regular contour of the uteri or sub endometrial hyperechoic striations. This study aims to confirm the correlation of ultrasonographic radiological findings of adenomyosis with histology findings post hysterectomy, as well as to identify which findings on ultrasound are the best predictors of adenomyosis.

Results

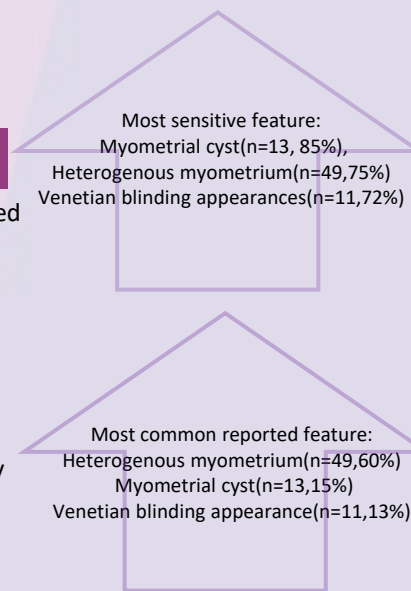
We identified 126 uteri imaging with either an adenomyotic indication for hysterectomy or adenomyosis confirmed histology after hysterectomy from 2011 till 2021 in a metropolitan hospital. Ultrasounds were identified as adenomyotic if either radiological features were described or if the adenomyosis was listed in the conclusion.

75% (n=49) of adenomyotic ultrasound scans concluded a positive histology. Conversely, 72% (n=44) ultrasound reports had no mention of adenomyosis or description of adenomyotic features returned a histological finding of adenomyosis.

The sensitivity and specificity of ultrasound used for the diagnosis of adenomyosis is 53% and 47%. The sensitivity of diagnostic criteria are; myometrial cysts (n=13, 85%), heterogenous myometrium (n=49,75%), venetian blind appearances (n=11, 72%), no distinction between the myometrial and endometrial junction (n=5, 60%) and asymmetry of the myometrium (n=4, 50%). The accuracy of the use of ultrasound is 51.22%

Methods

A 10-year retrospective study of all patients who have had hysterectomy with suspected adenomyosis and compared transvaginal and transabdominal ultrasound findings. Patients who had incidental positive histopathology without any investigations was excluded. Ultrasound diagnostic criteria included: (1) Venetian blinding's or striations; (2) No distinction of the endometrial-myometrial junction; (3) Myometrial cysts; (4) heterogenous myometrial echotexture; (5) Asymmetry of the anterior and posterior myometrium.



Ultrasound examples	Features noted on ultrasound
	Myometrial cysts (Arrowhead) Venetian blinding or striations (Arrows) Echogenic/heterogenous myometrium
	Asymmetry of anterior and posterior wall of the myometrium (Double headed arrows) Venetian blinding (Arrows)
	Loss of endometrial/myometrial junction (Asterisk)

Ultrasounds vs histology	Positive adenomyosis histology	Negative adenomyosis histology
Positive Ultrasound scan	49 (True Positive)	16 (False Positive)
Negative Ultrasound scan	44 (False Negative)	14 (True Negative)
	Sensitivity 53%	Specificity 47%

Incidental findings of:	
Malignancy	n=11, 8.5%
Leiomyomas	n=52, 40%
Endometriosis	n=20, 20%

Conclusion

Ultrasound has limited utility in the diagnosis of adenomyosis although it is often first line in imaging for women with adenomyosis, the sensitivity and specificity reported are similar in other studies completed in the literature. Although the presence of myometrial cysts were found to be the most sensitive diagnostic criteria, it was not often reported on scans, The most commonly reported feature is an heterogenous myometrium. This indicates other factors such as user variability that can play a role in the use of ultrasound. Further opportunities for study on the frequency and incidence of radiological signs and correlation to severity of symptoms would be useful.