

# Correlation of Morphological Uterus Sonographic Assessment (MUSA) Group features with Adenomyosis on Histopathology

Hewitt, I<sup>1,3</sup>, Leonardi, M<sup>1,2</sup>, Luscombe, G<sup>3</sup> and Condous, G<sup>1,2</sup>

1. Nepean Clinical School, The University of Sydney, NSW
2. Department of Gynaecology, Nepean Hospital, Sydney, NSW
3. School of Rural Health, Orange, The University of Sydney, NSW

## Aim

To determine the correlation between a positive diagnosis of adenomyosis on gold standard histopathology and each of the MUSA ultrasound features.

## Methods

A retrospective observational study including patients who underwent hysterectomy at Nepean or Blue Mountains Hospitals from 2017-2019. Analysis comparing MUSA sonographic features for those with and without adenomyosis on histopathology was conducted.

**Table 1: MUSA ultrasound features presented by presence or absence of adenomyosis, based on histopathology (N=79)**

US features	Whole sample n=79	With Adenomyosis on Histopathology n=38	Without Adenomyosis on Histopathology n=41	P value
	% (n)	% (n)	% (n)	
Asymmetrical thickening n=70**				0.015
Yes	21.4 (15)	34.4 (11)	10.5 (4)	
No	78.6 (55)	65.6 (21)	89.5 (34)	
Cysts n=76**				FET=0.47 *
Yes	10.5 (8)	13.9 (5)	7.5(3)	
No	89.5 (68)	86.1 (31)	92.5 (37)	
Hyperechoic islands n=74**				FET=0.017*
Yes	6.8 (5)	14.7 (5)	0 (0)	
No	93.2 (69)	85.3 (29)	40 (100)	
Fan shaped shadowing n=76**				FET=0.70*
Yes	9.2 (7)	11.1 (4)	7.5 (3)	
No	90.8 (69)	88.9 (32)	92.5 (37)	
Echogenic sub endometrial lines and buds n=74**				FET=0.10*
Yes	4.1 (3)	8.6 (3)	0 (0)	
No	95.9 (71)	91.4 (32)	100 (39)	
Translational vascularity n=70**				FET=1.00*
Y	5.7 (4)	6.3 (2)	5.3 (2)	
N	94.3 (66)	93.8 (30)	94.7 (36)	
Irregular junctional zone n=72**				0.49
Y	22.2 (16)	25.7 (9)	18.9 (7)	
N	77.8 (56)	74.3 (26)	81.1 (30)	
Interrupted junctional zone n=69**				0.044
Y	39.1 (27)	51.5 (17)	27.8 (10)	
N	60.9 (42)	48.5 (16)	72.2 (26)	

\*FET=Fishers Exact Test \*\*n=number of patients with adequate imaging to determine yes/no for feature

## Results

Final N was 79. Patients found to have adenomyosis on histopathology were more likely to have asymmetrical thickening (p=0.015), hyperechoic islands (p=0.01) and interrupted junctional zone (p=0.044). Remaining MUSA features were not found to be significantly increased in those with adenomyosis compared to those without.

## Conclusions

This study showed that: asymmetrical thickening, hyperechoic islands and interrupted junctional zone are more likely to be present in those with positive diagnosis on histopathology than those without. It contributes to current literature, with evidence supporting development of accurate and widely recognised criteria for diagnosis of adenomyosis on TVUS.