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TOTAL PELVIC FLOOR ULTRASOUND IN PELVIC FLOOR DEFAECATORY DYSFUNCTION

Hypothesis / aims of study
To determine the clinical utility of total pelvic floor ultrasound (PFUS) (transvaginal (TV) and transperineal (TP)) compared with defaecation proctography in the assessment of women with pelvic floor defaecatory dysfunction. Each modality was used to describe anatomical abnormalities which may be associated with defaecatory dysfunction, namely rectocoele, enterocoele and intussusception. Secondary aims were to correlate PFUS findings with subsequent treatment plans.

Study design, materials and methods
Consecutive women undergoing investigation for defaecatory dysfunction between May 2011 and November 2014 were studied. The dynamic images for PFUS and defaecation proctogram were retrospectively and independently reviewed by an interpreter blinded to both symptoms and previous results. The presence or absence of a rectocoele, enterocoele and intussusception and grade of intussusception (oxford grade I – V with grades I and II being classed as normal) were recorded for both modalities.
The presence of barium trapping was noted for defaecation proctography. The presence of a significant enterocoele (an enterocoele pistoning onto the lower rectum) on proctography was recorded. Subsequent treatment (biofeedback alone or biofeedback and surgery) was documented.

Results
393 women underwent both PFUS and proctography of which 69 were excluded due to; images unavailable (24), incomplete (38), poor quality (5) or tests performed over 2 months apart (2). A total of 324 women were included with a mean length of follow up of 22 months. 278 underwent biofeedback alone. 46 underwent biofeedback and surgery. Table One: The number of each anatomical abnormality detected on each modality and the accuracy of PFUS compared to defaecation proctography.

	Number of patients		Accuracy of PFUS using proctography as gold standard		
	Defaecation Proctogram	PFUS	PFUS	Positive Predictive Value	Negative Predictive Value
Rectocoele	284 (111 trapping)	284	TP	93%	54%
			TV	93%	25%
			TP and TV	93%	76%
Enterocoele	80 (50 significant)	55	TP	85%	87%
Intussusception	142	105	TV	79%	71%

Of the 111 women with trapping rectocoeles on proctography 84 were visible on both TV and TP ultrasound, 23 were only visible on TP ultrasound and1 was only visible on TV ultrasound. Out of the 173 women with a non trapping rectocoele 101 were visible on both TV and TP ultrasound, 57 were visible on TP ultrasound only, 1 was only visible on TV ultrasound and 14 were not visible on either view. Rectocoeles detected on both TP and TV USS were significantly more likely to produce barium trapping on proctography ($p = 0.03$) and were more likely to require surgery ($p = 0.05$) compared to those only seen on one view. (Rectocoeles demonstrating barium trapping on proctography were significantly more likely to require surgery ($p = 0.01$)). 39 of the 40 women with a significant enterocoele on defaecation proctography were visible on PFUS compared to 8 out of the 40 women with a non-significant enterocoele. An enterocoele detected on PFUS was significantly more likely to be a functionally significant enterocoele on proctography ($p = 0$) (83% of women with an enterocoele visible on PFUS demonstrated a functionally significant enterocoele on proctography compared to 3% of those women with an enterocoele which was not visible on PFUS). Agreement between the grading of intussusception by USS and proctography was moderate (intra-class correlation coefficient 0.52).

Interpretation of results
PFUS is highly sensitive for detecting rectocoele. A rectocoele visible on both TV and TP views during PFUS is significantly more likely to produce barium trapping on proctography and require surgery compared to a rectocoele which is only visible on one PFUS view. PFUS is highly specific for detecting enterocoele. An enterocoele detected on PFUS is significantly more likely to descend onto the lower rectum during proctography.

Concluding message
Women with a rectocoele on both TV and TP views on PFUS are more likely to have a trapping rectocoele and require surgery and therefore should undergo proctography for further assessment and treatment planning. Similarly, women with an enterocoele on PFUS are more likely to have a functionally significant enterocoele and a proctogram may be valuable for management planning. Women without these anatomical abnormalities on PFUS may benefit from immediate biofeedback and only require proctography if symptoms are refractory to conservative measures.

Disclosures
Funding: NONE **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** Retrospective review of clinical practice **Helsinki:** Yes **Informed Consent:** No