

52

**Authors:** Fynes M, Behan M, O' Herlihy C.

**Institution:** The Department of Urogynaecology, The Royal Women's Hospital

**Title:** RADIOLOGICAL GRADING OF OBSTETRIC ANAL SPHINCTER INJURY USING HIGH RESOLUTION TRANS-ANAL ULTRASOUND

### **Aims of study:**

Anal endosonography is now the accepted 'gold standard' for assessing anatomical integrity of the anal sphincter complex. The risk of incontinence is increased with extensive injury to the anal sphincter muscles but no standardised system of radiological grading of anal sphincter injury currently exists. The aim of this study was to prospectively assess a radiological grading system for obstetric anal sphincter injury and correlate this to symptoms of altered faecal continence.

### **Methods:**

A cohort of 197 consecutive women of mixed parity, all with a history of recognised obstetric anal sphincter injury and/or symptoms of impaired faecal continence following vaginal delivery were recruited. All patients were assessed at 12 weeks postpartum using a bowel symptom questionnaire adapted from Pescatori et al to determine a faecal continence score and underwent trans-anal endosonography to identify anatomical anal sphincter injury. Injury to the external anal sphincter was graded by two assessors according to the site of injury (deep, superficial, subcutaneous), the extent of injury in terms of the extent of sphincter rupture (Partial or full thickness), the number of quadrants involved (1-4) and also the number of components of the external anal sphincter complex involved. Injury to internal anal sphincter was also graded according to whether it was full or partial thickness and the number of quadrants (1-4) involved. These data then determined an injury score (0-18).

### **Results:**

142(72%) of women presented following first vaginal delivery and of the remaining 55 cases followed second or subsequent delivery. The mean age for the study group was 29 years (range 16 – 42) and the mean follow-up time was 14 weeks (range 12 – 18 weeks). 155 (79%) women presented following primary repair of a recognised third degree tear for routine follow-up and the remaining 42 (21%) presented with symptoms of altered continence; 29 (14%) following instrumental delivery and 13 (7%) following spontaneous vaginal delivery. Of those 29(14%) women who presented following instrumental delivery; 24 following failed ventouse forceps and 5 following ventouse delivery alone.

90 (46%) women had symptoms of impaired faecal continence at follow-up, median score 4 ( IQ range 3-8 ). 42 (21% ) women reported symptoms of poor flatal control alone, 34 (17%) poor flatal control and faecal staining women and 14 (7%) symptoms of episodic frank faecal incontinence. 43(22%) of women also complained of debilitating faecal urgency at less than 5 minutes.

192 (97%) women had evidence of anal sphincter injury at trans-anal endosonography. 173 (88%) and internal anal sphincter (IAS) and 167 (85%) an external anal sphincter (EAS) defect. 25 (13%) of women had an isolated full thickness IAS and 19 (10%) women an isolated EAS defect. 148 (75%) women had a combined defect of the IAS and EAS. The median thickness of the IAS measured on the right side was 1.77 (range 0 – 4.8 mm) and on the left side 1.86 (range 0 – 5.5 mm). Only one case with an isolated IAS defect reported symptoms of altered

continence compared to 4 (21%) of those with an isolated EAS defect and all of the latter group had a full thickness defect extending over one or more quadrants. 85 (57%) of those with a combined defect of both sphincters had altered faecal incontinence. 60 (30%) women had a combined partial defect of both sphincters extending over two or more quadrants of whom 54(90%) reported altered faecal continence and 24 (12%) had a full thickness combined defect of both sphincters extending over two or more quadrants of whom 23(96%) reported altered faecal continence and the mean faecal continence scores were significantly higher for those women with a two quadrant full thickness (median score 10, IQ range 8 – 14 ) compared to a two quadrant partial thickness defect (median score 6.28, IQ range 3 – 10,  $p = 0.012$  ). The mean anal sphincter injury score for the study group was 6.13 (range 0 – 15). There was a good correlation faecal continence scores and anal sphincter injury scores ( $r= 0.75$ ,  $p=0.0001$ ). The mean anal sphincter injury score for those with symptoms ( $n=90$ ) of altered faecal continence was 8.4 (range 2 –15) and for those without symptoms ( $n=102$ ) was 4.1 (range 0 – 11,  $p=0.0001$ ).

**Conclusion:** This study demonstrates that standardised radiological grading of obstetric anal sphincter injury correlates with the presence of impaired faecal continence. Standardised grading and reporting of such injury will enable accurate comparison and pooling of data between centers to allow for longitudinal follow-up in a large cohort of women. The latter will allow us to determine the impact of occult obstetric anal sphincter injury on faecal continence in the long-term.