

RESIDUAL DEFECTS OF THE EXTERNAL ANAL SPHINCTER ARE COMMON AFTER OASIS REPAIR

Hypothesis / aims of study

Residual defects of the anal sphincter after primary repair of obstetric anal sphincter injury (OASIS) may not be uncommon, with a reported incidence of 16 to 90% (1,2). Women with anal sphincter defects seem more likely to suffer from defecatory symptoms postpartum (2). The aim of this study was to evaluate the incidence of residual defects of the external anal sphincter (EAS) after primary OASIS repair using translabial ultrasound and to correlate sonographic appearances with defecatory symptoms.

Study design, materials and methods

This was a retrospective cross-sectional analysis of 140 women who attended a perineal clinic at a tertiary hospital between November 2008 and February 2012 at a mean 1.9 (range, 0.84 to 6) months after primary repair of a 3rd/4th degree perineal tear. During the study period, all 3rd/4th degree tears occurring in public patients were supposed to be referred to this clinic. Obstetric data were obtained from the maternity database of the hospital and from patients' medical records. All patients were interviewed regarding defecatory symptoms including Wexner and St Mark's scores, and clinical and translabial ultrasound examinations were performed in the supine position after bladder emptying. Four-dimensional pelvic floor ultrasound data sets were obtained on Valsalva manoeuvre and on pelvic floor muscle contraction (PFMC) using GE 730 Expert or Voluson i ultrasound systems with RAB 4-8Mz transducers. At least one volume was obtained with the whole anal canal included on maximum PFMC. This volume was evaluated with tomographic ultrasound imaging (TUI), producing a set of eight coronal plane slices from the level of the puborectalis loop (Slice 1) to the level of the anus (Slice 8), see Fig 1. A residual defect was considered present if 4 out of the 6 slices from Slice 2 to Slice 7 showed a defect of ≥ 30 degrees, adopted from Sultan's definition using endoanal ultrasound (1). A test retest of 20 cases between 2 observers yielded a Cohen's kappa of 0.68 (95% CI 0.57-0.78) suggesting good agreement. TUI in the axial plane was used to determine the integrity of the levator ani, as previously described (3). Ultrasound volume analysis was performed offline blinded to all clinical data. Defecatory symptoms were correlated with findings of a residual EAS defect and levator avulsion.

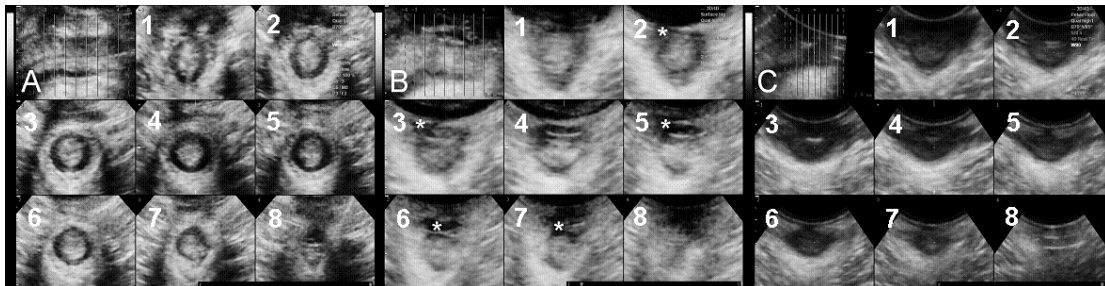


Figure 1: Normal findings (A), residual EAS defect (B) and complete defect (C) on tomographic translabial sphincter imaging.

Results

During the study period 164 women were seen in our Perineal Clinic. Twenty-four were referred for reasons other than OASIS and were excluded from analysis, leaving 140. All results pertain to these 140 women. Mean age was 28.5 years (range 16.8-42.9). Mean parity was 1 (range 1-4), with most being primiparous (n=101, 72%). They were seen after normal vaginal delivery (n= 91, 65%), 43 (31%) had had a vacuum and 6 (4%) a forceps delivery. Mean gestation at delivery was 40 (35-43.5) weeks. Most had been diagnosed with a 3a/3b tear (n=89, 64%), 28 (20%) had a 3c/4th degree perineal tear and 23 (16%) had an unclassified 3rd degree tear. Six multiparous women (6/39, 15%) had a history of prior OASIS in the past, i.e., this was their second such tear. Thirty-five (25%) patients reported defecatory symptoms at follow-up, of whom 24 (27%) had a 3a/3b tear, 6 (21%) a 3c/4th degree tear and 5 an unclassified 3rd degree tear. The median Wexner score was 0 (mean 0.69; range 0-8). Nine patients had a Wexner score ≥ 4 .

On imaging, a residual EAS defect was found in 56 cases (56/140, 40%), 30 (30/89, 34%) in women with a 3a/3b tear, 18 (18/28, 64%) in those with a 3c/4th degree tear and 8 in cases with unclassified 3rd degree tears. Levator avulsion was diagnosed in 27 women (19%). Seventeen women with residual defects reported defecatory symptoms (17/56, 30%). For 6 women with a Wexner score ≥ 4 , the defect was complete i.e. the EAS was abnormal in all 6 slices. A significant association on binary logistic regression was found between a Wexner score ≥ 4 and findings of residual EAS defect on ultrasound (P=0.002), and there was a trend for an association with levator avulsion (P=0.064). On multivariate logistic regression, residual EAS defects (P=0.012; OR 15.9; 95% CI 1.9-135.7) and levator avulsion (P=0.04; OR 4.81; 95% CI 1.1-21.6) were found to be independent risk factors of a Wexner score ≥ 4 (see Table 1). We have also studied the correlation between the St. Mark's incontinence score (SMIS) with findings of residual defects and avulsion. A significant correlation was found between SMIS ≥ 5 and residual EAS defects but not with avulsion (Table 1).

	Wexner score ≥ 4	St Mark's Incontinence Score ≥ 5	
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	Univariate analysis (OR, 95% CI)	P	Multivariate analysis OR (95% CI)	P	Univariate Analysis (OR, 95% CI)	P	Multivariate analysis OR (95% CI)	P
Residual EAS defect	13.7 (1.7-112.6)	0.002	15.9 (1.9-135.7)	0.012	4.44 (1.1-17.6)	0.033	4.75 (1.2-19.1)	0.028
Levator Avulsion	3.7 (0.9- 14.9)	0.064	4.8 (1.1-21.6)	0.041	2.61 (0.7- 9.7)	0.151	2.93 (0.8-11.4)	0.12

Table 1: Univariate and multivariate analysis of the association between residual EAS defects, avulsion and Wexner/ St Mark's scores (n=139).

Interpretation of results

In this observational series from a dedicated perineal clinic, 40% of women were diagnosed with a residual defect of the EAS after primary repair of OASIS on translabial ultrasound. This suggests a need for better training in the detection and repair of major perineal tears. Women with residual defects were more likely to have significant defecatory symptoms as quantified using Wexner and SMI scores, underscoring the importance of proper management of such tears. Levator avulsion may be an independent risk factor for anal incontinence in women after major perineal tears.

Concluding message

This audit of 140 women after OASIS showed a high prevalence of residual EAS defects on translabial tomographic ultrasound. Such defects were associated with symptoms of anal incontinence.

References

1. Ultrasound Obstet Gynecol 2006; 27: 188–197
2. Ultrasound Obstet Gynecol 2010; 36: 368-374
3. Int Urogynecol J 2011; 22: 699-704

Disclosures

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