

BLADDER DYSFUNCTION IN WOMEN AFTER OBSTETRIC ANAL SPHINCTER INJURY

Hypothesis / aims of study

Obstetric anal sphincter injury (OASI) has been shown to have a long term effect on anorectal function (1). It was previously shown that these patients have a high incidence of levator avulsion defects (2), which may be related to other pelvic floor dysfunction symptoms.

The aim of this study was to assess long term changes in bladder symptoms and relevant US findings in women with a previous OASI.

Study design, materials and methods

149 women with a previous OASI were followed prospectively, of which 52 were evaluated at least twice with a minimum of one year follow-up between exams (mean: 23.6 months, range: 13-46). Each follow up included a 4D transperineal ultrasound examination in addition to the standard urogynecological evaluation. Ultrasound volume datasets were obtained with a GE Kretz Voluson 730 system. Comparison was made between the two follow-up exams. Statistics was performed with SPSS software (Wilcoxon test for paired non parametric variables, paired t-test for parametric variables).

Results

Out of 52 parturients – 37 (71.2%) were primipara, the mean age was 29.4 (range: 21-37), mean BMI of 22.1 (range: 17.5 – 34.3) and mean fetal weight was 3341 gr (range: 2530 - 4440). During the follow-up period, 27 women (51.9%) had a second delivery, mostly by cesarean section (21, 77.7%). Differences in bladder and anorectal symptoms are shown in Table 1. Anorectal symptoms did not show significant changes over time, while flatus incontinence remained the most significant symptom. There was a significant tendency for deterioration of urinary stress incontinence, urinary frequency, and prolonged voiding. Prolapse symptoms were minimal and did not change over time.

Table 1: Pelvic floor symptoms following OASI

	1 st FU	2 nd FU	P value
Time from OASI (months), mean (range)	8.6 (1-42)	32.9 (15-70)	
Stress Incontinence	22 (42.3%)	30 (57.7%)	< 0.05
Urge Incontinence	4 (7.7%)	5 (9.6%)	NS
Pad use	3 (5.9%)	1 (1.9%)	NS
Frequency / Urgency	16 (31.4%)	23 (44.2%)	0.09
Toilette use	33 (58.9%)	39 (75%)	<0.05
Nightly urination	14 (28%)	12 (23.1%)	NS
UTI	5 (9.8%)	7 (13.7%)	NS
Prolonged urination	4 (7.8%)	12 (23.6%)	<0.05
Residual feeling	17 (33.3%)	23 (44.2%)	NS
Fecal incontinence	6 (11.8%)	6 (9.8%)	NS
Fecal urgency	20 (39.2%)	14 (26.9%)	NS
Flatus incontinence	28 (54.9%)	35 (67.3%)	NS

Ultrasound findings are summarized in Table 2. Significant increase in bladder neck mobility and a tendency towards an increased urethral height were observed. Levator avulsion rate decreased significantly over time, especially bilateral avulsions. No changes were observed in the residual urine volume.

Table 2: US findings following OASI

	1 st FU	2 nd FU	P value
US urethral width (mm)	6.29+1.22	6.28+1.28	NS
US urethral height (mm)	32.2+1.45	36.3+2.2	0.08
Bladder neck mobility (mm)	8.13+7.19	16.02+10.12	< 0.01
Any avulsion	34 (65.4%)	20 (38.5%)	<0.01
Unilateral avulsion	12 (23.1%)	12 (23.1%)	N.S.
Bilateral avulsion	23 (44.2%)	8 (15.4%)	< 0.01
US residual volume (ml)	16.25+17.4	12.45+18.1	NS

Interpretation of results

Women following OASI tend to have a significant increase in stress urinary incontinence rates and urinary frequency symptoms over follow-up time, accompanied by an increased bladder neck mobility and urethral height. Anorectal symptoms did not change over time, while levator avulsion rate decreased.

Concluding message

Patients with OASI have deterioration of urethral function with time. .

References

1. Samarasekera DN, Bekhit MT, Wright Y, Lowndes RH, Stanley KP, Preston JP, Preston P, Speakman CT. Long-term anal continence and quality of life following postpartum anal sphincter injury.. *Colorectal Dis.* 2008 Oct;10(8):793-9.
2. Heilbrun ME, Nygaard IE, Lockhart ME, Richter HE, Brown MB, Kenton KS, Rahn DD, Thomas JV, Weidner AC, Nager CW, Delancey JO. Correlation between levator ani muscle injuries on magnetic resonance imaging and fecal incontinence, pelvic organ prolapse, and urinary incontinence in primiparous women. *Am J Obstet Gynecol.* 2010 May;202(5):488.e1-6.

Disclosures

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