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LONG TERM FOLLOW-UP OF WOMEN WITH 3RD AND 4TH DEGREE PERINEAL TEARS USING TRANSPERINEAL ULTRASOUND

Hypothesis/aims of study

Perineal tears, specifically the 3rd and 4th degree types, are a rare but widely recognized form of severe labor trauma. Despite immediate primary surgical repair of the damaged muscle, there are long-term sequelae in the form of fecal incontinence, urgency, dyspareunia, and urinary incontinence or voiding dysfunction. Previous follow-up studies on the outcome of perineal trauma involving the anal sphincter report anal incontinence developing in one third to one half of patients (1,2). The aim of our study was to conduct long term follow up of women who had suffered 3rd and 4th degree perineal tears with the aid of 3D transperineal ultrasound.

Study design, materials and methods

53 women with 3rd and 4th degree perineal tears were enrolled in a prospective follow-up study. All were recalled for follow up assessment and 44 (83%) attended. The enrollment and follow up visits included an interview, standardized pelvic floor questionnaire, and a Cleveland Clinics Incontinence Score questionnaire (CCIS). Transperineal pelvic floor ultrasound was performed with an abdominal RAB 4-8 MHz probe (GE Kretz Voluson 730 expert system) supine and after voiding. The ultrasound assessment included bladder neck mobility, prolapse estimation, and sphincter measurements and characteristics. Offline ultrasound analysis (GE Kretz 4DView 5.0) was performed blinded against clinical data. Statistical analysis was performed with SPSS. A p-value<0.05 was considered statistically significant.

Results

The median age was 30 years (range 21-37), median height 1.62 (range 1.41-1.80), BMI 22.1 (range 17.7-34.3), and 74.4% were nulliparas. The mean birth weight in the delivery with the perineal tear was 3394 grams (range 2530-4440), the gestational week was 40 (37-42) and 60.5% were male fetuses. The second stage duration was 115 minutes (2-264), with 31.6% above 180 minutes and 50% above 120 minutes. The mode of delivery had been spontaneous vaginal (72.1%), vaccum-extraction (18.6%), forceps (4.7%), and combined vaccum-forceps (4.7%). The epidural rate was 83.7%, and episiotomy was performed in 62.8%. Occipitoposterior and occipitotransverse lies were observed in 21.4 and 7.1%, respectively. The mean time from delivery to enrollment was 256 days (30-850), to the latest follow up 845 days (range 342-1314), and between enrollment and last assessment 602 days (range 367-753). 14 women (31.8%) had undergone a repeat delivery during the follow up time: 11 by elective cesarean section and 3 spontaneous vaginal births. 9 women (20.5%) were pregnant at the time of the last follow up visit (mean gestational week 20 weeks (range 9-29)).

At the follow up visit patients reported more symptoms of stress incontinence, urinary urgency and voiding dysfunction. Flatus incontinence was more commonly reported, and the CCIS was higher, but did not reach statistical significance. On ultrasound, bladder neck mobility was significantly increased at the follow up visit with a higher rate of cystocele and rectocele. The sphincter findings showed a decrease in defect size and morphological descriptive characteristics of the sphincter seem to improve somewhat, except for the mucosal star sign. Despite this, longitudinal measurements of the sphincter were shorter, and measurements in the transverse section showed significantly thicker external anal sphincter (EAS) size and significantly thinner internal anal sphincter (IAS) size. A thinner IAS at the follow up visit was found to correlate significantly with fecal incontinence, urgency, flatus incontinence and the total CCIS (Spearman's rho -4.4—5, all p<0.05) See Table 1 for a comparison between findings in the questionnaires, and Table 2 for a comparison between sonographic sphincter findings and measurements at enrollment and last follow up visit.

Parameter	Enrollment visit (%)	Follow-up visit (%)	P value
Stress incontinence	40.5	45.2	<0.05
Overflow incontinence	31	28.6	<0.05
Urinary Urgency	31	33.3	0.06
Residual feeling	31	38.1	<0.05
Prolapse sensation, rectal	7.1	14.3	<0.05
Fecal incontinence	12.2	9.8	0.066
Fecal urgency	38.1	31	<0.05

Flatus incontinence	54.8	71.4	0.078
Dyspareunia	50	50	0.14
CCIS – hard stool	20.5	9.5	<0.05
CCIS - total score (mean)	2.8±3.36 (0.11)	3.43±4.4 (0-22)	0.85

Table 1: Comparison between questionnaires at the initial and follow up visits

Parameter	Enrollment visit	Follow-up visit	P
Bladder neck mobility	6.46 ± 5.5(0-22.2)	17.2 ±9.85(0-43)	<0.001
Cystocele	35.7 %	66.7 %	0.63
Rectocele	32.6 %	60.5 %	0.49
Perineal body length	16.9±3.33	16.26±3.34	0.35
IAS longitudinal length	34.06±6.69	30.15±4.95	<0.05
EAS 12 o'clock	5.87±2.06	7.53±3.14	<0.05
EAS 3 o'clock	3.48±0.83	4.43±0.89	<0.001
EAS 6 o'clock	3.69±1.27	4.46±0.96	<0.01
EAS 9 o'clock	3.79±0.99	4.39±1.01	<0.05
IAS 12 o'clock	2.74±1.25	2.2±1	<0.05
IAS 3 o'clock	3.07±0.82	2.58±0.98	0.001
IAS 6 o'clock	2.91±1.15	2.27±0.98	<0.05
IAS 9 o'clock	3.17±1.1	2.64±1	<0.05
Abnormal mucosal star	52.3%	84.1%	0.25
Half moon sign	27.9	25.6	0.13
Thick EAS 12	76.7	74.4	0.21
Discontinuity 12 o'clock	83.7	60.5	0.26
Interrupted IAS	59.1	43.2	0.08
Maximal defect size	8.39±3.54	6.67±3.04	<0.05

Table 2: Comparison between sonographic sphincter findings and measurements at the initial and follow up visits. Measurements are in mm, descriptive characteristics are in percentages.

Interpretation of results:

This ongoing prospective study shows the evolution of symptoms and sonographic signs in women who have suffered 3rd and 4th degree perineal tears during traumatic labor. There seems to be a trend towards increased symptom severity in women with persistent signs, especially in those with a thin IAS width. This highlights the need for primary prevention measures.

Concluding message

Women who have had 3rd and 4th degree perineal tears continue to endure long term debilitating anorectal and other pelvic floor dysfunction symptoms, and continue to have abnormal sphincter findings on transperineal ultrasound.

References:

1. BMJ 1994;308:887-91
2. Obstet Gynecol 1997;89:896-901

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Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
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Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**