

## A PROSPECTIVE COHORT STUDY OF VAGINAL DELIVERY AFTER A PREVIOUS ANAL SPHINCTER TEAR

### Hypothesis / aims of study

Women who have a history of anal sphincter tear during childbirth have an increased risk of fecal incontinence. The risk of worsening or new onset fecal incontinence after another vaginal birth is not well known. We aimed to evaluate this risk, and evaluate potential predictors of poor outcome.

### Study design, materials and methods

We conducted a prospective cohort study of 120 women who had a history of an anal sphincter tear and had another vaginal birth. During the last trimester of pregnancy and three months post partum, we evaluated fecal incontinence with a questionnaire. Antenatally, we also assessed the presence and importance of an anal sphincter defect on endosonography and the resting and squeeze pressure of the anal sphincter. The study was approved by the institutional review board, and written consent was given by each participant.

### Results

Antenatally, incontinence to flatus was reported by 30% of the women, to liquid stools by 9%, and to solid stools by 2%. 13% reported soiling. Antenatal endosonography revealed 17% defects of the internal anal sphincter, 13% intact external anal sphincter, 47% minor defects (less than 50% reduction in the external sphincter thickness), and 33% major sphincter defects (50% or more reduction in the external sphincter thickness). 7% of the women had an operative vaginal delivery, 29% an episiotomy (mostly mediolateral), and 9% had a repeat sphincter tear. Three months post-partum, incontinence to flatus was reported by 53% of the women (difference with antenatal symptoms 23%, 95%CI 12-33,  $P < 0.001$ ), to liquid stools by 4% (difference -5%, 95%CI -12 to 2,  $P = 0.11$ ), and to solid stools by 2% (difference 0%). 17% reported soiling (difference 4%, 95%CI -2 to 11,  $P = 0.17$ ). Three months post-partum, new onset flatus incontinence was reported by 29% of the women, new liquid stools incontinence by 3%, new solid stools by 2%, and new soiling by 7%. No factor significantly predicted worsening symptoms. Among the 15 women with an intact anal sphincter on endosonography, only 13% had new onset flatus incontinence, while among those with a sphincter defect the proportion was 31% (risk ratio 2.4, 95%CI 0.6-8.9,  $P = 0.15$ ). When questioned about their preference for a future delivery, 65% would opt again for a vaginal delivery, 23% were uncertain, and 11% would prefer a cesarean section.

### Interpretation of results

The majority of women with a previous anal sphincter tear have a sphincter defect on endosonography and a significant proportion report minor fecal incontinence symptoms during pregnancy. The proportion of minor symptoms substantially increases after the second delivery. No factor accurately predicted new or worsening symptoms, but the power of the study to detect these factors was limited. A minority of women with a previous sphincter tear experience major fecal incontinence after another vaginal birth. A minority would prefer a cesarean section for another delivery.

### Concluding message

Women with a history of anal sphincter tear have an increased risk of incontinence to flatus after a second vaginal delivery.

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