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DO LEVATOR DEFECTS INCREASE THE RISK OF PROLAPSE RECURRENCE AFTER PELVIC FLOOR SURGERY?

Hypothesis / aims of study

The surgical treatment of pelvic organ prolapse remains problematic due to high recurrence rates. One potential reason for recurrence may be impairment of pelvic floor integrity due to childbirth- related trauma to the puborectalis muscle, i.e., avulsion injury (1). In this study we evaluated the hypothesis that avulsion injury predisposes to prolapse recurrence after hysterectomy and/or anti- incontinence/ prolapse surgery.

Study design, materials and methods

We retrospectively evaluated 737 consecutive data sets of patients who had presented to a tertiary urogynaecology unit for the investigation of female pelvic organ prolapse and lower urinary tract dysfunction. All underwent a standardised interview including a detailed surgical history, a clinical assessment including ICS POP-Q and vaginal palpation for levator trauma (2), as well as 4D pelvic floor ultrasound using a Voluson 730 expert system with RAB 8-4 MHz volume transducer after voiding and supine (3). An avulsion injury was diagnosed on tomographic ultrasound, although findings on palpation were used to confirm findings.

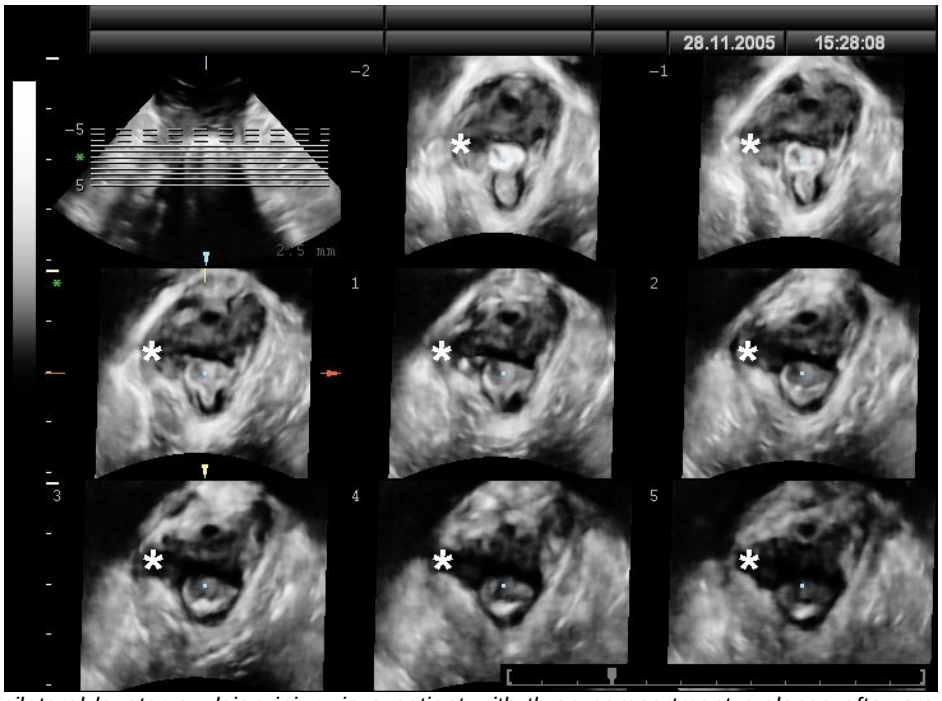

Figure: Unilateral levator avulsion injury in a patient with three compartment prolapse after previous hysterectomy. The asterisk denotes a right-sided defect as demonstrated on tomographic pelvic floor ultrasound (visible on the left hand side of individual slices).

Results

A total of 737 patients were included in this study, of whom 656 (89%) had delivered vaginally. Mean age was 55 (range, 18- 89). They presented with stress urinary incontinence (n= 515, 69.7%), urge urinary incontinence (n= 509, 68.9%) and symptoms of prolapse (n= 326, 44.2%). Two hundred and forty eight (33.6%) reported a previous hysterectomy, 165 patients (22.4%) had undergone incontinence or prolapse procedures, 106 (14.4%) reported anterior repairs and 45 patients (6.1%) had undergone colposuspension procedures. In all four groups avulsion injury was associated with objective prolapse, i.e., ICS POP-Q stage 2 in at least one compartment (see Table 1).

Previous surgery	**Relative Risk (CI)**	**Odds Ratio (CI)**	**Significance level**
Hysterectomy (any indication, n= 248)	3.25 (1.95- 5.71)	5.99 (2.97- 12.06)	P< 0.001
Incontinence or prolapse procedure (n= 165)	2.65 (1.55- 4.82)	4.35 (2.01- 9.4)	P < 0.001
Anterior Repair (n= 106)	2.29 (1.2- 4.74)	3.37 (1.32- 8.54)	P= 0.01
Colposuspension (n= 45)	2.43 (1.09- 6.2)	4.33 (1.17- 15.87)	P= 0.028

Table 1: Relative risk and odds ratio of objective prolapse (ICS POP-Q stage 2+) in women with levator avulsion after pelvic floor surgery. CI= 95% confidence interval.

Symptoms of prolapse were associated with avulsion injury post hysterectomy, incontinence or prolapse procedures and after anterior repairs, but not after colposuspension (see Table 2).

Previous surgery	Relative Risk (CI)	Odds Ratio (CI)	Significance level
Hysterectomy (any indication, n= 248)	1.51 (1.17-1.86)	2.49 (1.39- 4.48)	P= 0.002
Incontinence or prolapse procedure (n= 165)	1.46 (1.08- 1.91)	2.27 (1.16- 4.44)	P= 0.016
Anterior Repair (n= 106)	1.40 (0.95- 1.92)	2.06 (0.91- 4.69)	P= 0.085
Colposuspension (n= 45)	1.06 (0.57- 1.79)	1.13 (0.34- 3.68)	n.s.

Table 2: Relative risk/ odds ratio of symptoms of prolapse (vaginal lump / dragging sensation) in women with levator avulsion after pelvic floor surgery. CI= 95% confidence interval.

Interpretation of results

In this large retrospective study in a cohort of women symptomatic for pelvic floor dysfunction and/ or urinary tract discorders, recurrent pelvic organ prolapse and symptoms of prolapse were significantly more common in women with levator avulsion injury. This was true for women with previous hysterectomy as well as after anti- incontinence or prolapse surgery. If avulsion injury is confirmed in prospective studies as a risk factor for prolapse recurrence then such a finding may help in identifying patients likely to benefit from modern mesh implants.

Concluding message

Levator avulsion is likely to be a risk factor for recurrent or de novo pelvic organ prolapse after hysterectomy, anti- incontinence and prolapse surgery.

References

1. Br J Obstet Gynaecol 2008; 115: 979-984
2. Int Urogynecol J 2008; 19: 1097-1101
3. Ultrasound Obstet Gynaecol 2007; 29(3): 329- 334

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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?	**No**