Is pelvic floor muscle contractility an important factor in anal incontinence?

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Introduction:
Pelvic floor muscle (PFM) contractility may contribute to anal continence (AI). The aim of our study was to assess associations between clinical and sonographic measures of PFM contractility and AI symptoms, while controlling for sphincter and levator trauma.

Methods:
This is a retrospective study on 1383 women assessed at a tertiary centre between 5/13 and 7/16. Patients were assessed by interview, examination including Modified Oxford Scale (MOS) grading, and 4D transperineal ultrasound (TPUS).

Bladder neck (BN) cranioventral shift and hiatal anteroposterior diameter reduction were measured offline, blinded against all clinical data, from ultrasound volumes obtained at rest and on maximal PFM contraction. Possible confounders such as levator avulsion, hiatal area on valsala, enterocele, true rectocele and external anal sphincter defects were assessed on TPUS.

Results:
Mean age was 55 (range, 16-89) years and mean BMI was 29 (16-66) kg/m². Anal Incontinence was reported by 225 (16%), with a median St Mark’s score of 12 (IQR 8-16).

Median Modified Oxford Grade was 3 (IQR 1.5-3), while mean cranioventral shift of the bladder neck was 5.62 ± 4.9 mm (range, -41-29) and mean hiatal anteroposterior diameter reduction was 0.82 ± 0.5 mm (range, -0.1-3).

On translabial tomographic imaging, avulsion and significant EAS defects were diagnosed in 24% and 8.7% respectively. On univariate analysis, sonographic measures of PFM contractility were not associated with AI symptoms (see Table).

Lower MOS was significantly related to symptoms of AI, however, statistical significance was lost on multivariate analysis, controlling for above confounders.

Conclusions
Clinical and sonographic measures of PFM contractility were not significantly associated with AI symptoms in this large retrospective study, once anal sphincter and levator trauma were controlled for.