

Avulsion defect and cystocele - is there a link?

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Objective: We aimed to determine the prevalence of levator trauma in patients with cystocele, in an attempt to shed light on potential pathophysiological mechanisms.

Methods: We reviewed the datasets of 222 women, who had undergone physical examination, urodynamics, and 4D pelvic floor US (GE Kretz Voluson 730 expert), for prolapse, levator biometry and avulsion, using tomographic ultrasound imaging (TUI). Cystoceles reaching below the symphysis pubis were classified based on bladder neck position, retrovesical angle (RVA) and urethral rotation as Green II i.e. cystourethrocele ($RVA \geq 140^\circ$), or Green III ($RVA < 140^\circ$). US analysis was performed offline (GE Kretz 4DView 5.0) blinded against all clinical and urodynamic data.

Results: Mean age was 55 years, median parity 3. Patients presented with stress incontinence (SI, 78%), urge incontinence (UI, 72%), frequency (31%), nocturia (48%), voiding dysfunction (VD, 24%), and prolapse (70%). Urodynamic testing showed SI (67%), UI (25%), VD (30%), and sensory urgency (16%). 39 datasets were excluded from analysis due to previous surgery. 103 women had a cystocele below the symphysis pubis and were classified as Green II (62) or Green III (41). Women with Green III cystocele were older, had more severe prolapse, but less SI. They were more likely to have objective VD, larger bladder capacity and larger residual volumes. Women with Green III cystoceles were more likely to suffer from levator avulsion defects and showed a higher number of abnormal slices on TUI. Hiatal dimensions were higher in Green III, especially on pelvic floor muscle contraction.

Conclusions: A cystocele with intact RVA is more likely to be associated with avulsion defects of the levator ani and thus more likely to be caused by birth related trauma. This contradicts the commonly held belief that such cystoceles are due to central rather than lateral defects.