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CORRELATION OF MRI FEATURES OF URETHRAL DIVERTICULUM AND STRESS URINARY INCONTINENCE

Hypothesis / aims of study
The complexity of urethral diverticulectomy depends on location, size and degree of circumferential involvement
To assess whether certain MRI features can predict functional outcome after surgery for urethral diverticulum (UD).

Study design, materials and methods
A prospectively acquired database of all patients who have had surgical excision of UD at a tertiary centre since 2004 was reviewed.
Particular focus was pre- and post operative stress urinary incontinence (SUI), and pre-operative MRI features.
MRI parameters examined included

- diverticular volume,
- degree of circumferential involvement around the urethra,
- distance of the os of UD to bladder neck and
- urethral length.

Students T-Tests were used to compare rates of de novo SUI.

Results
There were 100 patients (mean age 45.8yrs) with a minimum follow up of 6 months (range 6-112 months).
Twenty-six patients had SUI before excision, whilst 18 patients developed de-novo SUI post excision which resolved within 12 months in 5 patients with conservative measures.
Full MRI data was available for 71 patients. MRI parameters and functional outcomes are shown in Table 1.

Table 1: MRI features and SUI outcomes in the 71 patients with MRI data.

	No SUI pre-op (n=52)	SUI Pre-op (n=19)	No SUI Post op (n=46)	De-novo SUI post op at 6/12 (n=12)
Median Diverticular volume (cm3) (range)	8.8 (0.1-49.8)	3.4* (0.7-28.5)	7.77 (0.1-49.8)	10.3 (2.1-39.6)
Number (%) of patients within each quadrant of Circumferential Angle around urethra				
<90º	0 (0%)	1 (5%)	0 (0%)	
90-180º	11 (21%)	6 (32%)	11 (24%)	1 (8%)
>180-270º	11 (21%)	6 (32%)	12 (26%)	3 (25%)
>270-360º	27 (52%)	6 (32%)	22 (48%)	8 (67%)
Median Distance of Os to Bladder neck (mm) (range)	17 (4-27)	16 (8-28)	18 (4-25)	17 (12-28)
Urethral Length (mm) (range)	38 (27-54)	33* (27-42)	36 (28-45)	38 (27-43)

Interpretation of results
26% of all patients had pre-op SUI, and diverticula volume and urethral length was significantly smaller in this group.
67% of patients developing de novo USUI had a complex diverticulum angle 270-360°.

Concluding message

In general this was a complex group of urethral diverticula with >66% having a complex diverticular angle >270°.
Two thirds of patients with de-novo SUI had a complex diverticulum angle 270-360°.
Whilst there was a trend towards increased diverticular volume in those with de-novo SUI this did not reach significance due to relatively small sample size.

References

1. Greenwell TJ, Spilotros M. Urethral diverticula in women. Nat Rev Urol. 2015 Dec: 12:671-80

Disclosures

Funding: nothing to disclose **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** This is a prospective series of surgical outcomes after excision of urethral diverticula. This was all part of normal clinical practise. No ethics was required. **Helsinki:** Yes **Informed Consent:** Yes