

Anatomical Characteristics Of Artificial Urinary Sphincter Cuff Erosion Are Similar For Transcorporal And Standard Approach: Whither The Protective Effect?

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INTRODUCTION

- Urethral cuff erosion remains a serious complications of Artificial urinary sphincter (AUS) placement.
- Transcorporal (TC) cuff placement has been used to decrease the risk of erosion.
- The difference in anatomic characteristics of standard (ST) and transcorporal (TC) AUS cuff erosions has not been well studied.

OBJECTIVE

- To compare and describe the location and magnitude of AUS cuff erosions and their associated clinical implications.

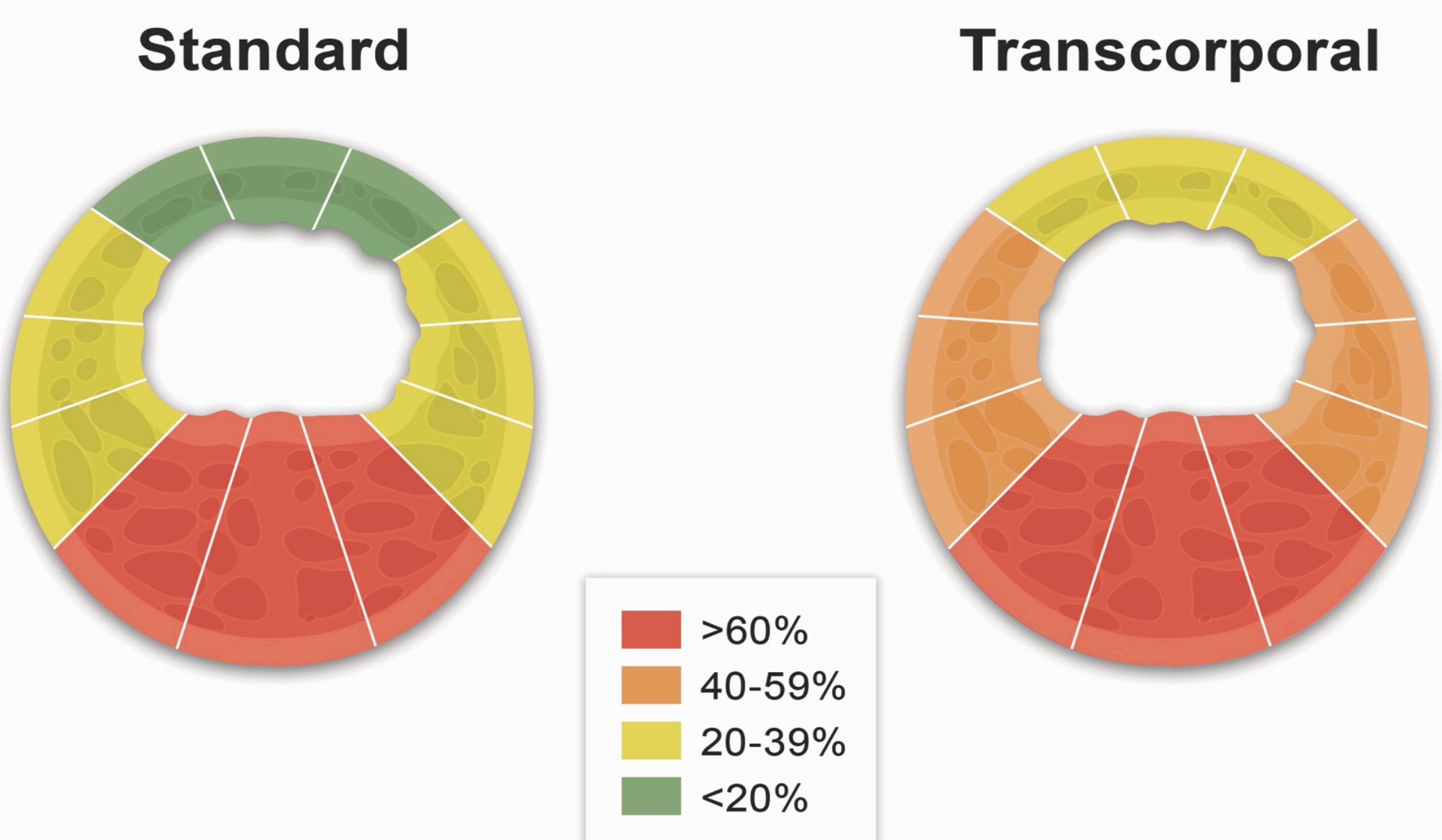
METHODS

- Retrospective review was conducted of all patients undergoing AUS explantation secondary to urethral cuff erosion 2007-2019.
- Operative reports were reviewed to obtain location and magnitude of erosions in both TC and ST AUS groups.
- Cuff erosion data was used to generate a “heat map” of the urethra.
- Difference in time to erosion was studied via Cox regression analysis.

DEMOGRAPHICS

	OVERALL	ST	TC	P-VALUE
Median Months to Follow-Up (IQR)	4.4 (1.6--10.7)	4.4 (1.5--10.5)	4.5 (1.6--10.7)	0.7
Mean Age in Years at Surgery (Range)	70.6 (24.0-91.1)	70 (24.1-91.1)	73.8 (41.1-89.3)	<0.05
Median Months to Erosion (IQR)	8.4 (3.4--24.5)	10.9 (4.7--38.6)	6.03 (2.1--10.8)	0.2
3.5cm Cuff	214/723 (29.6%)	208/641 (32.4%)	6/82 (7.3%)	<0.05
History of Radiation	275/723 (38.0%)	222/641 (34.6%)	53/82 (64.6%)	<0.05
Prior AUS	109/723 (15.1%)	65/641 (10.1%)	44/82 (53.7%)	<0.05
Prior Cuff Erosion	34/723 (4.7%)	17/641 (2.7%)	17/82 (20.7%)	<0.05
Prior Urethroplasty	38/723 (5.3%)	31/641 (4.8%)	7/82 (8.5%)	0.1
DM	148/723 (20.5%)	132/641 (20.6%)	16/82 (19.5%)	0.8
CAD	111/723 (15.4%)	95/641 (14.8%)	16/82 (19.5%)	0.2
HTN	414/723 (57.3%)	367/641 (57.3%)	47/82 (57.3%)	0.9

AUS HEAT MAP



Distribution of urethral erosions among patients with standard and transcorporal cuff placement.

TIME TO EROSION ANALYSIS

	Hazard Ratio	95% Confidence Interval	P-Value
Placement (ST vs TC)	1.6	0.8 – 3.1	0.1
Prior Urethral Surgery	6.0	3.1 – 11.5	<0.05
Prior AUS Erosion	0.5	0.2 – 1.1	0.1
History of Radiation	3.5	1.9 – 6.5	<0.05
Cuff Size (3.5-cm versus others)	1.3	0.7 – 2.5	0.3
Diabetes	0.9	0.4 – 1.8	0.7
Coronary Artery Disease	3.7	2.1 – 6.4	<0.05
Hypertension	0.9	0.5 – 1.7	0.9

RESULTS

- Erosion developed in 15/82 (18.3%) TC AUS and 39/641 (6.1%, $p<0.05$) ST AUS.
- Ventral erosions were the most common location in both groups (79.5% ST and 66.7% TC).
- The dorsal urethra was the least common erosion location in both groups (5.1% ST and 20% TC).
- Erosions were the of similar magnitude in both groups (45% ST and 52% TC, $p=0.2$).
- History of radiation, prior AUS and prior cuff erosion were more common among TC AUS.
- There was no significant difference in time to erosion between cuff placement technique (ST versus TC), cuff size or comorbidities.

CONCLUSIONS

- AUS cuff erosions occur predominantly in the ventral area of the urethra regardless of cuff placement technique.
- Dorsal erosions were the least common in both groups.
- Time to erosion in both group was similar.
- The protective effect of TC AUS could not be conclusively demonstrated.