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PREOPERATIVE PAD WEIGHT AND PAD NUMBER AS A PREDICTOR OF FAILURE OF SINGLE CUFF ARTIFICIAL URINARY SPHINCTER

Hypothesis / aims of study

Urethral atrophy is a well described complication of implantation of the artificial urinary sphincter (AUS). One way to manage this complication is to place two AUS cuffs in tandem. AUS cuffs can also be implanted in tandem if the degree of incontinence is severe. It is difficult to predict, however, which patients would be better served with an alternate type of cuff implantation from the outset, either because of atrophy or severe incontinence. We aim to determine if the preoperative pad test can predict the chance of failure of the single cuff AUS due to urethral atrophy and ultimately, the potential need for an alternate cuff placement and quantify the degree of incontinence associated with failure.

Study design, materials and methods

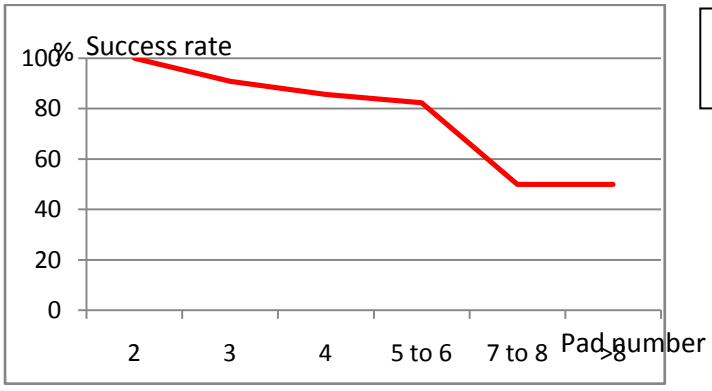
An institutional retrospective chart analysis was performed in patients with post-prostatectomy urinary incontinence (PPI) who underwent implantation of the AUS from 2005 onwards. Fifty five men with PPI were implanted with a single cuff AUS. Ten patients who underwent a primary tandem AUS were also included in the analysis. Pre operative pad weight and pad numbers were recorded. Success is defined as 0-1 pad usage per day.

Results

The average follow-up was 25 months (range = 4-44 months). Of the 55 patients who underwent single cuff implantation, the success rate was 87.3% (48/55). The average preoperative pad weight and pad numbers were 518.5 grams and 5 among the successful and 1560.9 grams and 7 for those who failed, respectively (Table 1). Of the 10 patients who had a primary tandem cuff AUS implanted, the success rate was 70%. The average preoperative pad weight in this group was 1646.7 grams and the pad number was 9. Only 4 patients were converted from single to tandem cuffs. Of these, the average preoperative pad weight and pad number were 2385.4 grams and 6 pads, respectively. A pre operative pad weight of greater than 800 grams was associated with a success rate of only 33.3%. Pad weights less than 800 grams were associated with a 100% success rate. A risk assessment of pad numbers show that a pad number >6 is associated with a significantly reduced success rate (Graph 1).

	Success	Failure
Pad Weight (gm)	519 (SD= 232)	1561 (SD=479) (p=0.283)
Pad Number	5 (SD=2.5)	7 (SD= 3.4) (p=0.028)

Table 1: Pre operative pad weight and pad number as a predictor of success and failure of the single cuff AUS.



Graph 1: Risk assessment of pre operative pad numbers and success of the single cuff AUS.

Of the single cuff AUS group, 27 patients were implanted with a 4cm cuff, 21 with a 4.5 cm cuff and 7 with a 5 cm cuff. The revision rate was 29% due to atrophy in 12.7 %, erosion in 3.6 %, infection in 5.4 % and malfunction in 7.2 %. 27% of patients were treated with pre-implantation radiation therapy and the majority of patients had undergone pre-AUS incontinence procedures.

Interpretation of results

Despite some of the limitations of the 24-hour pad test, this study has tried to quantify the chance of failure of a single cuff AUS based on the pre operative pad weights and numbers. Statistical significance was reached for pad numbers and not for pad weights and this may have been due to incomplete data for the pad weights.
This population represents a complicated casemix with a high proportion of exposure to radiotherapy and previous surgeries. This may explain the high numbers of smaller cuff sizes used and the revision rate stated.

Concluding message

A preoperative pad test of >6 and a pad weight of >800 grams appears to be associated with a higher failure rate of single cuff AUS in the PPI group. Patients with high preoperative pad numbers or weights should be considered for alternate cuff procedures at their primary procedure, such as tandem cuff AUS. The success rate of primary tandem cuff AUS has a good success rate.

Specify source of funding or grant	**Nil**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**MD Anderson Cancer Center local ethics committee**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**