

# Salvage Surgical Procedure for Artificial Sphincter AMS 800® After Urethral Erosion

## Objectives

The artificial urinary sphincter (AUS) is still the standard treatment of male stress urinary incontinence (SUI) caused by sphincter deficiency and offers good outcomes and patient's satisfaction (1). As expected with any other prosthetic device, complications including mechanical failure, infection or erosion are reported. The most studies recommend an explantation of the entire device in case of erosion (2,3). However, in case of isolated urethral erosion without urinary tract infection (UTI) and if no device malfunction is identified, it can be appropriate to remove only the cuff and to preserve the tubes. The aim of this retrospective, single center study was to report on the impacts of an isolated explantation and possible replacement of the urethral cuff after erosion.

## Methods and Materials

We evaluated clinical outcomes in patients with artificial urinary sphincter after the explantation of the urethral cuff and preserving the remaining components.

All cases had sterile urine cultures. We included 13 patients between 2006 and 2018. The median age of the patients at the time of the surgery was 74.7 year (mean 75yr). After preparation of the urethra, the tubes were clamped, the cuff was removed, and the previously separated parts of the tubes were left in situ. A transurethral catheter was left in place for 4-6 weeks to allow the urethra to heal. (Fig. 1)

The cuff explantation was performed in 17 cases (3 patients with recurrent erosions). The remaining components of the device were sealed using the AMS 800 Repair Kit.

The explantation of the cuff was performed in an average time of 45.4 months (median=21) after initial AUS-implantation. All the explanted components were completely unremarkable. There were no intra- or postoperative complications and the mean operation time was 27.9 minutes.

**Table 1.** Characteristics

	n	Mean	Median	Range
Included patients	13			
Sealed devices because of urethral erosion	17*			
Patients with adjuvant Radiotherapy	4			
Patients with previous incontinence surgeries	6			
Age (yr.)		74.7	75	62.1-88.5
Time between initial AUS-Implantation and explantation of the cuff (mo)		45.4**	21	1.8-142.1

\* 3 patients with recurrent erosions  
\*\* In 5 cases the explantation was performed  $\geq$  5 yr. after initial AUS-implantation

**Table 2.** Results

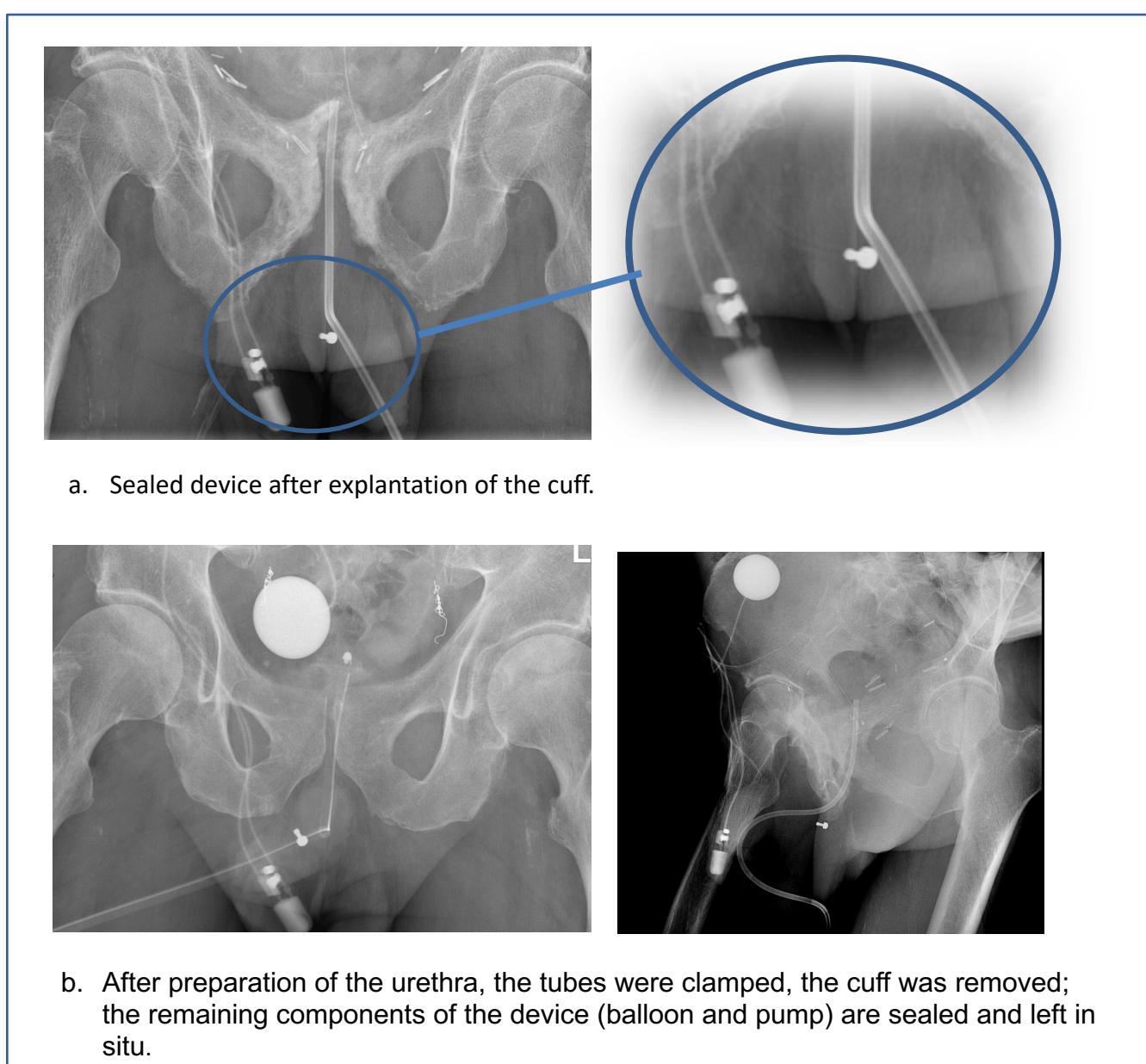
n= 13		
Follow-Up (mo)		
mean		32,9
median		52.3
range		18.1-127,2
Preserved AUS n (%)		13 (100%)
Secondary surgery due to recurrent erosion		3 (23,1%)
Cuff replacement		11 (91,7%)

## Results

After an average observation period of 52.6 months (median 32.9) no explantation of the remaining components (pump and balloon) was performed due to infection or mechanical failure. In one case a suprapubic urinary diversion with ileum conduit was indicated, consequently the AUS was no longer needed. 11 patients received a cuff replacement within a median of 4.4 months (range 2.8-64.7). A distal cuff location was used as an alternative for 2 challenging cases, all transcortical cuffs were placed easily and no recurrent erosion was reported. In one case a cuff replacement was not performed at the time of collection of the data due to patient's state of health.

Secondary surgeries due to recurrent erosion were performed in 3 patients, all three had previous radiotherapy and several incontinence surgeries.

**Figure 1.** sealed device with AMS 800® Repair Kit



## Discussion

By isolated explantation of the cuff after urethral erosion, we preserved 100% of the remaining devices. Additionally, this procedure enables the surgeon to keep the operation time as short as possible, this can be requested in case of patients in poor general condition.

Moreover, we were able to replace the urethral cuff in a second procedure in more than 80% of the cases and all the devices were in situ at the time of data collection with no sign of infection or mechanical failure.

Transcortical cuff placement is a useful alternative for challenging cases after urethral atrophy or erosion, this technique protects the urethra from intraoperative dissection injury and is associated with a lower rate of recurrent erosion (4). In this cohort we investigated in a transcortical cuff replacement in 2 cases, there was no erosion or infection of the transcortically placed cuffs.

For reasons mentioned above, salvage surgical procedures for artificial urinary sphincter should be performed with preservation the components, whenever it is possible.

## Conclusions

In this cohort, no secondary explantation of the AUS was performed due to infection or mechanical failure. We were able to preserve the AUS in all the cases and replace the missing components in 84,6% (n=11).

A transcortical cuff location offers significant advantages in case of revision and should be preferred for challenging cases to reduce the risk of recurrent erosion. This procedure requires a strong indication and should only be performed in patients with sterile urine cultures.

## References

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