

#461 Penile prosthesis implantation: A long-term follow-up in patients with neurogenic disorders.

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Hypothesis / Aim of study

Spinal cord injury (SCI) causes neurogenic lower urinary tract dysfunction (NLUTD). For male tetraplegic SCI patients with detrusor overactivity, reflex voiding into urinary condoms can be established. Penile retraction complicates the secure attachment of the urinal condom. Penile prosthesis (PP) implantation can increase the adhesive surface area. On the other hand, complications such as infections and technical failures of the PP are common. This study aims to examine the long-term results of PP in SCI patients, to determine the treatment's long-term practicability.

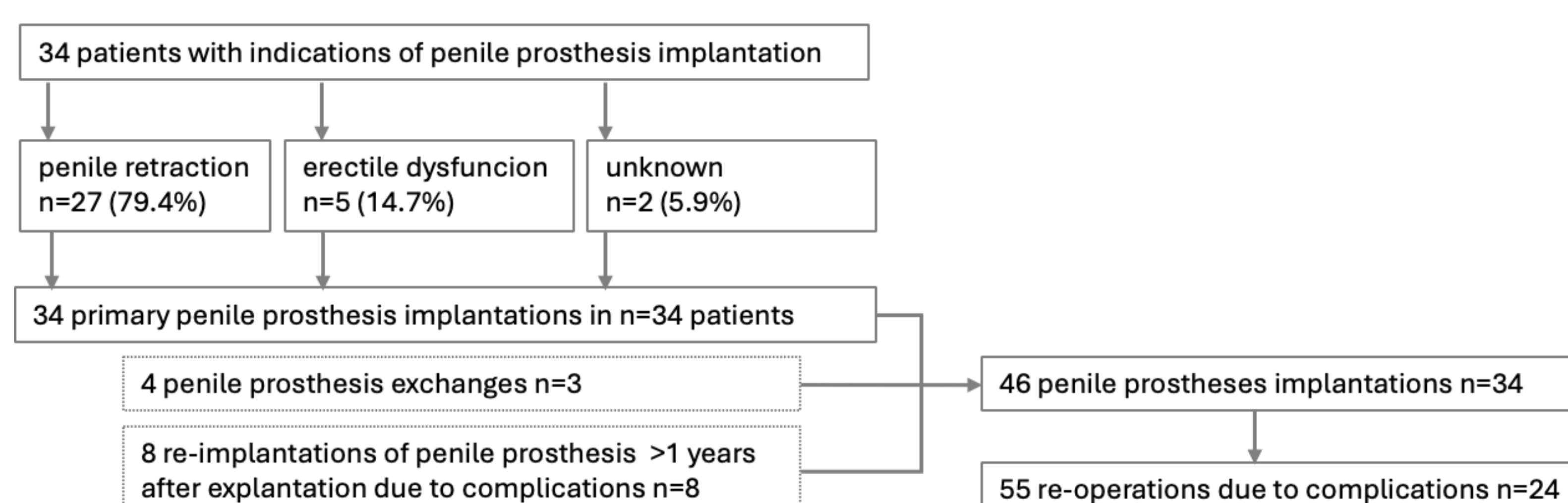
Study design, materials and methods

In a retrospective cohort analysis at a tertiary SCI reference centre, we reviewed the medical records of all patients receiving PP from 1982 to 2023. Parameters such as age, SCI characteristics, indication for PP, outcomes, and complications were evaluated. Values were calculated as mean and standard deviation. Binary logistic regression was used to assess the predictive impact of age, cardiovascular disease, obesity, and diabetes mellitus on complications.

Results and interpretation

We analyzed the data of 34 men who underwent 46 PP implantations, including 12 re-implantations, over a mean follow-up period of 13 years (Figure 1).

Figure 1. Patient flow-chart.



Of the 34 patients, 14 (41 %) were able to keep their original PP, though 4 required minor revisions due to technical defects or excess skin resection. Another 8 patients retained their final PP after at least one replacement. By the end of the observation period, 22 (65 %) out of 34 patients still had a PP.

Table 1. Study population.

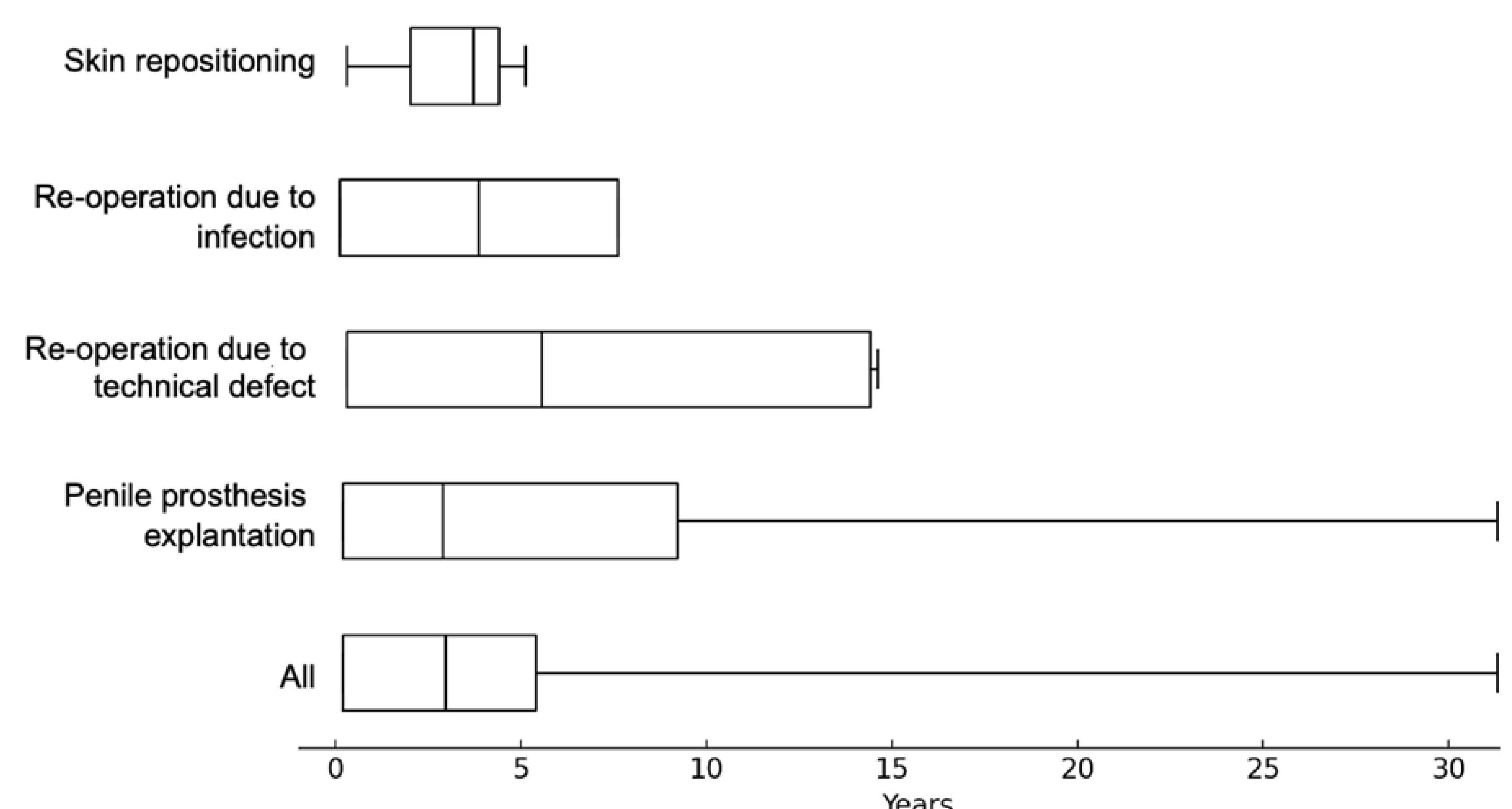
Patient characteristics (n=34)		n	%
Level of lesion	cervial	14	41.2
	thoracic	18	52.9
	unknown	2	5.9
Age at time of the first implantation	51.0 ± 14.1 years [range: 21 - 75]		
Time since spinal cord injury	26.4 ± 17.7 years [range: 1 - 49]		

11 patients (32.4%) experienced one re-operation, 4 patients (11.8%) had two re-operations, 3 patients (8.8%) had three re-operations, 3 patients (8.8%) had four and 3 patients (8.8%) had five complications.

Table 2. Re-operations in total after primary penile prosthesis implantation, with indications for re-operation.

Re-operations	Indication for re-operation
22 explantations (n=17)	19 infections (n=15) 2 technical defects (n=2) 1 penile prosthesis dislocation (n=1)
23 revisions (n=12)	17 infections (n=9) 6 technical defects (n=6)
6 skin repositioning procedures (n=5)	6 too much skin (n=5)
4 penile prosthesis exchanges (n=3)	3 technical defects (n=3) 1 unknown (n=1)
55 re-operations in total	36 infections (n=16) 11 technical defects (n=8) 6 too much skin (n=5) 1 penile prosthesis dislocation (n=1) 1 unknown (n=1)

Figure 2. Box-plot of time to first re-operation for different types of procedures and for all patients undergoing re-operation. Whisker indicate range limits.



Regression analysis identified age as a (p=0.022) predictor for post-implantation complications, with increasing age reducing the risk of having at least one complication after implantation (p=0.029, OR=0.90, 95% CI (0.81-0.99)). In contrast, obesity, diabetes mellitus, and cardiovascular disease did not emerge as significant predictors (p>0.05).

Conclusions

In our SCI patient cohort, complications after PP implantation are common, with infection being the most frequent. Older patients seem to experience fewer complications. Despite the challenges, PP implantations remain crucial for SCI patients with reflex voiding and condom fixation issues. By the end of the observation period, nearly two-thirds of our patients still had a PP in place. Careful patient selection and thorough preoperative assessment are essential. A multidisciplinary approach is key to ensuring both safety and efficacy in this patient group.