

PERIURETHRAL CONSTRICTOR IN THE TREATMENT OF NEUROGENIC URINARY INCONTINENCE: THE TEST OF TIME

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ABSTRACT

Objective: To present the long-term follow-up of patients using the periurethral constrictor in the treatment of urinary incontinence of neurologic origin.

Patients and Methods: Twenty-four patients suffering from neurogenic bladder secondary to myelomeningocele were prospectively studied during the last 7 years to test the efficacy and safety of the periurethral constrictor in controlling urinary incontinence. The device was implanted around the bladder neck in 23 cases and around the bulbous urethra in 1. Twenty-one patients had bladder augmentation with demucosalized colon at the same time. Patients went to a urologic work-up that included urinalysis, ultrasonography, cystography and urodynamics. These tests were repeated at 3 months intervals during the first year and yearly thereafter. A good result was considered if the patient kept the device in situ and achieved continence.

Results: The follow-up ranged from 1 to 84 months with a mean of 50.9 and a median of 57. Twenty-one patients still have the device in place and preserve continence. The bladder is emptied by clean intermittent catheterization. Three patients had the device extracted due to erosion and infection. The result was considered as good in 87.5% of cases.

Conclusion: The prospective analysis of the present series shows that the periurethral constrictor is a safe method of treatment in patients suffering from urinary incontinence of neurogenic origin when studied in long-term follow-up.

Key words: incontinence, urethra, urinary sphincter, artificial, neurogenic bladder, prostheses, implants
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INTRODUCTION

The mechanism of voiding involves a complex neuromuscular apparatus, which needs to work in perfect synchronism in order to allow bladder filling and emptying at appropriate time and place. Lesions that interfere with this mechanism lead to impairment of vesico sphincteric function, as well as deterioration of the upper urinary tract. Myelomeningocele is the most frequent cause of lesion of the neurologic pathway involved in micturition. The majority of patients born with this lesion have significant impairment of the continence mechanism.

Clean intermittent catheterization (CIC) has proven to be the safest method for satisfactory bladder

emptying in these cases. Different surgical procedures have been proposed to promote continence that included the enhancement of urethral resistance utilizing the bladder wall (1-7) or creating abdominal urethras (8). The AS-800 artificial sphincter is the most popular device in use for over 20 years (9).

The present study aims to present the long-term follow-up of patients using a periurethral constrictor in the treatment of urinary incontinence of neurologic origin.

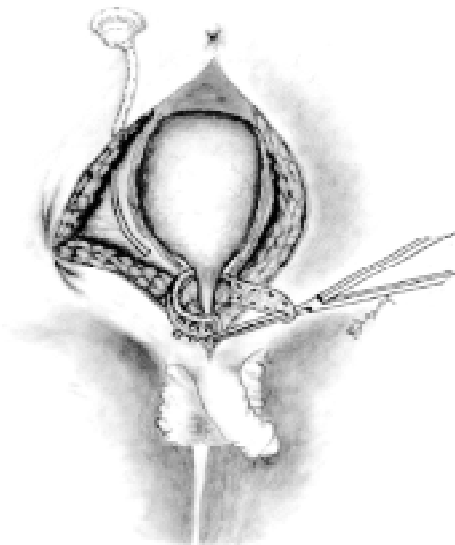
PATIENTS AND METHODS

Twenty-four patients suffering from neurogenic bladder secondary to myelomeningocele were

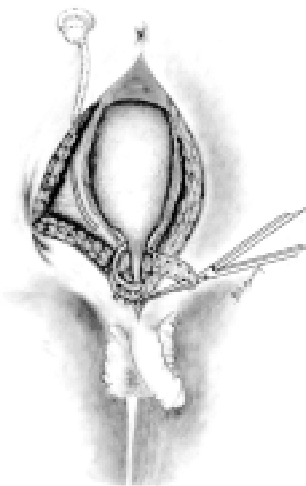
Table 1 – Age distribution and follow-up.

Age Group (years)	No. of Patients	Follow-up (months)	No. of Patients
5-10	12	1-12	04
11-15	09	22-36	04
Over 20	03	42-84	16

Figure 1 - Schematic drawings of the device implantation



A) - Around the bladder neck



B) - Around the bulbous of the urethra

prospectively studied during the last 7 years to test the efficacy and safety of the periurethral constrictor (manufactured by Silimed, RJ, Brazil) in controlling urinary incontinence. Fourteen patients were males

and 10 were females. The age ranged from 5 to 42 years (Table-1). The device was implanted around the bladder neck in 23 cases (Figure-1A). In 1 case, the implantation was around the bulbous urethra (Figure-1B). Details of the device and the surgical technique have been described previously (10). Twenty-one patients had bladder augmentation with demucosalized colon at the same time.

Preoperatively patients went to a urologic work-up that included urinalysis, ultrasonography, cystography and urodynamics. These tests were repeated at 3 months intervals during the first year and yearly thereafter. A good result was considered if the patient kept the device in situ and achieved continence. The device was activated 6 to 8 weeks after the implantation. The port located at the subcutaneous space is punctured and saline is injected until the pressure inside the cuff reaches 70 cm of water (Figure-2).

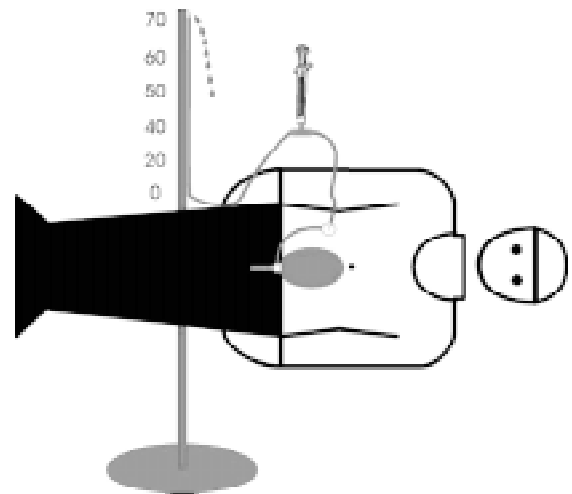


Figure 2 - Activation of the device. The subcutaneous port (P) is punctured. The system is filled with a syringe (S) toward the cuff (C) and the excess of fluid is led to extravasate. As it stops, the pressure corresponds to the mark at the top.

RESULTS

The follow-up ranged from 1 to 84 months with a mean of 50.7 and a median of 57 (Table-1). Twenty-one patients still have the device in place and preserve continence. Two patients didn't need to activate the device. In 2 cases, the subcutaneous port was exposed due to skin erosion. The tube was ligated by a second incision without interference with the

result. The bladder is emptied by clean intermittent catheterization. Three patients had the device extracted due to erosion and infection during this first year after the implantation. The result was considered as success in 87.5% of cases.

DISCUSSION

It is well known that the AS-800 artificial sphincter offers satisfactory results in treating urinary incontinence of various etiologies. There is an over 10 years experience accumulated in the literature with the use of this device in children (11). The complexity of this 3-piece device with connections and a variety of cuff sizes and especially the high cost imposes some restrictions to its use. Patients with some disabilities have difficulties in emptying the cuff by pressing the control pump. In a similar study published by Simeoni et al. (12) they studied 87 patients with neurogenic bladder that had an AS-800 artificial sphincter implanted. The overall success rate with a mean follow-up of 60.9 months was 76.6%.

The periurethral constrictor works by enhancing the urethral resistance allowing catheterization without the need for emptying the cuff. It can be deactivated, underactivated or reactivated at any time. Although this represents a small series, a mean follow-up of over 4 years was observed for the whole group and more than a half was followed-up for over 5 years. From these observations, we suggest that this device represents a safe alternative in the treatment of patients with incontinence of neurogenic etiology.

Dr. R. Glasner drew Figure-1

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