

COMPLICATIONS AND OUTCOME OF SPHINCTEROTOMY IN MALE PATIENTS WITH NON-NEUROGENIC DETRUSOR SPHINCTER DYSSYNERGIA

Hypothesis / aims of study

Sphincterotomy was initially performed by Ross et al. for the treatment of neurogenic detrusor sphincter dyssynergia (1). The objective of the sphincterotomy is to reduce the high pressure of the urinary system in order to stabilize and improve the renal function, prevent urosepsis, reduce the urinary leaking, improve the vesicoureteral reflux and prevent the use of urethral catheters. (2,3). This gave us the idea to make a cut in the sphincter of patients with non-neurogenic DSD as a treatment option for patients that have failed pharmacological treatment. The purpose of the present study was to evaluate the effectiveness of the sphincterotomy in male patients with non-neurogenic DSD.

Study design, materials and methods

We performed a prospective, clinical and longitudinal study approved by our institutional review board to evaluate male patients with non-neurogenic DSD who underwent sphincterotomy between October 1993 and December 2008 in our department. There were included in the study patients with clinical, radiological and urodynamic diagnosis of DSD with the following criteria: International prostate symptom score (IPSS) more than 12 points, urinary tract infections history, failure to pharmacological treatment and an adequate bladder filling perception. All patients had a multichannel urodynamic study before and after the procedure with a West Jupiter 8000 equipment. We excluded patients with active urinary tract infection (UTI), coexistence of urological diseases and any illness that contraindicated surgery. Technique All patient had preoperative antibiotic and regional anesthesia, a cystoscopy was performed, then with a 20 Fr Sachse urethrotome with half circle blade, a cut at 12 o'clock position all the length from the bladder neck to the bulbar urethra crossing the sphincter with a depth of 6 mm (until the visualization of the periurethral fat or fascia) was performed. Another two cuts at 8 and 4 o'clock were performed (until the visualization of the periurethral fat) afterwards selective fulguration of bleeding vessels was performed. All patients used a 22 Fr catheter with irrigation for 48 hours. We evaluated the patients at 3, 6, 12, 18, 24, 36, 48 and 60 months after the procedure with IPSS, complete urodynamic study (six months), and uroflowmetry. The analysed parameters were, maximum flow rate (Qmax), detrusor pressure (DP max), maximum cystometric capacity (MCC), functional urethral length (FUL), maximum urethral pressure (UP max), total urethral closure area and post void residual volume. We record the complications of the procedure. Continuous variables were evaluated by Student T test and a Friedman ANOVA Categorical variables by Q Cochrane, using the statistical package SPSS 17 (Chicago, Illinois). A $p < 0.05$ was considered statistically significant.

Results

A total of thirty patients underwent sphincterotomy with a mean age of 41 years (range 18-63). Mean follow up was 28.8 months (range 5-76). All patients had IPSS before and during the follow up. All patients had a urodynamic study with DSD diagnosis before the surgical procedure and only 24 patients had one at six-months follow-up. We found statistical differences ($p < 0.05$) for Q max (17.61 ± 7.7 vs. 23.5 ± 12.19), detrusor pressure (73.53 ± 21.51 vs. 47.4 ± 16.24), maximum cystometric capacity (462.74 ± 224.2 vs. 382.2 ± 167.48), functional urethral length (64.3 ± 22.6 vs. 42.2 ± 18.4), maximum urethral pressure (120.1 ± 46.8 vs. 59.23 ± 22.67), total urethral closure area (3315 ± 1269.7 vs. 1189 ± 49.23) and post void residual volume (161.3 ± 177.9 vs. 57 ± 100.8) The IPSS evaluation before and after the treatment showed substantial improvement that was maintained at sixty months. ($p < 0.02$). An ANOVA test was performed for the continuous variables and revealed that for Qmax, post-void residual volume and maximum cystometric capacity had a statistical differences only at six months and but not there after ($p < 0.05$) All patients were evaluated for the presence or not and characteristics of urinary incontinence in each visit. A Q Cochrane was used to evaluate it, and we do not find association of urinary incontinence with the procedure. Any patient developed total urinary incontinence.

Interpretation of results

In our series the total urethral closure area drop in a 70%, this improved the bladder emptying, and a low energy requirement of the detrusor which gives a better control of the bladder activity. The maximum detrusor pressure drop from 73.5 to 47.4 cm water, $p < 0.001$. This drop in Total Urethral Closure Area of 70% give the patient a total of 30% of the sphincter activity enough to preserve the continence during the bladder filling in which the detrusor pressure doesn't have to be more than 10 cm. water

Concluding message

The sphincterotomy for male patients with non-neurogenic DSD is a safe procedure that improves the micturition process with a low rate of complications and a minimum risk of urinary incontinence. This is the first report at our knowledge that shows a long term follow up functional evaluation of male patients with non neurogenic DSD, that underwent to sphincterotomy

References

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3. Barton, C. H., Khonsari, F., Vaziri, N. D. et al.: The effect of modified transurethral sphincterotomy on autonomic dysreflexia. J Urol, 1986; 135: 83

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None

Is this a clinical trial?

No

<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	Comite de Etica Hosptial de Especialidades Centro Médico Nacional Siglo XXI
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes