European Society for Sexual Medicine

Issue 38 – January 2018

ESSMToday

ESSM NEWSLETTER

www.essm.org

HIGHLIGHTS FROM THE EDITION

CONTACT
ESSM Secretariat
Via Ripamonti 129 – 20141 Milan, Italy
Phone: +39–02–56 601 625
Fax: +39–02–70 048 577
Email: admin@essm.org

IMPRINT
Publisher: ESSM
Editor-in-Chief: Ferdinando Fusco, Italy
Layout: CPO HANSER SERVICE

Urethroplasty and erectile dysfunction

by Salvatore Sansalone and Guido Barbagli

Prof. Salvatore Sansalone
Department of Experimental Medicine and Surgery
University Tor Vergata
Rome, Italy

salvatore.sansalone@yahoo.it

Guido Barbagli, M. D.
Head of the Center for Reconstructive Urethral Surgery
Via dei Lecci, 22
52100 Arezzo, Italy

info@urethralcenter.it

Urethral stricture disease affects the quality of life of the patient and his partner. Treatment of urethral stricture is always a great challenge for urologists, although a paradigm shift in managing this disease has occurred within the past decades. In addition to attaining meaningful improvement in voiding efficiency and alleviating symptoms, satisfaction with remaining erectile function after surgery is also an important criterion of ideal postoperative outcome for urethroplasty because no one technique is appropriate for all stricture diseases. The urologist must be familiar with various open surgical techniques. Some urologists accept that erectile dysfunction (ED) usually occurs after open urethral surgery and that ED rate is dramatically different due to the variety of procedures.

The outcomes of urethral reconstructive surgery have traditionally focused on parameters such as urinary flow rate, lower urinary tract symptom (LUTS) score, or recurrent urethral stricture requiring further treatment. Mundy [1] was the first urologist to report the incidence of ED after urethroplasty in 1993 reporting a permanent ED rate of 5% after anastomotic repairs and a rate of 0.9% after graft urethroplasty. In studies assessing postoperative erectile function at more than one time point, ED was found to be transient, resolving between 6 to 12 months in 86% of cases. Up to date, there has been a scarcity of systematic studies specifically evaluating the effect of different types of urethroplasty on erectile function. The difficulty of evaluating the specific incidence of ED after open reconstructive surgery may lead to further misguidance in providing treatment for these patients. The incidence of de novo ED after urethroplasty is largely underreported. Erectile dysfunction can be caused by altered blood flow through arteries, defective venous engorgement or absent neural transmission. As described by Lue et al. [2] cavernosal nerves mostly traverse about 3 mm outside cavernosa and only few traverse through it. So anatomically, there seems to be minimal risk to erectile neural mechanism after urethroplasty. Various literatures have shown varying results of ED following urethroplasty depending on site, size and operative techniques. During PPU for PFUI (pelvic fracture urethral injury), dissection is carried out more posteriorly to excise scar tissue and to gain adequate length for tension-free anastomosis. To achieve tension free anastomosis, corporeal separation or inferior pubectomy may be needed, increasing the chances of injury to neurovascular structures and thereby increasing the likelihood that ED will develop.

Surgical treatment of urethral strictures includes numerous open techniques, such as graft urethroplasty, urethral anastomosis, urethral realignment, and so on. Although these procedures have become increasingly popular and effective, the relationship between open urethroplasty and ED is still controversial. So far, only few comparative studies have carefully assessed patient erectile function after various kinds of open urethroplasty. Therefore, a metaanalysis of this problem is necessary so that the morbidity of ED after different open urethroplasty can be evaluated objectively. Based on these results, urologists can choose the best strategy for treating these patients in order to avoid the occurrence of ED as much as possible. We have conducted according to the PRISMA Statement a meta-analysis review [3]. A total of 790 studies were identified in our database and bibliographic probe. Seventy of these studies (8.86%) were identified as relevant, but 47 of these (67.14%) were excluded because they did not meet the inclusion criteria or because they contained data that were undeducible for statistical analyses. In conclusion, 23 studies (2.91%) were germane to the predetermined inclusion criteria. In aggregate, these 23 studies included 1,729 patients, and ED was reported in 560 (32.39%) cases.

Comparison I

Before urethroplasty vs. after urethroplasty – overall assessment

Five studies eligible for the meta-analysis reported patient erectile function before and after various anterior open urethroplasty. No statistical difference was found in the incidence of ED pre- and postoperation (OR = 0.85; 95% CI: 0.52–1.40; P = 0.53). Meanwhile, erectile status before and after various posterior open urethroplasty were evaluated in six studies. The analysis revealed that the incidence of ED before the operation was significantly higher than that after the operation (40.96% vs. 25.63%; OR = 2.21; 95% CI: 1.23–3.27; P < 0.001) but with unacceptable statistical heterogeneity (I2 = 61%).

Comparison II

Comparison of a different anterior urethroplasty site

According to the location of the urethral stricture, we further classified the anterior urethroplasty into penile and bulbar urethroplasty. The single study eligible for comparing ED before and after penile graft urethroplasty was from Erickson et al. [4] The rate of ED before urethroplasty was similar to that after urethroplasty (23.53% vs. 35.29%). There was no statistically significant difference between the two groups (P = 0.45). Furthermore, we compared the ED incidence be-

tween penile graft and bulbar graft urethroplasty. There are two studies that discussed this issue. Finally, the data analysis did not demonstrate statistical significance (penile graft urethroplasty 23.81% vs. bulbar urethral anastomosis group 16.67%; OR 1.62; 95% CI: 0.51–5.81;P = 0.41). In these reports on bulbar urethroplasty, less ED occurred in those patients who underwent bulbar graft urethroplasty (16.67%) than in those who underwent bulbar anastomosis (36.54%), and the results were statistically significant (OR = 0.32; 95% CI: 0.11–0.93;P = 0.04). Only one study reported the ED occurrence ratio both before and after the bulbar anastomosis. There was again no statistically significant difference between the two groups (24.14% vs. 27.59%; P = 0.76).

Comparison III

Comparison of various types of posterior urethroplasty

A single study by Lumen et al. compared ED incidence after posterior open urethroplasty between patients with a history of previous posterior open urethral surgery and those without a previous history. No statistical difference was found among these groups (33.33% vs. 32.5% P = 0.95)

In five cohort studies, the data analysis revealed that the ED incidence in patients who underwent immediate posterior urethra repair was no different from those who underwent the delayed anastomosis procedure (19.75% vs. 21.24%; OR 0.93; 95% CI: 0.45–1.90; P = 0.84).

A total of seven cohort investigations compared the incidence of ED between an open realignment group and a delayed anastomosis group and showed no significant difference. Two studies contributed to the meta-analysis of ED incidence in patients who underwent open realignment and immediate repair. It seemed that a higher incidence of ED appeared in the open realignment group than that in the immediate group, whereas the difference was not statistically significant (21.53% vs. 12.5%; OR 0.69; 95% CI: 0.51–7.38; P = 0.34)

In conclusion, confirming our clinical experience, this meta-analysis showed that urethroplasty itself has no obvious effect on ED. On the contrary, there is an overall decrease in the ED incidence after the posterior urethral surgery. For anterior open urethroplasty, only bulbar urethral anastomosis may lead to a higher incidence of ED compared with the other kinds of procedures we investigated.

REFERENCES

1. Mundy AR: **Results and complications of urethroplasty and its future.** Br J Urol 1993;71:322-5.
2. Lue TF, Zeineh SJ, Schmidt RA, Tanagho EA: **Neuroanatomy of penile erection: Its relevance to iatrogenic impotence.** J Urol. 1984;131:273-280.
3. Feng C1, Xu YM, Barbagli G, Lazzeri M, Tang CY, Fu Q, Sa YL: **The relationship between erectile dysfunction and open urethroplasty: A systematic review and meta-analysis.** J Sex Med. 2013 Aug;10(8):2060-8. doi: 10.1111/jsm.12181. Epub 2013 May
4. Erickson BA, Granieri MA, Meeks JJ, Cashy JP, Gonzalez CM: **Prospective analysis of erectile dysfunction after anterior urethroplasty: Incidence and recovery of function.** J Urol 2010;183:657-61.