Original Article

July - Dec, 2010/Vol 9/Issue 2

Outcome of Bulbar Urethra End to End Anastomosis in a Single Centre

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Abstract

AIMS : A retrospective evaluation and statistical analysis of outcome in patients who underwent bulbar end to end anastomosis for stricture of bulbar urethra in Army Hospital.

Methodology: 50 patients with average age of 35 years who underwent bulbar end to end anastomosis between 2005 and 2009 at Army Hospital were analyzed. Mean follow up was 24 months. Stricture etiology was catheter induced 40%, perineal trauma 30%, infection 13%, instrumentation 10% and unknown in 7%. Stricture length was 1cm (59%), 1 to 2 cm (37%) and above 2cm (4%). 30% of the patients were previously subjected to multiple dilatations and internal urethrotomy and clinical outcome was considered failure if postoperative instrumentation was required. Postoperative sexual dysfunction was judged using nonvalidated questionnaire.

Results: Of the 50 cases, 80% were successful and treatment failure was 20 %. Failed cases are managed with OIU and buccal mucosal graft and are being followed. Ten patients were unsatisfied with there sexual function out of which 5 had ejaculatory dissatisfaction, 3 with compromised erection and 2 had decreased glans sensitivity.

Conclusion: Bulbar end to end anastomosis has success rate of 80%, with better outcome in fresh cases than in previously intervened cases. Sexual outcome is successful in 80%.

Key words: bulbar urethra, stricture, anastomosis, outcome

Introduction

The anterior urethra is subject to blunt and penetrating injuries, of which blunt trauma predominates.[1] Of these injuries, straddle injury, in which the immobile bulbar urethra is crushed against the under surface pubic symphysis, is most common.[2] The primary morbidity is urethral stricture formation.[3] When a patient presents acutely after injury, one should obtain a history of the mechanism of injury and of the post injury voiding pattern. Suspicious clinical signs include blood at the meatus, gross hematuria, perineal hematoma, urinary retention and frank urethral extrusion through the skin.[4]

Surgical treatment of urethral strictures includes numerous options such as dilation, vision internal urethrotomy, stent and reconstructive surgical techniques.[5] The etiology, site, length and density of spongiofibrosis are taken into account in the management. The surgical technique used in the repair of the bulbar urethral stricture is selected according to stricture length.[6] Contusions are generally managed by temporary urethral catheterization.[7] Short uncomplicated strictures are generally amenable to complete excision with primary anastomosis. Longer strictures are managed using augmented roof strip anastomosis or substitution only graft urethroplasty. For patients with strictures associated with local adverse conditions, 2-stage urethroplasty might be suggested. End-to-end anastomosis is the most successful treatment for bulbar urethral strictures with a reported high success rate and low postoperative morbidity.[8 - 11]

Materials and Methods

Shree Birendra Army Hospital caters the Nepal Army personnel and their families. In the past 15 years, the hospital had to manage most of the casualties during the internal conflict and complications after it. Urethral stricture, mostly iatrogenic, was one of the most common complications encountered. Urethral stricture cases were managed depending upon stricture types with dilatation, optical internal urethrotomy and reconstructive surgical techniques. A retrospective analysis of 50 patients who underwent bulbar end to end anastomosis from 2005 January to 2009 December for post traumatic stricture was done.

All the 50 cases were performed by the same surgeon following the standard technique. Catheter was kept for a week and removed. Micturating cystourethrogram was performed after 2 weeks along with urine culture. Patients were told to review immediately in OPD if they experienced decrease in urinary flow. If not, they were asked to come for regular follow up after four months. If any instrumentation including dilatation was required, outcome of the urethroplasty was considered a failure. Failed cases were managed with OIU and buccal mucosal graft and are being followed up.

Our aim was primarily to assess the outcome of urethroplasty in terms of urinary function and sexual function, which were recorded on the basis of patients' post operative complaints and indirect questions including penile erection, ejaculation and sensation, which were recorded on a Performa.

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Results

From 2005 to 2009 a total of 50 patients with average age of 35 (Figure 1) years underwent bulbar end to end anastomosis. Stricture etiology was catheter induced in 40% cases, perineal injury in 30% cases, Infection 13%, instrumentation 10% and unknown in 7% (Figure 2). Stricture length was less than 1cm (59%), 1 to 3 cm (37%) and above 3 cm (4%) (Figure 3). 30% of the patients were previously subjected to multiple dilatations and internal urethrotomy.

All the 50 patients were managed with end to end bulbar urethroplasty and followed up. If any instrumentation including dilatation was required, outcome of the urethroplasty was considered a failure. Of 50 cases, 40 were successful and 10 were considered failure. Analysis of the stricture etiology revealed 98% success in infective pathology, 90% in urethral instrumentation, 90 % in unknown etiology, 85% in catheter induced and only 70% in trauma induced (Figure 4). In the age distribution, 2 patients each from the age group less than 19, 30 – 39, 40 – 49 and 50 or more failed while 3 patients from age group 20 – 29 were considered failure. 5 of the patients had stricture length less than 1 cm, 4 had 1 – 3 cm and 1 had more than 3 cm.

80 % of the patients had satisfactory sexual function postoperatively. Ten patients were unsatisfied with their sexual function, out of which 5 had ejaculatory dissatisfaction, 3 with compromised erection and 2 had decreased glans sensitivity. 2 patients each were from 50 years or more, 30 – 39 years and 20 – 29 years, 4 patients were 40 – 49 years.

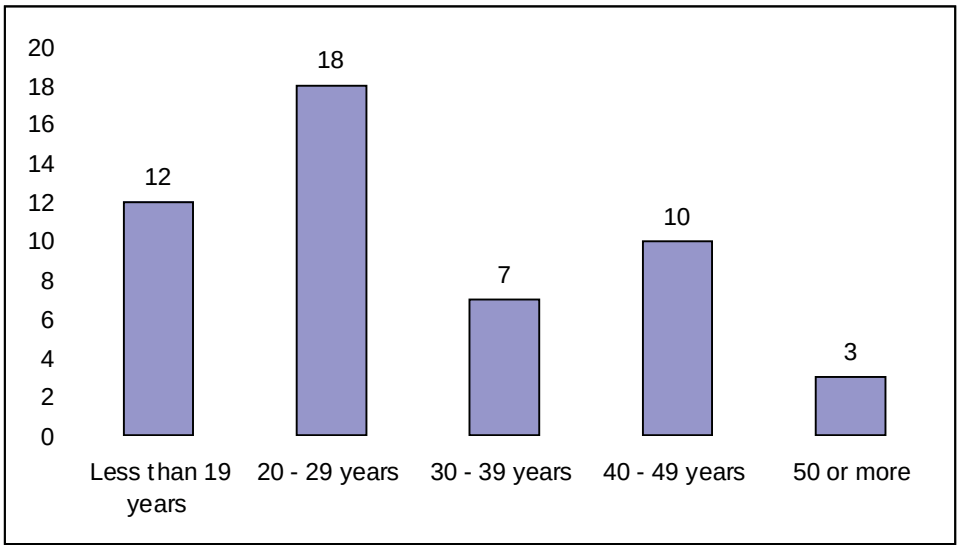

Figure 1 : Age distribution of the patients

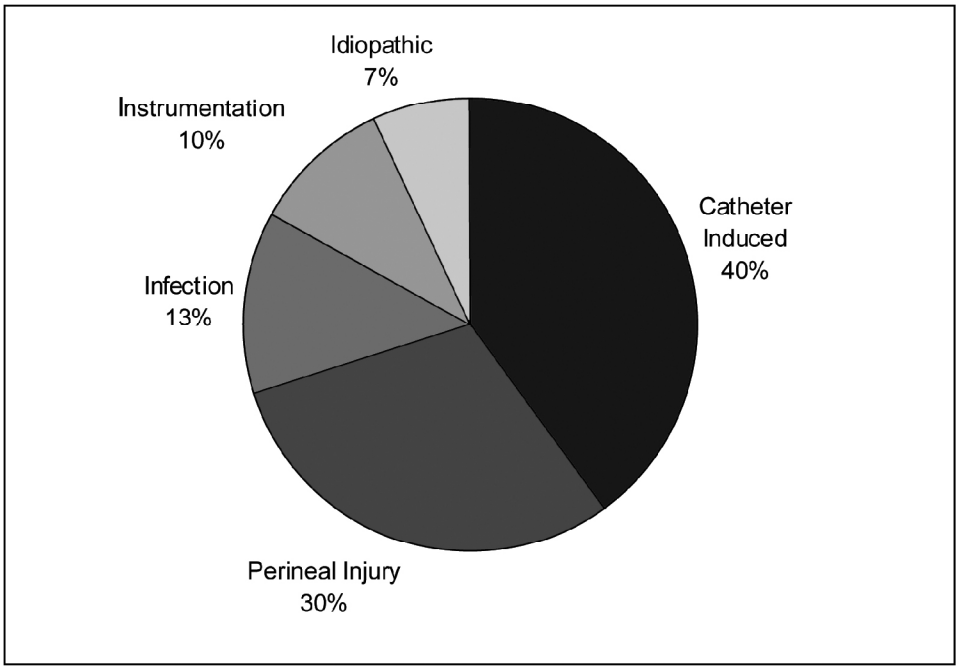

Figure 2 : Etiology of Stricture of Bulbar Urethra

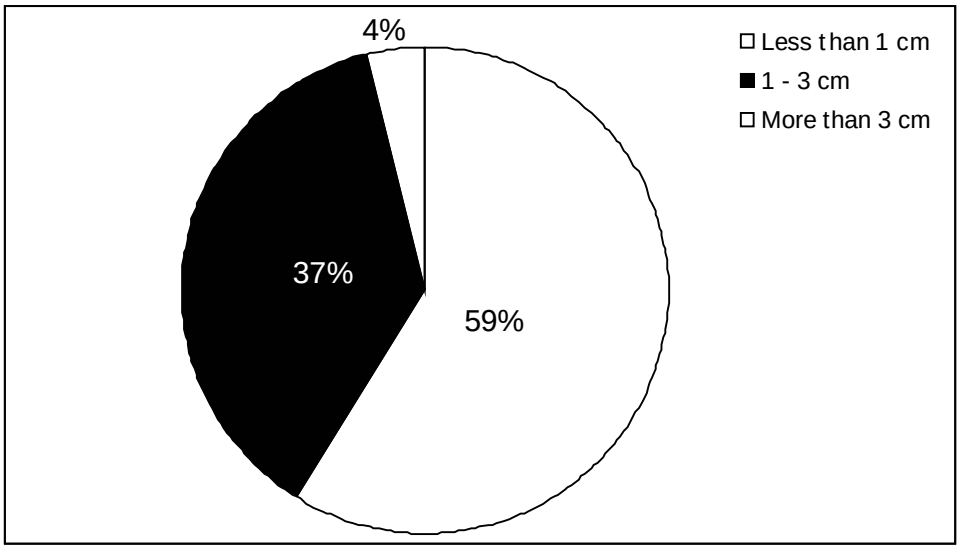

Figure 3 : Length of the stricture

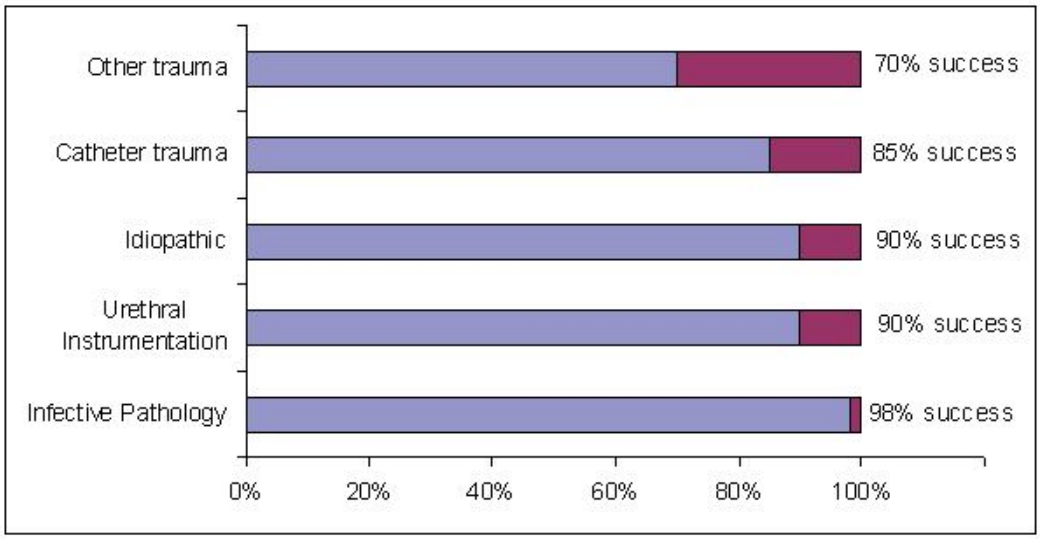

Figure 4 : Outcome of bulbar urethroplasty according to etiology

Discussion

Since most of patients in our series were trauma victims during the insurgency, who was either managed primarily in the fields or who presented in the hospital as mass casualty victims, the cause of the stricture was injury and idiopathic was more as compared to infectious pathology.

The length of the stricture in our study was not consistent with most of the series published mentioning longer strictures which has been explained due to urine extravasation into the spongiosum, leading to more spongiofibrosis and greater length.[12] This is because most of our patients were in service army men, where urethral injury was diagnosed earlier and early suprapubic diversion for total or partial urethral disruption was carried out. With early suprapubic diversion, the extent of the acute and chronic inflammatory cascade is limited and the severity of residual stricture is mitigated.[12] The length of the stricture also did not influence the outcome. Guralnick and Webster asserted, that this operation should be limited to stricture of 1 cm or less, as excision of a 1 cm urethral segment with opposing 1 cm proximal and distal spatulations results in a 2cm urethral shortening, which may be accommodated by the elasticity of the bulbar urethra without chordee. They hypothesized that excision of a longer urethral segment risks penile shortening or chordee.[13] However Morey and Kizer suggested that urethral reconstructability is proportional to the length and elasticity of the distal urethral segment.[14] Our study was consistent with the latter report.

In our study, age factor did not influence the outcome of the stricturoplasty, which is consistent with other larger studies published in literature.[15] In the literature interpretation of the urethroplasty success rate based on previous treatment was controversial. Most surgeons agree that a first operation is the one with the highest likelihood of success in reconstructive patients.[9,11,16,17] All of the failure cases in our series had undergone multiple dilatations and internal urethrotomy previously.

Sexual satisfaction was found to be unsatisfactory in elderly age group in our series. This probably was due to other physiological and psychological factors apart from the operative etiology. The cause of sexual dissatisfaction has been explained as due to surgical damage to the branches of the perineal nerves or bulbospongiosum muscles which has a role in determining the loss of efficient bulbar urethral contraction, causing difficulties in expelling semen and urine.[18]

Conclusions

End-to-end anastomosis of the bulbar urethra is an effective surgical option for patients with bulbar stricture. Age should not be a factor from withholding a patient from bulbar end to end anastomosis. Multiple previous manipulations to the urethra decrease the possibility of success of urethroplasty.

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