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A STUDY OF BXO CASES WITH URETHRAL STRICTURE

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ABSTRACT

Background: Balanitis Xerotic obliterans is a dermatological condition affecting the genitalia and associated with chronic, progressive, sclerosing inflammatory dermatosis of unknown etiology. Stricture associated with BXO are resistant to all types of treatment and recurrence is the most common complication.
Material and Methods: A prospective cohort study of 40 patients was performed, who were suspected clinically to have urethral stricture along with BXO and proved on investigations.
Results: 38 patients underwent single stage dorsal onlay buccal mucosa substitution urethroplasty and 2 patients underwent two stage buccal mucosa urethroplasty. Overall, success rate of our study was 90%. Pan uretheral stricture was the most common finding proved intra operatively and out of 40 patients 4 patients had recurrence.
Conclusion: Buccal mucosa graft urethroplasty is the most versatile surgical option which can treat stricture of almost all type associated with bxo with good success rates.

INTRODUCTION

Balanitis Xerotica Obliterans (BXO) is a common penile disease, first described in 1928 by Stuhmer.[1] It has been classified as a male variant of lichen sclerosis[2] by the International Society for the Study of Vulvovaginal disease and is a chronic inflammatory process. It causes severe tissue destruction and often causes meatal stenosis and urethral stricture.

The etiology of the disease is not clear however there are immunological causes that have been postulated but the result is severe fibrosis of the affected area (3,4,5)

The disease usually presents initially on the glans penis or prepuce,[3] affecting the foreskin, meatus and distal urethra either individually or in combination. Left untreated it has been reported to affect the entire urethra, penile skin and scrotum.[1,6]

The treatment of this condition causing stricture of the urethra is excision of the fibrotic area and urethra reconstruction which varies from different centers. BXO is more resistant to all types of treatment and recurrence is the most common complication. The first choice for graft material is currently buccal mucosa, which can be used for either 1- or 2-stage urethroplasty [10] We wish to present to you our experience on 40 patients who presented to us with urethral stricture due to BXO.

MATERIALS AND METHODS

a prospective cohort study of 40 patients was done, who were suspected clinically to have BXO and urethral stricture and proved on investigations (ultrasonography ,uroflowmetry, ASU and MCU) Study included:

1. Taking detailed history of patients including the history of any obstructive and irritative voiding symptoms, urinary retention, any instrumentation. If buccal mucosa urethroplasty (BMU) was planned and history of tobacco chewing was present than patient was advised to stop tobacco chewing and start betadine gargles

2. Detailed physical examination including the foreskin and meatus for changes of BXO and urethral induration, perineum for scar of previous surgery, suprapubic site for any suprapubic catheterization (SPC) scar, availability of foreskin and scrotal laxity if flap was required.

3. Investigations:
a. Urine routine and microscopy and culture for infection
b. Ultrasonography for pre- and post-voids residual urine, bladder thickness, and any back pressure changes due to long-standing bladder outlet obstruction
c. Uroflowmetry to see Qmax (maximum flow rate), prolonged duration of micturation and flow pattern
d. Ascending urethrogram and micturating cysturethrography to see site, length, depth of stricture and to see any associated complication like fistula, diverticulum, and false passage

4. Routine investigation for fitness for surgery

5. If symptomatic UTI then control of infection

6. Management depending on site, length, depth and etiology of stricture and previous surgery

7. After urethroplasty, the patient was subjected to pericatheter urethrogram after 3rd-4th week postoperatively depending on the complexity of stricture.

Follow-up protocol: Patients were followed up in terms of history, physical examination and flow rate after 4 weeks, 3 months and 6 months postoperatively and urethrogram and cystoscopy at 4 weeks.

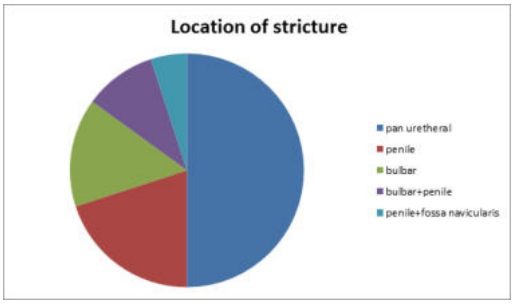
Failure was defined postoperatively if any one of the following seen:
1. Poor flow rate
2. Abnormal urethrogram or urethroscopy and
3. Need for any intervention if patient symptomatic

RESULTS

A total of 40 patients were treated for stricture caused by BXO. Most of the patients whom we saw were late and neglected cases probably highlighting the poor health services system that we see in our country.

Total 40 patients with age distribution ranging from 16 yrs to 74 yrs with the mean age of 42 yrs, with the maximum incidence in 3rd and 4th decades.

Most common location observed intra operatively was pan urethral in 20 (50%) cases, followed penile in 8 (20%), bulbar in 6 (15%), bulbar+penile in 4 (10%) penile+fossa navicularis in 2(5%) cases.



All patients underwent uroflowmetry study before and after surgery, with pre operative uroflowmetry readings ranging from 5 ml/sec to 15 ml/ sec with the mean flow of 9 ml/sec. Post-operatively patients underwent uroflowmetry study ranging from 15 ml/sec to 24 ml/sec with an average of 18 ml/sec.

38 patients underwent single-stage dorsal onlay buccal mucosa substitution urethroplasty and 2 patients underwent two stage buccal mucosa urethroplasty.

In this study, 4 patients developed recurrence. Among them, 1 patient developed urethrocutaneous fistula in the immediate post-operative period but he didn't turn up for further management. Redo BMU was done in 1 patient and VIU and CIC advised for rest 2 patient.

Post operatively 6 patients developed urinary tract infection,4 patients had wound infection, pericather pus discharge in 5, penile edema in 4 and fistula in 1.

Complications of Buccal Mucosa Urethroplasty in our study.

Complications	Number of Patients
UTI	6
Wound infection	4
Pericatheter pus discharge	5
Penile Edema	4
Fistula	1

All patients were able to resume diet on 2nd post-operative day and none of the patients developed any major donor site morbidity.

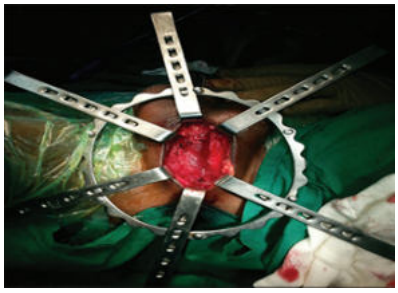


Figure 1: Intraoperative view of initial incision and dissection

Figure 2: After complete augmentation of the urethral plate by buccal mucosa graft

DISCUSSION

BXO is a complex skin disease with unknown aetiology. Palminteri et al . demonstrated that BXO was a cause of stricture in 13.5% of cases.(7) Incidence of BXO is variable in literature as Barbagli et al (8) and Venn and Mundy(9) have shown incidence 25% and 30%, respectively.

In our study, mean age of patients was 42.03 ± 15.73 years (range 16-74) years. The most common age group was 31-40 years (24%) followed by 41-50 years (22.67%) and least were in extremes of age.

Symptoms at presentation were LUTS in 30 (75%) patients (out of these 66.66% patients presented with only voiding symptoms, 33.33% patients presented with both voiding and storage symptoms), acute urinary retention in 7 (17.5%) patients, pain in perineal region in 3 (7.5%) patients, incontinence and SPC in situ 2 (5%) patients each, which is also similar to other studies(11,12) mentioned in literature. No patient presented with only storage symptoms. In our study, 8 (20%) patients required emergency intervention in the form of suprapubic catheterization for acute urinary retention, multiple fistula or abscess

Apart from history and local examination, uroflowmetry and urethrography (ascending and micturating [Figure 1]) was helpful in making the diagnosis of urethral stricture.
LS has been reported as the most frequent cause of long segment urethral stricture, especially in India [13] In our study, pan urethral strictures constitute almost 50% of the cases of BXO.

Palminteri et al ., demonstrated that LS is the most common cause of pan urethral stricture (48.6%).(7)

We treated all patients in a single stage by Kulkarni's technique(16) using buccal mucosa with good results. Buccal mucosa from both cheeks can be used to gain additional length without adding any significant morbidity.

The single-stage procedure is not appropriate for everyone, and poor patient selection can decrease success rates considerably. Two-stage repair is indicated for elderly, extensive involvement of glans and meatus by BXO and non-salvageable urethral plate. The current opinion is that the most prevalent graft for urethroplasty is probably the BM.
Our study success rate is 90% which corroborates those of Kulkarni et.al. and Deepak Dubey et.al., who reported their experience with single stage buccal mucosa urethroplasty showed a success rate of 88% with the mean followup of 32.5 months [10]

Buccal mucosa is hairless, and the tough epithelium makes it tough yet easy to handle. It also has a thin and highly vascular lamina propria, which facilitates inoculation and imbibition and thus tissue harvesting.The donor site heals quickly with minimal morbidity and complications. Hence, since 1998 BMG has become the choice for urethral augmentation or reconstruction. So now the trends have moved towards using single-stage repair for difficult strictures of anterior urethra due to BXO, and the substitute of choice is BMG [14, 15]

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