

Introduction

Balanitis xerotica obliterans (BXO), also known as lichen sclerosus of the penis is a dermatological (skin) condition affecting the male genitalia. The cause of BXO is unclear.

[Picture Credit: Balanitis Xerotica Obliterans]



Balanitis Xerotica Obliterans (BXO)

Balanitis Xerotica Obliterans (BXO) commonly occurs on the foreskin and glans penis. Atrophic white patches appear on the affected area, and commonly, a whitish ring of indurated (hardened) tissue usually forms near the tip that may prevent retraction of the foreskin.

Nguyeni, A.T.M. & Holland, A.J.A. 2020.

Lichen sclerosus (LS) is a severe, chronic, dermatosis characterised by inflammatory, sclerotic, pruritic lesions that causes significant morbidity in patients of all genders and ages. In boys, the lesions typically affect the foreskin and glans (termed balanitis xerotica obliterans (BXO)), leading to phimosis and potentially meatal stenosis. The incidence of the disease is not well reported but the average age of affected boys is 8 years (range 1-16).

Diagnosis can often be made clinically, although histological study remains important to rule out important differential diagnoses. Complications include genital scarring, urinary and sexual dysfunction as well as the development of carcinomas in adult life. Circumcision has been regarded as definitive management of BXO in boys, but this may be supplemented with medical therapies such as topical steroids, immune modulators, intralesional triamcinolone and ozonated olive oil. Supportive measures including emollients, avoidance of irritants, surveillance of complications and recurrence as well as education and counselling remain important.

Conclusion: BXO remains an important cause of phimosis in boys. The frequency of this condition appears unclear but seems likely to be less than 1% of males. Treatment generally involves circumcision, with some evidence that topical steroids or immunomodulators may decrease the incidence of recurrent meatal stenosis.

What is Known:• Surgical circumcision is considered the definitive management of BXO• Many aspects of BXO are still in contention or require further study including the epidemiology and aetiology.

What is New:• There is increasing awareness of non-surgical modalities that may be used in adjunct to surgery including topical corticosteroids, immune modulators, intralesional triamcinolone and ozonated olive oil• Awareness of meatal stenosis-related BXO has led to the development of surgical techniques such as preputioplasty as well as buccal mucosal inlay grafts.

Incidence of Balanitis Xerotica Obliterans (BXO) in South Africa

The outdated National Cancer Registry (2017), known for under reporting, does not provide information regarding the incidence of Balanitis Xerotica Obliterans (BXO) because it is not a cancerous condition itself, however, if neglected it may develop into cancer of the penis.

Signs and Symptoms of Balanitis Xerotica Obliterans (BXO)

Early in its course, balanitis xerotica obliterans [BXO] is relatively asymptomatic with only mild visually observable changes of the penis and glans. Symptoms occurring with time and progression of BXO may include the following:

- Itching
- Burning sensation
- Reduced sense of touch and feeling of the glans penis
- Difficulty in passing urine
- Painful erection
- Decrease in urinary force
- Inflammation of the urethra (urethritis)
- Possible urethral discharge
- Inability to retract the foreskin (uncircumcised men)
- Inability to return a retracted foreskin back over the head of the penis (uncircumcised men)

Causes of Balanitis Xerotica Obliterans (BXO)

The cause of this condition is not altogether known.

Charlton, O.A. & Smith, S.D. 2019.

“Balanitis xerotica obliterans (BXO), or penile lichen sclerosus, is a progressive sclerosing inflammatory dermatosis of the glans penis and foreskin. It is associated with significant morbidity and may result in impaired urinary and sexual function. It was initially described by Stuhmer in 1928, named after its pathological features, and is considered the male equivalent of vulvar lichen sclerosus (LS). The etiology of BXO is uncertain; however, autoimmune disease, local trauma, and genetic and infective causes have been proposed. BXO occurs most commonly on the prepuce and glans penis. It is considered to have premalignant potential to transform into squamous neoplasia. This postulation rests on retrospective studies and parallels drawn with vulvar LS and squamous cell carcinoma (SCC) development. Histologically, BXO and vulvar LS are considered the same disease. There is a paucity of evidence-based guidelines to assist with appropriate follow-up for patients with BXO.”

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Complications of Balanitis Xerotica Obliterans (BXO)

Balanitis Xerotica obliterans (BXO) can result in stenosis (narrowing) and the obliteration of the external opening of the urethra. A significant number of patients with penile malignancy have a history of having had BXO.

Hughes, K.E. & Corbett, H.J. 2020.

Background: Lichen sclerosus (LS), (balanitis xerotica obliterans), causes pathological phimosis. Many boys present with obstructive symptoms, the cause is usually obvious on examination so ultrasound scans (USS) of the urinary tract are not routinely indicated. We review a series of abnormal USS in boys with LS.

Methods: Retrospective note review for boys undergoing surgical treatment for LS between 2000 and 2017. Seventy-eight boys had a USS prior to surgery, those with abnormal USS form the study population. Boys with neuropathic bladder or congenital urinary tract abnormalities were excluded.

Results: Nineteen of 78 boys (24%), mean age 9 years, were included. Seventeen had obstructive symptoms, 13 had culture proven UTIs, 12 had new onset incontinence. On USS 3 (17%) had acute retention, 8 (78%) had an isolated post-void residual volume (PVR) >10% of estimated bladder capacity (EBC); 3 had bladder wall thickening +/- PVR >10%, 5 had upper tract changes. Symptoms resolved with successful treatment of LS. Six boys had post treatment USS, abnormalities resolved in 5.

Conclusions: Clinicians should consider LS in boys presenting with UTIs, new onset incontinence and obstructive urinary tract symptoms. Routine USS are not indicated though should be considered in those with an atypical history or examination.

Medical Treatment of Balanitis Xerotica Obliterans (BXO)

No consistently effective treatment has been developed for Balanitis Xerotica obliterans [BXO], however, the following therapies may have varying degrees of reported success.

Topical steroids in the management of mild BXO. Steroid-based creams are ineffective in persons with established scarring.

Leganés Villanueva, C., Gander, R., Royo Gomes, G., Ezzeddine Ezzeddine, M., López Paredes, M. & Asensio Llorente, M. 2020.

Objectives: Balanitis xerotica obliterans (BXO) is a chronic inflammatory disease with a little known incidence in pediatric population. The objective of this work was to describe our experience in the treatment of BXO.

Materials and methods: Retrospective study carried out in 419 patients undergoing circumcision surgery between January 2014 and January 2017. Demographic, clinical, therapeutic, and anatomical and pathological variables, as well as complications during follow-up, were analyzed.

Results: Of the 419 patients, 41 (9.78%) were diagnosed with BXO. 6 patients were excluded owing to lack of follow-up, so 35 patients were analyzed. Mean age at diagnosis was 8.6 years. Suspicion diagnosis was clinical at physical exploration in 17 patients (48.6%), and at surgery in 18 patients (51.4%). Anatomical and pathological confirmation was performed in a total 35 patients (100%). During follow-up, 6 patients (17.14%) had lesions in the glans, 3 (8.57%) in the urethra, and 9 (25.71%) in both. 6 meatotomies (17.14%) and 5 new circumcisions (14.28%) had to be carried out. Mean recurrence time was 32.43 months. In 19 patients (54.28%), topical corticoids - ointment - were applied, and 1 patient (2.85%) received topical immunosuppressants.

Conclusions: A close follow-up of patients with clinical or anatomical and pathological diagnosis of BXO is required given its high morbidity. The complications described in pediatric population include meatal and urethral stenosis, as well as recurrent phimosis, unless a sufficient amount of foreskin is resected.

Surgical Treatment of Balanitis Xerotica Obliterans (BXO)

Surgical intervention may include:

- Circumcision (surgical removal of the foreskin)
- Dilating or surgically correcting meatal narrowing

Villanueva, C.L., Gander, R., Gomes, G.R., Ezzeddine, M.E., Pareds, M.L. & Llorent, M. A. 2020.

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Pradhan, A., Patel, R., Said, A.J. & Upadhyaya, M. 2019.

Introduction: Balanitis xerotica obliterans (BXO) is uncommon in children. Diagnosis of the condition is almost always clinical and supported by histology. Our aim was to evaluate the outcomes of children undergoing circumcision for BXO and explore the correlation between surgical and histological findings.

Materials and methods: A 10-year retrospective review (2007-2017) of all children, aged 16 and less, undergoing circumcision at a tertiary teaching hospital was conducted. Statistical analysis was performed using Fisher's exact test.

Results: BXO occurred in 91/1025 (8.9%) children. The highest incidence of BXO was in the 5 to 10 age group (13.3%; $p < 0.0001$). The commonest symptom was foreskin scarring (62.6%). Intraoperatively, involvement of foreskin alone was seen in 26.4%, foreskin and meatus in 47.2%, and foreskin, meatus, and glans in 26.4%. Preoperatively, 24.2% of patients were prescribed steroid cream. Histologically, all patients showed microscopic changes confirming BXO. A total of 87.9% of patients only had a circumcision, and 11% required a meatal procedure along with the circumcision. Postoperatively, 19.8% of patients required a further procedure after an average duration of 5.8 months (range: 2-12 months); the majority of whom (83.3%) were prescribed postoperative steroid cream.

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Conclusion: Clinical correlation by surgeons has a high degree of accuracy (>90%). Meatal involvement is more common than previously reported. The use of pre- or postoperative steroids does not obviate the need for further surgical procedures. Patients can have recurrent symptoms 1 year following surgery, and prolonged follow-up is necessary.

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OBJECTIVES: Balanitis xerotica obliterans (BXO) is a chronic inflammatory disease, a genital form of Lichen Sclerosus in males.

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