

THE TREATMENT OF BALANITIS XEROTICA OBLITERANS WITH TESTOSTERONE PROPIONATE OINTMENT

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Abstract. Balanitis xerotica obliterans (BXO) and kraurosis penis are thought to be synonymous. Clinically and histopathologically they probably represent the same disease process as lichen sclerosus et atrophicus (LSA) but also involve the urethral mucosa. The treatment of choice is considered to be 2½% testosterone propionate ointment which gives better results than strong corticosteroid applications, yet without their side effects.

Key words: Balanitis; Lichen sclerosus; Atrophy; Leukoplakia; Malignant change; Testosterone propionate

Stühmer (15) introduced the term balanitis xerotica obliterans (BXO) to describe an atrophic and sclerotic condition of the glans penis leading to stenosis and occasionally obliteration of the external meatal orifice. He considered that the disease invariably resulted from circumcision or dorsal slit for phimosis but many cases have since been described unconnected with preputial surgery. They have usually had an insidious onset, associated with a long prepuce and constricted preputial opening (6) BXO is a rare disease, occurring in men between 20 and 45 years of age. It affects the glans penis, external meatus, sulcus, and occasionally the penile shaft. Diagnostic difficulty arises when the eruption is of restricted distribution. There is a mottled or parchment-like appearance with white or ivory areas scattered throughout apparently normal tissue. There may be stricture of the external meatus and sclerotic changes obliterating the frenum. Early lesions (especially with a long prepuce) consist of multiple moist red areas on the glans with possibly linear erosions on the mucosal surface of the prepuce. Serous or haemorrhagic bullae, which may rupture to form erosions may occur around the urinary meatus. Adhesions between glans and prepuce may occur. Pigmentation and telangiectasia may

develop, giving an appearance resembling radio-dermatitis.

Lichen sclerosus et atrophicus (LSA) (5) is clinically similar, but lesions occur on other areas such as the back, neck, shoulders, forearms, or axillae (7, 9). Lesions of the vulva are often called kraurosis vulvae.

Histopathologically, LSA shows hyperkeratosis with keratotic plugging of follicles, atrophy of the stratum malpighii with hydropic degeneration of the basal cells, atrophy and homogenization of the upper dermal collagen and an infiltrate in the mid-dermis (7). Apart from the natural absence of hair follicles on the penis, BXO shows a similar picture.

Stühmer (15) reported malignant change in BXO, since confirmed several times. Many clinicians consider that malignant change is unlikely in LSA, but Fitzpatrick (4) put the incidence at 3% and Newbold (11) at 15-50% in BXO/LSA. This high figure may be due to the inclusion of many mucosal cases in which malignant change is believed to be more likely.

Treatment recommended has included metal dilatation (2, 13), fluorinated corticosteroid ointments (12), male sex hormones topically or by injection (1), cold saline compress followed by topical corticosteroids (4) and intralesional hydrocortisone acetate (16). Powerful corticosteroids locally may cause atrophy and telangiectasia (3, 10, 14). Atrophy in LSA may lead to malignancy (4) and this seems a good reason for an alternative to corticosteroids topically.

Initial experience in using testosterone propionate in the treatment of BXO was obtained in cooperation with the late T. E. Anderson and A. McPharther during the Second World War when about 15 cases were treated. The introduction of corti-

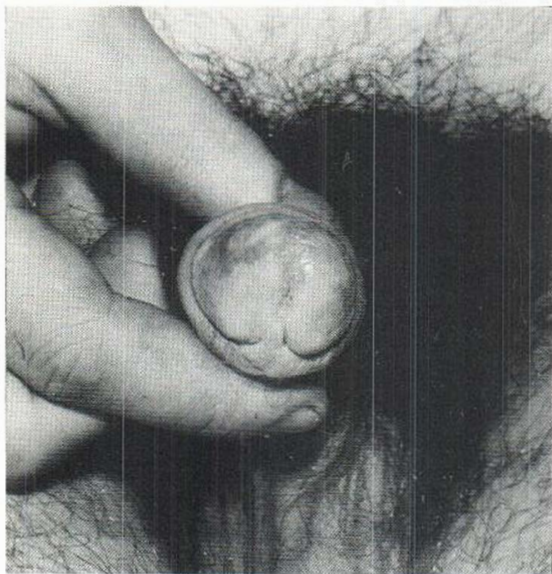


Fig. 1. Balanitis xerotica obliterans.

costeroids temporarily superseded this treatment but the initial rapid improvement obtained tended to be followed by deterioration. More seriously, in one case meatal obliteration and ulceration due to squamous carcinoma developed.

In the present series, 4 patients were treated with 2.5% testosterone propionate in a water-miscible base (Neo-Hombreol-Organon) (8). Biopsy was refused in each case. The diagnosis BXO is used when there is urethral involvement; otherwise, the term LSA is used.

CASE REPORTS

Case 1. A 19-year-old waiter reported in 1971 with increasingly severe attacks of urinary retention. There was typical BXO of the glans penis, sulcus and external meatus (Fig. 1) with mild urethritis. Dorsal slit had been performed at the age of 12 following circumcision for congenital phimosis. No response to previous local therapy.

Testosterone ointment was applied twice daily. The skin improved markedly within 3 months, the urethritis cleared and micturition became normal. Postal follow-up for 2 years indicated that he remained symptom-free.

Case 2. A 64-year-old, married chartered accountant was referred in 1971 because of suspected penile cancer of 9 months' duration. There were typical (but itching) atrophic, white telangiectatic patches of LSA on the glans and sulcus but no meatal involvement.

Testosterone propionate ointment was applied twice daily. For the first 4 weeks only, hydrocortisone was also used locally to alleviate the itch. There was noticeable

improvement after 3 months and skin lesions had disappeared after 2 years.

Case 3. A 23-year-old student of architecture was seen in 1972 because of painful erections and a rash of about 5 months duration on the glans penis. He was uncircumcised. There were two atrophic, whitish telangiectatic patches of LSA on the glans penis only. After a short period on hydrocortisone ointment to relieve irritation, testosterone ointment therapy was started. He then developed a recurrent non-specific urethritis requiring repeated courses of oral tetracycline. The painful erections lessened but the skin lesions were unchanged. He later developed diabetes mellitus, which was controlled by diet and chlorpropamide (Diabinese; Pfizer). The LSA improved rapidly although assessment was difficult because of his obsession with his penile lesions. Direct correlation between the LSA and the diabetes was doubtful.

Case 4. A 31-year-old married waiter came to the clinic in 1972 with acute gonorrhoea. On examination he was found to be uncircumcised and to have a sclerosing condition around the urethral meatus (Fig. 2) causing stenosis and which was diagnosed as BXO. The condition had been present for 5 or 6 years and required occasional catheterization. Treatment with testosterone ointment and urethral dilatation afforded considerable improvement within 4 months and after one year the meatus looked normal.

DISCUSSION

Since BXO (synonym, kraurosis penis) and LSA are believed to represent the same disease process, the question arises as to which diagnosis to use when the genitalia are involved. Most of the patients seen have had widespread involvement of the



Fig. 2. Obliterative urethritis.

glans penis, coronal sulcus and external urethral meatus (Fig. 1). These should be called balanitis xerotica obliterans. The term lichen sclerosus et atrophicus should be retained for cases of genital involvement without urethral involvement. For the opposite situation, where the urethra exclusively is involved, it would be logical to use the term obliterative urethritis (Fig. 2). It seems justifiable for the venereologist to retain these diagnostic distinctions because of the higher risk of malignancy with genital and especially urethral involvement, though this may seem academic to the dermatologist.

The absence of biopsies in this series, whilst regrettable, was not diagnostically crucial. Nevertheless if ulceration were present, biopsy would be imperative in order to exclude malignant change.

The response of BXO/LSA to testosterone propionate has ranged from good, to complete resolution. These results are better than could have been expected with other treatments. The urethra was dilated when necessary and hydrocortisone ointment was used in the early stages for rapid relief of irritation.

Since malignancy may supervene in BXO in relation to the degree of atrophy present, there is a theoretical advantage in avoiding strong topical corticosteroids, as they tend to produce atrophy. The excellent response to testosterone propionate ointment suggests that its use may reduce the tendency for malignancy to develop. Testosterone propionate ointment appears to be the treatment of choice.

ACKNOWLEDGEMENTS

The author thanks those colleagues from the V.D. clinics in Glasgow and beyond, who referred patients to him.

REFERENCES

1. Andrews, G. C.: *Diseases of the Skin*, 3rd ed., p. 623. W. B. Saunders, Philadelphia, 1976.

2. Catterall, R. D. & Oakes J. K.: Treatment of balanitis xerotica obliterans with hydrocortisone injections. *Br J Ven Dis* 38: 75, 1962.
3. Epstein, N. N., Epstein, W. L. & Epstein, J. H.: Atrophic striae in patients with inguinal intertrigo. *Arch Dermatol* 87: 450, 1963.
4. Fitzpatrick, T. B., Arndt, K. A., Clark, W. H., Eosen, A. Z., van Scott, E. J. & Vaughan, J. M.: *Dermatology in General Medicine*, p. 957. McGraw-Hill, New York, 1971.
5. Hallopeau, M.: Leçons cliniques sur les maladies cutanées et syphilitiques. *L'Union Médicale* 43: 742, 1887.
6. Harkness, A. M.: *Non-Gonococcal Urethritis*, pp. 200-202. Livingstone, Edinburgh, 1950.
7. Lever, W. F.: *Histopathology of the Skin*, 4th ed., pp. 273-278. Pitman Medical Publishing Co., London 1967.
8. Martindale, W.: *Extra Pharmacopoeia*, 26th ed. (ed. N. W. Blacow), The Pharmaceutical Press, London 1972.
9. Montgomery, H.: *Dermatopathology*, vol. 2, pp. 988-989. Harper Row, New York 1967.
10. McKenzie, A. W.: Percutaneous absorption of steroids. *Arch Dermatol* 86: 611, 1962.
11. Newbold, P. C. H.: Precancer and the skin. *Br J Dermatol* 86: 417, 1972.
12. Pillsbury, D. M., Shelley, W. B. & Kligman, A. M.: *Dermatology*, pp. 903-904. W. B. Saunders, Philadelphia 1963.
13. Rook, A., Wilkinson, D. S. & Ebling, F. J. G.: *Textbook of Dermatology*, vol. 2, pp. 1538-1542. Blackwell Scientific Publications, Oxford 1968.
14. Sneddon, I.: Adverse effect of topical fluorinated corticosteroids in rosacea. *Br Med J* 1: 671, 1969.
15. Stühmer, A.: Balanitis xerotica obliterans (post operationem) und ihre Beziehungen zur 'Kraurosis glandi et praeputii penis'. *Arch Dermatol Syph (Berlin)* 156: 613, 1928.
16. Today's Drugs. *Br Med J* 11: 299, 1969.

Received May 31, 1976

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