2001 National Guideline on the Management of Balanitis

Clinical Effectiveness Group (Association for Genitourinary Medicine and the Medical Society for the Study of Venereal Diseases)

Aetiology

Balanitis is defined as inflammation of the glans penis, often involving the prepuce (balanoposthitis). It is a common condition affecting about 11% of male genitourinary clinic attendees. It is a collection of disparate conditions with similar clinical presentation and varying aetiologies. (see table 1)

Table 1 Range of factors causing balanitis

Infectious	**Skin disorders**	**Miscellaneous**
Candida albicans	Circinate balanitis	Trauma
Trichomonas vaginalis	Lichen sclerosus (balanitis xerotica obliterans	Irritant
Streptococci (Group A and B)	Zoon's balanitis	Poor hygiene
Anaerobes	Erythroplasia of Queyrat	Contact allergy
Gardnerella vaginalis	Pemphigus	Fixed drug eruption
Staphylococcus Aureus	Lichen planus	Stevens- Johnson syndrome
Mycobacteria	Bowen's disease	
Entamoeba Histolytica	Psoriasis	
Syphilis		
Herpes simplex		
Human papillomavirus		

Clinical Features

Symptoms

- Presenting symptoms
    - Local rash - may be scaly or ulcerated
    - Soreness
    - Itch
    - Odour
    - Inability to retract the foreskin
    - Discharge from the glans / behind the foreskin

- Associated symptoms
    - Rash elsewhere on the body
    - Sore mouth
    - Joint pains
    - Swollen / painful glands

- General malaise

Signs

- Genital
  - Erythema
  - Scaling
  - Ulceration
  - Fissuring
  - Crusting
  - Exudate
  - Oedema
  - Leukoplakia
  - Sclerosis
  - Purpurae
  - Odour
  - Phimosis

- General
  - Lymphadenopathy (local or general)
  - Non-genital rash
  - Oral ulceration
  - Arthritis

Complications

- Phimosis
- Meatal stenosis
- Malignant transformation

Diagnosis

- Balanitis is a descriptive term covering a variety of unrelated conditions, the appearances of which may be pathognomonic.
- Descriptions of the typical appearances of certain balanitides are given separately in the management section.
- The following investigations and flow chart are intended to aid diagnosis in cases of uncertainty.
  - Subpreputial swab for Candida and bacterial culture - should be undertaken in most cases to exclude an infective cause or superinfection of a skin lesion
  - Urinalysis for glucose - appropriate in most cases but especially if candidal infection is suspected.
  - Culture for *Herpes simplex* - if ulceration present.
  - Dark ground examination for spirochaetes and Syphilis serology - if an ulcer is present.

- Culture for *Trichomonas vaginalis* - particularly if a female partner has an undiagnosed vaginal discharge
- Screening for other sexually transmitted infections (STIs) - particularly screening for *Chlamydia trachomatis* infection / Non specific urethritis if a circinate-type balanitis is present
- Biopsy - if the diagnosis is uncertain and the condition persists[1,2]

Management

Balanitis is a clinical diagnosis and covers a range of heterogenous conditions. The recommendations for management are therefore given on an individual basis.

General Advice

- Saline bathing - with a weak salt solution twice daily while symptoms persist
- Avoid soaps while inflammation present[3]
- Advise about effect on condoms if creams are being applied
- Patients should be given a detailed explanation of their condition with particular emphasis on the long-term implications for their health (and that of their partner where a sexually transmissible agent is found)

Infective balanitides

- Candidal balanitis

Diagnosis

- Symptoms: erythematous rash, with soreness and/or itch
- Appearance: blotchy erythema with a small papules which may be eroded, or dry dull red areas with a glazed appearance.
- Sub-preputial culture

Treatment

Recommended regimens

- Clotrimazole cream 1%[4] (Ib,A)
- Miconazole cream 2%[5] (IIa,B)

Apply twice daily until symptoms have settled.

Alternative regimens

- Fluconazole 150mg stat orally[4] (Ib, A)- if symptoms severe
- Nystatin cream[5] 100 000units/gm - if resistance suspected, or allergy to imidazoles (IIa,B)
- Topical imidazole with 1% Hydrocortisone - if marked inflammation is present (IV, C)

Sexual partners

There is a high rate of Candidal infection in sexual partners who should be offered screening.

Follow up

Not required unless symptoms and signs are particularly severe or an underlying problem is suspected.

Anaerobic infection[6]

Diagnosis

- Symptoms: foul smelling discharge, swelling and inflamed glands
- Appearance: preputial oedema, superficial erosions, inguinal adenitis. Milder forms also occur.

Sub-preputial culture (to exclude other causes)

Treatment

Recommended regimen

- Metronidazole 400mg twice daily x 1 week (IV, C) The optimum dosage schedule for treatment is unknown.

Alternative regimen

- Co-amoxiclav 375mg three times daily x 1 week
- Clindamycin cream applied twice daily until resolved

These treatments have not been assessed in clinical trials (IV, C).

Aerobic infection.

Diagnosis

Sub-preputial culture

- *Streptococci Group A, Staphylococcus Aureus* and *Gardnerella vaginalis* have all been reported as causing balanitis. Other organisms may also be involved.

Treatment

Depends on the sensitivities of the organism isolated.

- *Herpes simplex*
- *Trichomonas vaginalis*
- *Syphilis*

} Diagnosis and Treatment: As per specific guidelines

Specific balanitides

These may be recognised either by clinical appearance, or preferably confirmed on biopsy.

- Lichen sclerosus (previously known as Lichen sclerosis et atrophicus and Balanitis xerotica obliterans)

Diagnosis

- Typical Appearance: white plaques on the glans, often with involvement of the prepuce. There may be haemorrhagic vesicles, and rarely blisters and ulceration. The prepuce may become phimotic, and the meatus may be thickened and narrowed.
- Biopsy: this initially shows a thickened epidermis which then becomes atrophic with follicular hyperkeratosis. This overlies oedema and loss of the elastin fibres, with an underlying perivascular lymphocytic infiltrate. Biopsy is the definitive diagnostic procedure.

Treatment

Recommended regimens

- Potent topical steroids[7] (e.g. clobetasol proprionate or Betamethasone valerate) applied once daily until remission, then gradually reduced. Intermittent use (e.g. once weekly) may be required to maintain remission. (IV, C)

Alternative treatment

- Circumcision[8] if phimosis develops (IV,C)
- Surgery for meatal stenosis (meatoplasty, urethroplasty or laser vaporization have been used (IV,C)

N.B. These procedures may be required for specific complications, but treatment of the underlying skin disease will still be required.

Follow up

- Patients requiring potent topical steroids for disease control should be followed up regularly.
- The frequency of follow up will depend on the disease activity and symptoms of the patient, but all patients should be reviewed by a doctor at least annually in view of the small risk (less than 1%) of malignant transformation.[9]
- In addition patients should be advised to contact the general practitioner or clinic if the appearances change. (IV, C)

- Zoon's (plasma cell) balanitis

Diagnosis

- Typical appearance: well circumscribed orange-red glazed areas on the glans with multiple pinpoint redder spots - "cayenne pepper spots". This may be similar to Erythroplasia of Queyrat which is premalignant and biopsy is advisable.
- Biopsy: epidermal atrophy, loss of rete ridges, lozenge keratinocytes and spongiosis, together with a predominantly plasma cell infiltrate subepidermally.

Treatment

. Recommended regimens

- Circumcision - this has been reported to lead to the resolution of lesions[10] (IV, C)
- Topical steroid preparations - with or without added antibacterial agents e.g. Trimovate cream, applied once or twice daily.[11] There is no evidence on effectiveness. (IV,C)
- CO_2 laser - this has been used to treat individual lesions[12].(IV,C)

Follow up

- Dependent on clinical course and treatment used, especially if topical steroids are being used long term.
- In cases of diagnostic uncertainty penile biopsy should be performed prior to discontinuing follow up to exclude Erythroplasia of Queyrat.

- Erythroplasia of Queyrat

  Diagnosis
  - Typical Appearance: red, velvety, well circumscribed area on the glans. May have raised white areas, but if indurated suggests frank squamous cell carcinoma.
  - Biopsy: essential - squamous carcinoma in situ.

  Treatment

  Recommended Regimen
  - Surgical excision - Local excision is usually adequate and effective.[13] (IV, C)

  Alternative Regimens
  - Fluorouracil cream 5%[14] (IV, C)
  - Laser resection [12] (IV,C)
  - Cryotherapy [15] (IV, C)

  Follow up
  - Obligatory because of the possibility of recurrence. Minimum of annual appointments.

- Other Premalignant conditions
  - Bowen's Disease. This is also cutaneous carcinoma in situ and presents as a scaly, discrete, erythematous plaque. Up to 20 % will develop into frank squamous carcinoma. Biopsy is essential. Treatment is by local simple excision, although Fluorouracil cream and laser rescetion have been used. Follow up is essential. (IV, C)
  - Bowenoid papulosis. Another form of carcinoma in situ, this is linked to HPV infection particularly with type 18. Lesions range from discrete papules to plaques. Treatment options include local excision and laser ablation, but some lesions will regress spontaneously. (IV, C)

  The premalignant conditions form a continuum with Penile Intraepithelial Neoplasia (PIN), but vary in clinical presentation and natural history.[16]

.

- Circinate balanitis

  Diagnosis
  - Typical Appearance: greyish white areas on the glans which coalesce to form "geographical" areas with a white margin. It may be associated with other features of Reiter's syndrome but can occur without
  - Biopsy: spongiform pustules in the upper epidermis, similar to pustular psoriasis.
  - Screening for STIs

  Treatment

  Recommended Regimen
  - Hydrocortisone cream 1% applied twice daily for symptomatic relief.[11] (IV, C)
  - Treatment of any underlying infection

Alternative Regimens

- In some cases treatment may not be required.
- More potent topical steroids may be required in some cases.

Sexual partners

- If an STI is diagnosed the partner(s) should be treated as per the appropriate protocol.

Follow up

- May be needed for persistent symptomatic lesions.
- Any associated findings should be followed up as per appropriate guidelines.

- Fixed drug eruptions

  Diagnosis

  - Typical Appearance: is variable but lesions are usually well demarcated and erythematous, but can be bullous with subsequent ulceration.
  - History: a drug history is essential, as is a history of previous reactions. Common precipitants include tetracyclines, salicylates, phenacetin, phenolphthalein and some hypnotics.
  - Rechallenge: This can confirm the diagnosis

  Treatment

  - Not essential.
  - Occasionally topical steroids - e.g. 1% Hydrocortisone applied twice daily until resolution.[17] (IV, C)
  - Rarely systemic steroids may be required if the lesions are severe.

  Follow up

  - Not required after resolution
  - Patients should be advised to avoid the precipitant.

- Irritant / allergic balanitides

  Diagnosis

  - Typical appearance: very variable. Appearances range from mild erythema to widespread oedema of the penis.
  - History: symptoms have been associated with a history of atopy or more frequent genital washing with soap. In a very small number of cases a history of a precipitant may be obtained.
  - Patch tests: useful in the small minority in whom true allergy is suspected.
  - Biopsy: may show non-specific inflammation.

  Treatment

  Recommended Regimen

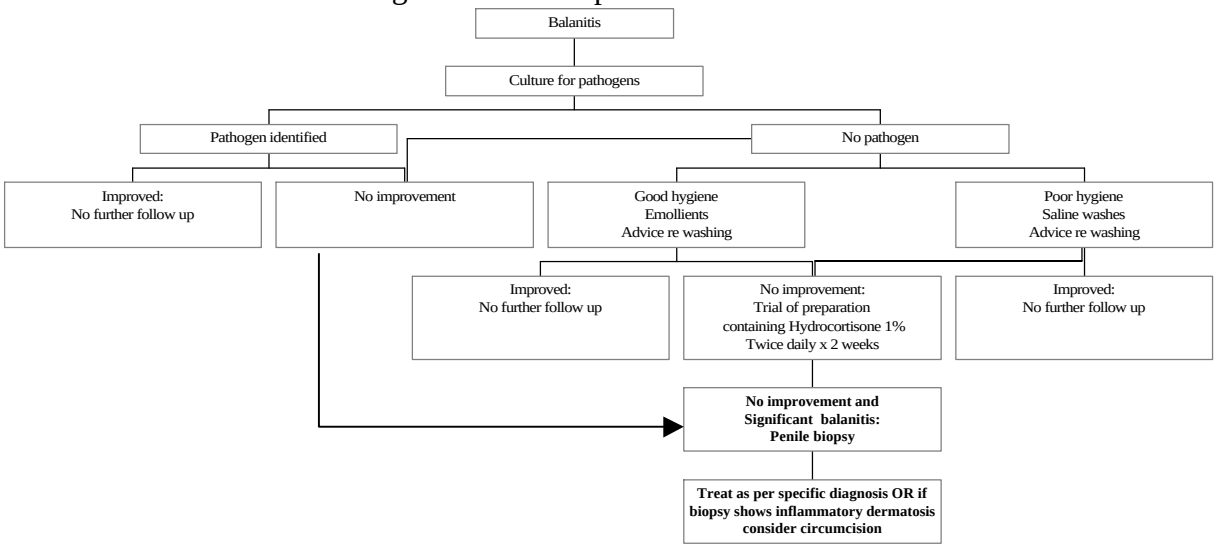
  - Avoidance of precipitants - especially soaps.[3]
  - Emollients - Aqueous cream: applied as required and used as a soap substitute.[3]
  - Hydrocortisone 1% applied once or twice daily until resolution of symptoms.(IV, C)

  Follow up

- Not required, although recurrent problems are common and the patients need to be informed of this.

- Other skin conditions
  - A range of other skin conditions may affect the glans penis. These include psoriasis, lichen planus, seborrheic dermatitis, pemphigus and dermatitis artefacta.[18]

- Flow chart for management of non specific balanitis[19]



Auditable Outcome Measures.

- Biopsy where balanitis persists >6 weeks despite simple treatment.[1,2] Target 80%

Acknowledgements.
I wish to thank Heather Wankowska for her valuable contributions to this Guideline.

Author and Centre.
Sarah Edwards, West Suffolk Hospital

Membership of the CEG.
Clinical Effectiveness Group: Chairman, Keith Radcliffe (MSSVD); Imme Ahmed (AGUM); Jan Welch (MSSVD); Mark FitzGerald (AGUM); Janet Wilson (Royal College of Physicians GU Medicine Committee).

Conflict of Interest.
None.

Evidence Base.
A Medline search was performed from 1966 to 2000, using Keywords - Balanitis, Balanoposthitis, Penile dermatoses, and specific terms in respect of each condition. A search of the Cochrane database was also performed.

References

1. Arumainayagam JT, Sumathipala AHT. Value of performing biopsies in genitourinary clinics. Genitourinary Medicine 1990;66:407.
2. Hillman RJ, Walker MM, Harris JRW, Taylor-Robinson D. Penile dermatoses: a clinical and histopathological study. Genitourinary Medicine 1992;68:166-169
3. Birley HDL, Walker MM, Luzzi GA et al. Clinical features and management of recurrent balanitis: association with atopy and genital washing. Genitourinary Medicine 1993;69:400-403.
4. Stary A, Soeltz-Szoets J, Ziegler C, Kinghorn GR, Roy RB. Comparison of the efficacy and saftey of oral flucanoazole and topical clotrimazole in patients with candidal balanitis. Genitourinary Medicine 1996;72:98-102.
5. Forster GE, Harris JRW. Double blind therapeutic trial in balanitis – miconazole and nystatin. Eur J Sex Transm Dis. 1986;3:81-83.
6. Ewart Cree G, Willis AT, Phillips KD, Brazier JS. Anaerobic balanoposthitis. BMJ 1982;284:859-860.
7. Dahlman-Ghozlan K, Hedblad MA, von Krogh G. Penile lichen sclerosus et atrophicus treated with clobetasol diproprionate 0.05% cream: a retrospective clinical and histopathological study. J Am Acad Dermatol 1999;40:451-457.
8. Liatsikos EN, Perimenis P, Dandinis K, Kaladelfou E, Barbalias G. Lichen sclerosus et atrophicus. Findings after complete circumcision. Scan J Urol Nephrol 1997;31:453-456.
9. Bernstein G, Forgaard DM, Miller JE. Carcinoma in situ of the glans and distal urethra. J Dermatol Surg Oncol 1986;12:450.
10. Kumar B, Sharma R, Ragagopalan M, Radothra BD. Plasma cell balanitis: Clinical and histological features - response to circumcision. Genitourinary Medicine 1995;71:32-34.
11. Oates JK. Dermatoses, Balanoposthitis, Vulvitis, Behcet's Syndrome and Peyronie's Disease. In: Csonka GW, Oates JK eds Sexually transmitted diseases, A textbook of Genitourinary Medicine.London: Bailliere Tindall, 1990.
12. Boon TA. Sapphire probe laser surgery for localised carcinoma of the penis. Eur J Surg Oncol 1988;14:193.
13. Mikhail GR. Cancers, precancers and pseudocancers on the male genitalia: A review of clinical appearances, histopathology, and management. J Dermatol Surg Oncol 1980;6:1027.
14. Goette DK, Elgart M, De Villez RL. Erythroplasia of Queyrat: treatment with topically applied fluorouracil. JAMA 1975;232:934
15. Sonnex TS, Ralfs IG, Delanza MP et al. Treatment of Erythroplasia of Queyrat with liquid nitrogen cryosurgery. Br J Dermatol 1982;106:581-584.
16. Schellhammer PF, Jordan GH, Robey EL, Spaulding JT. Premalignant lesions and nonsquamous malignancy of the penis and carcinoma of the scrotum. Urologic Clinics of North America. 1992;19:131-142.
17. Braun-Falco O, Plewig G, Wolff HH, Winkelman RK, eds. Dermatology. Berlin: Springer-Verlag, 1991. p553.
18. Edwards S. Balanitis and balanoposthitis: a review. Genitourinary Medicine 1996;72:155-159.
19. Mallon E, Hawkins D, Dinneen M, Francics N, Fearfield L, Neson R, Bunker C. Circumcision and genital dermatoses. Arch Dermatol 2000;136:350-354.