Penile cellulitis

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Penile cellulitis is a not uncommon condition, affecting all age groups. Its diagnosis can be easily missed, which may lead to serious complications. We report a case of penile cellulitis in a heterosexual man and discuss the aetiology of this condition in relation to the differential diagnosis of penile swellings.

DISCUSSION

Penile cellulitis is often difficult to differentiate from other causes of penile swelling. It affects all age groups and is caused by bacterial infection of the penile skin involving tissues as deep as the subcutaneous fat. Lymphadenopathy and systemic toxicity may or may not be noted. Although the condition is not strictly speaking sexually transmitted, it has been reported between monogamous heterosexual couples who practise vaginal sexual intercourse or fellatio (Fisk and Riley, 1995). Beta-haemolytic *Streptococcus* groups A and B (which form part of the vaginal and throat flora) are the most common causative organisms (Brady, 1978; English et al, 1997; Fisk and Riley, 1995; Orden et al, 1996).

Staphylococcus aureus and mixed infections including Gram-negative and anaerobic organisms may also be responsible for causing penile infection, while group G Streptococcus has been recognized as a cause of recurrent penile cellulitis (Carlino a Calzavara, 1989).

RISK FACTORS

Penile cellulitis appears more common in uncircumcised than in circumcised men (English et al, 1997; Mendelson and Miller, 1997; Orden et al, 1995), and tends to occur at the site of surgical incisions and other minor skin trauma. Other predisposing factors include diabetes mellitus, alcoholism, morbid obesity, protein S deficiency (Joly et al, 1993) and immune suppression.

DIAGNOSIS

A high index of clinical suspicion and a rapid response to a broad spectrum antimicrobial agent (amoxycillin, co-amoxiclav or erythromycin) will tend to confirm the diagnosis.

Specimens from the purulent discharge, subpreputial discharge or ulcerated surfaces should be taken for bacteriological examination, but clinical response tends to precede microbial culture results. Cultures obtained via needle aspiration are usually unreliable.

Sexually transmitted disease screening should be offered in order to exclude other causes of penile swelling.

COMPLICATIONS

Delayed treatment could lead to serious local and general complications such as retention of urine, penile skin necrosis or loss, and septicaemia.

DIFFERENTIAL DIAGNOSIS OF PENILE SWELLING

There are a number of conditions associated with penile swelling, categorized into general and local causes (*Table 1*). Penile swelling may be a part of generalized oedema or ascites, particularly if a patient has been recumbent for a while. Penile cellulitis should be differentiated from the raised edged, sharply demarcated lesion of erysipelas (a streptococcal infection involving the dermis and upper subcutaneous tissue).

In necrotizing fasciitis bacterial infection involves deep subcutaneous tissue, including muscle. When this infection involves the genital and perineal tissues it is called Fournier's gangrene. Balanitis and balanoposthitis, inflammation of the glans penis and the prepuce resulting from traumatic, irritant or infective causes may be difficult to differentiate from early cases of penile cellulitis, but these conditions may lead to penile cellulitis in grossly neglected cases. Gonococcal urethritis

CASE REPORT

A 37-year-old married man presented to his GP with a 4-day history of itching and painless swelling of his penis. He was treated with a compound antifungal, anti-inflammatory disinfectant cream (Timodine cream, Reckitt & Colman, Hull) without response. Three days later, the patient attended the accident and emergency department at his local hospital with the same complaint. He was diagnosed as having an 'infected penis', and was advised instead to attend the genitourinary medicine (GUM) clinic.

At the GUM clinic, the patient denied any history of allergy or genital trauma before his complaint. He was in a monogamous sexual relationship with his wife, and only practised peno-insertive vaginal intercourse. He had sexual intercourse 2 weeks previously. There was no significant past medical history.

On examination, he was overweight and apyrexial. There was a painless diffusely swollen penis with a ring of crusts at the tip of the foreskin and purulent discharge around the glans penis. There was no urethral discharge and no inguinal lymphadenopathy (*Figure 1*). There was tenderness on attempting to retract the foreskin. Routine urinalysis for pyuria and proteinuria were negative. Screening for urethral gonococcal and chlamydial infections were negative. However, culture of the purulent discharge taken from the subpreputial sac grew beta-haemolytic group A *Streptococcus pyogenes*. The patient was initially treated with a 2-week course of amoxycillin and flucloxacillin, and his condition improved dramatically after 4 days.

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with periurethral abscess usually presents with a history of dysuria followed by a diffusely painful penile swelling.

Contact dermatitis to lubricants and flavourings on condoms or spermicides can produce local inflammation and swelling at the site of skin contact. However, contact urticaria (e.g. latex condoms) usually presents with transient penile swelling, while in angio-oedema itching is usually absent. In these cases, obtaining an accurate history of the type of barrier contraceptive used is important. Lymphocele, non-sclerosing lymphangitis or penile venereal oedema (Wilde and Canby, 1973) are synonymous conditions which occur after frequent or prolonged sexual intercourse. It produces a transient and localized penile swelling close to the coronal sulcus, which subsides with sexual abstinence.

Lymphoedema (usually the result of recurrent episodes of cellulitis), and genital elephantiasis secondary to lymphatic blockage can both lead to chronic penile swelling. Emphysematous penile swellings, secondary to non-clostridial gas forming infection, has been reported in diabetic patients (Humayun and Maliwan, 1982). Penile swelling rarely occurs in pemphigus and neglected cases of cancer of the penis.

Finally, trauma including self-mutilation or self-inflicted (dermatitis artefacta), sadomasochistic sexual practices, use of penile rings and masturbating devices may all cause penile swelling.

CONCLUSION

Penile cellulitis is an emergency condition which should be remembered in the differential diagnosis of penile swelling. It is commonly caused by streptococcal infection. Urgent treatment with anti-streptococcal antimicrobial agents or immediate referral for specialist advice is essential to avoid serious local and or general complications. HM

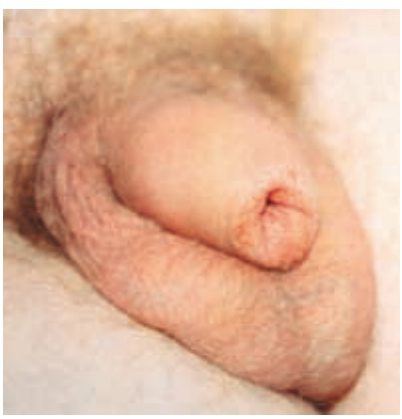

Figure 1. Penile cellulitis.

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TABLE 1.
Differential diagnosis of penile swellings

General causes	Generalized oedema	Ascites	
		Congestive heart failure	
		Nephrotic syndrome	
		Hypoalbuminaemia	
Local causes	Infections of the penile skin and adnexae	Cellulitis	
		Erysipelas	
		Necrotizing fasciitis	
		Periurethral abscess	
		Tropical sexually transmitted diseases	
		Lymphgranuloma venerum, Chancroid, Granuloma inguinale	
	Balanitis and balanoposthitis	Infection	Viral: Herpes simplex virus
			Protozoal: *Trichomonas vaginalis*
			Bacterial: anaerobes
			Mycotic: *Candida* spp.
		Inflammation: psoriasis/systemic dermatoses	
		Trauma	
		Neoplastic: Kaposi's sarcoma	
		Allergy/irritant dermatitis	
	Allergy	Contact dermatitis	
		Contact urticaria	
		Angio-oedema	
		Fixed drug eruption	
	Lymphatic disease	Lymphodema	
		Elephantiasis	
		Lymphocele	
	Trauma	Retention of penile rings/zipper entrapment	
		Road traffic accidents/gunshot wounds	
		Burns/frostbite	
		Amateur circumcision	
		Misuse of vacuum devices	
		Dermatitis artefacta	
	Miscellaneous	Pemphigus/erythema multiforme	
		Cancer of the penis	