Case Report

A case of cavernosal abscess after neglected penile fracture and bacteremia

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Abstract Penile abscess is a urological entity rarely described in the literature. It has been associated with injection therapy for erectile dysfunction, penile instrumentation, trauma and priapism. Identified risk factors include immunosuppresion and pre-existing local or distant infection. Common causal microorganisms include *Staphylococcus aureus*, *Streptococci* and *Bacteroides*. We herein report on a case of penile abscess in a 37-year-old patient occurring after sexual trauma and presenting with bacteremia.

Keywords: Bacteremia, cavernosal abscess, penile fracture

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INTRODUCTION

Penile abscess is a urological entity rarely described in the literature. It has been associated with injection therapy for erectile dysfunction, penile instrumentation, trauma and priapism. Identified risk factors include immunosuppresion and pre-existing local or distant infection. Common causal microorganisms include *Staphylococcus aureus, Streptococci* and *Bacteroides*. We herein report on a case of penile abscess in a 37-year-old patient occurring after sexual trauma and presenting with bacteremia.

CASE REPORT

A 37-year-old man presented to the emergency department with a 3-day history of fever with chills, penile pain, and edema following sexual intercourse 2 weeks ago. He denied any abdominal pain, hematuria, urethral discharge, or difficulty in urinating. On arrival, he was tachycardic with normal and stable blood pressure. Abdominal examination was unremarkable, but his penis was found to be tender on palpation. Laboratory tests disclosed leukocytosis (17.5 × 10^9/ml) and elevated (29.5 mg/l) C-reactive protein; nonetheless, urea and creatinine, liver function tests, glucose, hemoglobin, and electrolytes were within normal range [Figure 1]. Urinalysis showed no abnormalities and rapid HIV testing was nonreactive.

Urgent ultrasound scan with 7.5–10 MHz linear transducer demonstrated a well-circumscribed heterogeneous area 2.3 cm × 2.1 cm at the middle part of the right corpus cavernosum. Corpus spongiosum and urethra were not reported to be involved. The patient was admitted to the Urology Department, where blood and urine samples for culture were obtained, and was empirically commenced on intravenous ciprofloxacin and clindamycin. Magnetic

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resonance imaging (MRI) was performed on a General Electric 1.5T Signa Infinity of T1-weighted (T1W), T2W, and T2fs sequences [Figure 2]. It identified a lesion on the anterior limits of the corpus cavernosum with a medium-intensity magnetic signal in T1W sequence with no signal of the paramagnetic substance and heterogeneous high-intensity signal in T2W sequence, consistent with penile abscess. The patient was consequently submitted to combine flexible urethrocystoscopy and surgical exploration of the penis under general anesthesia. Endoscopy was normal; however, following drainage of the abscess, a 0.5 cm diameter fracture of the right corpus cavernosum was found and closed with a running 2-0 suture. The cavity of the abscess was washed out thoroughly and a Penrose drain was left in place. Urine cultures were negative; however various microorganisms, namely *Streptococcus intermedius*, *Prevotella bivia*, *Peptostreptococcus micros*, *Fusobacterium* spp., and *Actinomyces meyeri* were cultured from the drained pus; all but *Fusobacterium* spp. were cultured from the blood samples as well. Intravenous antibiotics were given in accordance with the sensitivity (piperacillin/tazobactam plus clindamycin) for 10 days. Patient's condition improved substantially over the next days and the infection markers returned to normal. A Doppler ultrasound scan, carried out 4 days postoperatively, showed normal blood flow in both corporea cavernosa [Figure 3]. The patient was discharged after 12 days of intravenous antibiotics with a prescription of a 7-day course of oral antibiotics and instructions to be followed in the outpatient clinic on a regular basis. At the 2-week follow-up, clinical examination was unremarkable. At 3 months, the penis was scanned with an MRI and was found normal; nevertheless, the patient complained of erectile dysfunction, which on the International Index of Erectile Function-5 (IIEF-5) was indicated to be mild (IIEF-5 = 17). This, however, was reportedly improved at the 6-month visit, when the IIEF-5 was 22.

Figure 1: Ultrasound images of the abscess measuring 2.3 cm × 2.1 cm

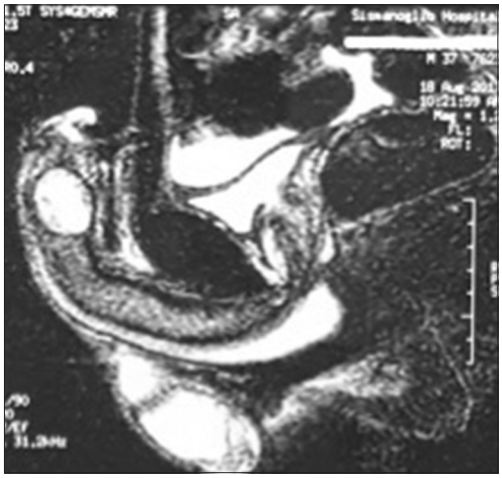

Figure 2: Magnetic resonance imaging scan. Abscess formation with high-intensity magnetic signal in T2-weighted sequence

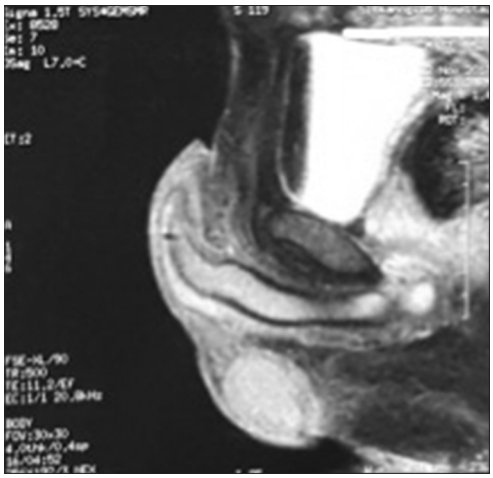

Figure 3: Follow-up magnetic resonance imaging scan at 3 months postoperatively indicating complete absorption of the abscess

DISCUSSION

Penile abscess is an uncommon urological entity, most commonly presenting with penile pain and localized swelling. It may appear unilaterally or bilaterally and is usually idiopathic[1] although it has been associated with priapism, penile injections,[2] trauma, penile prosthesis placement, tuberculosis,[3] as well as hematological spread of distal infections.[4] Spontaneous development of cavernosal abscess with pus pointing and discharge has been very rarely reported in the literature.

Diagnosis is based on clinical examination and imaging modalities, namely ultrasonography, computed tomographic scan, and MRI scan of the penis. Ultrasonography is a readily available option which may be used for localizing and guiding drainage.[5] In the present case, although the

ultrasound was indicative of an abscess formation, an MRI scan was used to better assess the soft tissue extent of the lesion. MRI can convincingly rule out other possible pelvic/perineal infection foci and allow planning for operative management.[5] As there is no evidence-based superiority of one modality over another, the selection of imaging modality should be individualized.

Treatment options for penile abscess include intravenous antibiotics, radiologically guided needle aspiration, or open surgical drainage. Antibiotic treatment should be based on the sample culture and sensitivity, but it may initially start empirically, as in our case. Image-guided needle aspiration is a minimally invasive option performed under local anesthesia which potentially avoids extensive tissue trauma and lessens the risk for postoperative complications, such as fibrosis.[4] Open surgical drainage allows for thorough drainage and washout of the abscess and a more extensive exploration of the lesion for concomitant pathology. In our case, a 0.5 cm rupture of the right corpus cavernosum was found and sutured meticulously; this might have been missed should a less invasive drainage method had been selected. Complications include erectile dysfunction, penile curvature, fistulae, and abscess recurrence.[6] Less invasive techniques may have a lower risk for complications[4] although many focus on surgical drainage as recurrences were noticed with aspiration techniques.[7]

The most common organisms isolated from penile abscesses are *Staphylococcus aureus, Streptococci, Fusibacteria*, and *Bacteroides*.[8] In our case, several species were isolated form the pus and blood, including *S. intermedius*, *P. bivia*, *P. micros*, *Fusobacterium* spp., and *A. meyeri*, and to our knowledge, there have been only three cases reported in the literature with bacteremia due to a penile abscess.[1,9,10] The patient recovered well and ultimately maintained his erectile function, as was indicated from the IIEF-5 at the 6-month follow-up.

CONCLUSION

Our case illustrates that penile abscess, despite being a rare clinical entity, can occur in healthy men with a history of trauma and possible neglected penile fracture and may sometimes be complicated with bacteremia. Prompt diagnosis and early antibiotic treatment along with drainage and surgical exploration is the key to a successful outcome. Patients should be closely followed postoperatively for potential complications.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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