ANDROLOGY

Case Report

Complete penile skin necrosis

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ABSTRACT

Superficial penile skin infections may be presented in different clinical situations that vary from simple infection to organ loss and serious morbidity and mortality. Antibiotic treatment and, if necessary, urgent debridement is required. A 46-year-old male patient with the complaints of urethral discharge and pain admitted to our outpatient clinic. He declared that there were midpenil tenderness and erythema 14 days ago which occurred after sexual intercourse. Complete penile skin necrosis with purulent discharge was detected in physical examination. After wound debridement and 14-days of intravenous antibiotic treatment, wound site culture was negative and then full-thickness skin grafting was performed. Urgent antibiotic treatment should be given, especially for the skin infections of the genital area. Despite the rapid spread of antibiotic treatment, clinical presentation may worsen within hours. It should be noted that especially in diabetics and elderly patients with poor hygiene, the infection may spread to anogenital region and may lead to fulminant necrotizing fasciitis which can present with severe morbidity and mortality. Reconstructive surgery is planned after the control of infection and according to the amount of tissue loss.

Keywords: Infection; necrosis; penile.

Introduction

Superficial penile infections may confront us with various presentations from simple infection up to life-threatening necrotizing fasciitis which may progress to systemic toxicity. For successful treatment the wound should be debrided or drained within the first 6 hours and antibiotherapy should be absolutely added to the regimen.^[1] These infections may be mono-, or polymicrobial. When simple skin infections progress, they may involve fascial, and muscular layers of the skin, and life-threatening myonecrosis may develop. In a guideline updated in the year 2014 by Infectious Disease Society of America (IDSA), the importance of rapid identification of the pathogen, and timely initiation of effective treatment in soft tissue infections have been demonstrated.^[2] Based on the classification made by US Food and Drug Administration (FDA) necrotizing

infections are evaluated as complicated infections. The most prevalent pathogens include beta-hemolytic streptococci (*Streptococcus pyogenes*), staphylococcus aureus (incl. methicillin-resistant staphylococcus aureus), and gram-negative aerobic bacilli. In a study evaluating cases which progressed to isolated penile gangrene, most frequently isolated agents were *S. aureus* and *Escherichia coli* (*E. coli*). In its etiology, penile abrasion following oral sex, urinary tract infection, and long-segment anterior urethral stricture were held responsible. In these cases only skin, and dartos fascia were involved. In half of these cases, primary repair was proved to be sufficient, while for the other half skin graft was required.^[3]

Case presentation

A 46-year-old male patient presented to our outpatient clinic with penile pain, swelling,

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and urethral discharge persisting for 7 days. The patient told that one day after a sexual intercourse happened 14 days ago he had discerned a hyperemic, tender lesion at the midline of penile skin nearly 1 cm in diameter which gradually enlarged. During that period he had sexual intercourse twice with the same partner, and had not received any treatment. The patient had not any chronic disease, concomitantly developed infection or he was not under chronic drug therapy. He had not previously undergone any surgery.

On physical examination his general health state was in good condition, his penis was tender on palpation, and its skin was completely necrotic, and diffuse purulent urethral discharge was noted (Figures 1). Bilateral testicles, and perianal region were normal in appearance. His body temperature was, 37°C, pulse rate 88/min, arterial blood pressure 140/80 mm/Hg, WBC: 15500/uL, while 5 WBCs were detected in his urine sample at 40x magnification, and any growth of pathogen was not observed on his urine culture media.

The patient was hospitalized, and after approval of the patient was obtained, the wound site was debrided. Fascial layer was not affected (Figures 2). Wound site culture was obtained, then empirical treatment with ceftriaxone (2 x 1 g IV), and metronidazole (3 x 500 mg po) initiated. On wound site culture media microorganisms (*S. aureus* and *E. coli*) susceptible to the treatment applied were grown. Treatment was maintained for 21 days. On the 10th day of the treatment, smear culture prepared from wound site did not reveal growth of any microorganism, then full-thickness skin graft harvested from the skin covering spina iliaca anterior superior was placed on the wound defect (Figures 3). On postoperative 8th day the wound was completely left open (Figure 4). At control visit on postoperative 20th day, development of skin graft was observed (Figure 5).

Discussion

Though seemingly simple entities, it should not be forgotten that superficial penile skin infections when progress may lead to loss of an affected organ or even life-threatening conditions. Especially in the skin infections involving gonads, antibiotherapy should be initiated without delay. Rapid spread of the infection may manifest itself worsening clinical symptoms within hours despite antibiotherapy, hypotension, disorientation, lethargy, and development of subcutaneous induration. This condition which progresses to fulminant necrotizing fasciitis that involves anogenital region partially or totally may necessitate partial/total penectomy.

Especially in patients with advanced age, diabetes, and poor hygiene or even lead to serious morbidity, and mortality.^[4] This is the most serious condition, and mortality rates up to

76% have been reported. Generally they become manifest with cellulitis, and if untreated it progresses to gangrene formation.^[5] After debridement, and antibiotherapy, and following acute phase of the disease, dependent on the size of the tissue defect reconstructive methods should be applied in consideration of priorly functional, and then esthetic concerns.^[6]

Penile infection in a patient with untreated penile abrasion which occurred after a routine and/or traumatic sexual inter-

Figure 1. Complete necrotic penile skin

Figure 2. Penis after 14 days of antibiotherapy, and debridement

Figure 3. Full-thickness grafting was performed on 14th day

Figure 4. Post- op 8th day Figure 5. Post- op 20th day

course, recurrent sexual intercourses, contact of subcutaneous tissue with vaginal flora and subsequent 2 weeks of untreated period may progress dramatically. The bacteria causing this infection, skin, subcutaneous necrosis (*S. pyogenes*, *S. aureus*) have important virulence factors which resulted in development of these clinical manifestations. This condition may induce rapid deterioration of the clinical state of the patient, septic shock, and also increases subsequent risk of mortality.^[7] Mostly, an underlying vascular etiology as diabetes, venous failure, and arteriosclerosis is found. Since our patient hadn't any systemic disease (diabetes mellitus, heart failure, morbid obesity, hypertension, immunosuppressive disease), and substance dependency aided us to predict accurately clinical severity, and prognosis of the disease.

In the treatment of the cases without disease progression, abscess formation, intraabdominal spread, and systemic manifestations which do not require drainage or debridement empirical treatment with semisynthetic penicillins, macrolides, first-, or second-generation cephalosporins can be used for treatment, while it should be known that in the treatment of refractory febrile (>38.5°C) cases manifesting hypotension, abscess formation, worsened general health state, intraabdominal spread, deep or widespread skin infection, cases which

require drainage or necrotic cutaneous lesions, methicillin-resistant *S. aureus* or erythromycin-resistant *S. pyogenes* are responsible in 50-70% of the cases. Then the patient should be hospitalized, and evaluated based on antibiogram results. Subsequently, treatment with antimicrobial agents (vancomycin, linezolid, and daptomycin) effective on these microorganisms should be also considered.^[8] Simply use of a condom, and early antibiotherapy obviously convey importance. It appears that if delayed, long-term antibiotherapy, debridement, and skin flap/graft may be required, loss of the affected organ may occur in addition, risk of morbidity, and mortality increases. Still it should be known that in necrotizing urogenital skin infections without fascial involvement, appropriate treatment has a higher success rate.

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