Acne inversa of the scrotum and penis – aggressive urological treatment

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KEY WORDS

acne inversa ◗ hidradenitis suppurativa ◗ scrotum ◗ penis

ABSTRACT

Acne inversa is a rare chronic and debilitating inflammatory skin disease.
The authors report a case of a 45-year old male who presented with acne inversa in the inguinal, perineal, and scrotal areas. After unsatisfactory pharmacological treatment a wide surgical excision of the affected skin was performed in stages. On follow-up the patient presented with a very good cosmetic and functional result. A review of the most recent literature is also presented.

INTRODUCTION

Acne inversa (formerly *hidradenitis suppurativa*) is a rare chronic and debilitating inflammatory skin disease. It forms inflammatory nodules, abscesses, fistulas, and scars in the apocrine-gland-bearing regions [1, 2]. The disease usually occurs after puberty and starts in the areas, where there is skin-to-skin contact, such as the armpits, the groins, sites under the breasts, or around the anus and genital organs. The latest concept of pathogenesis emphasizes that intrafollicular hyperkeratinization leading to the occlusion, dilation, and subsequent rupture of the follicles is the main cause of the inflammatory process. Bacterial infections seem to be a secondary factor. The hallmark of *acne inversa* is the formation of purulent fistulas and scarring [2-5]. Smoking and obesity are both known as risk factors and are associated with a more severe course of the disease [6, 7]. First-line treatment consists of topical therapy with antibiotic and comedolytic compounds. In more advanced cases systemic antibiotics, anti-inflammatory agents, and retinoids (oral/topical) are recommended. In case of conservative management failure, surgical treatment of the involved areas should be considered [8].

The authors report a case of a 45-year old male who presented with *acne inversa* in the inguinal, perineal, and scrotal areas. After unsatisfactory pharmacological treatment, a wide surgical excision of the affected skin was performed with good cosmetic and functional results. A review of the most recent literature is also presented.

MATERIAL AND METHOD

A male, 45 years of age, was admitted to the department of urology with the diagnosis of *acne inversa* located in genital organs and armpits. The first symptoms had occurred 10 years before and, despite repeated pharmacological treatments with antibiotics and retinoids, the disease gradually progressed and significantly limited the patient's sexual life. On admission the lesions were estimated at the third degree according to the Hurley scale (diffuse or broad involvement across a regional area with multiple interconnected sinus tracts and abscesses) [9]. The diagnosis was confirmed by a biopsy of the full-thickness skin and subcutaneous tissue from the scrotum.

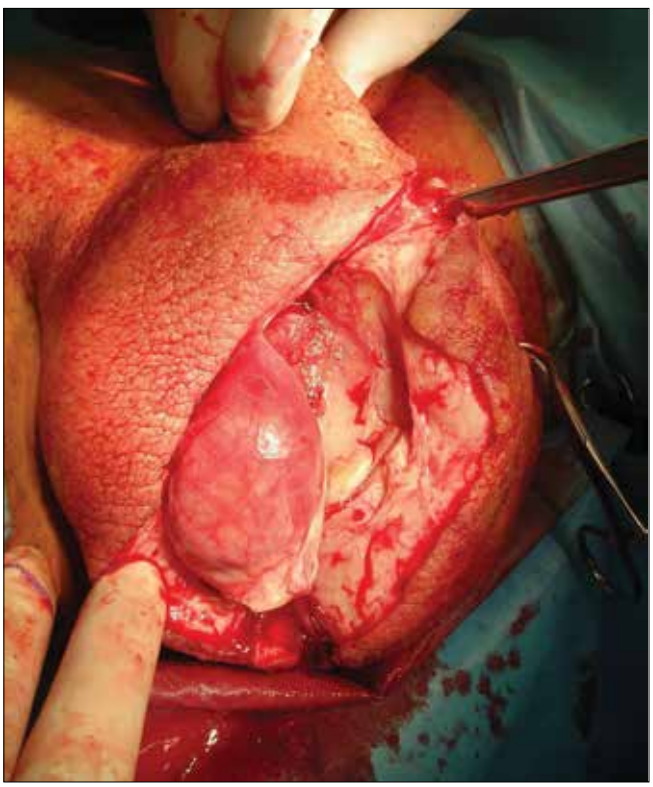

Fig. 1. Scrotal lipocutaneous flap transfer.

Because of the unsatisfactory result of the previous treatment and advanced stage of penile and scrotal lesions, he was qualified for surgical treatment. The surgery was performed in stages. Procedures were done in the lithotomy position under spinal anesthesia. The scrotal operation consisted of two stage excision of diseased skin and subcutaneous tissue of the entire scrotum with a margin of 1 cm and with subsequent covering of the testes using transfer of the lipocutaneous flap to close the defects in scrotum (Fig. 1). The penile surgery began with almost total excision of the skin of the penis. Then a meshed split-thickness skin graft from the thigh was used to cover the defect (Fig. 2).

The outcome of the treatment was clinically evaluated by three independent observers within 2-years of follow-up. Attention was paid to the cosmetic result, pain, and restoration of sexual activity as well as to the extent of the remaining *acne inversa* lesions that were compared using the images obtained before and after surgery. Patient's preoperative and postoperative quality of life was also estimated by using Visual Analog Scale (VAS).

RESULTS

The time of each of the two first scrotal operations was 80 minutes and the third penile surgery lasted 130 minutes. The patient received ceftriaxone and metronidazole in doses of 2x1000 mg and 3x500 mg respectively for seven days post-operatively. There were no early or late surgical complications and the patient showed good tolerance to the treatment.

The inflammatory process in the genital organs has not recurred (Fig. 3). On follow-up the patient presented with a very good cosmetic and functional result that made it possible to resume a normal sexual lifestyle. His subjective score of quality of life increased nearly four times from 2.1 to 8.3 in VAS. Unfortunately, the patient still has some lesions in the armpits requiring periodic antibiotic therapy.

DISCUSSION

The term *hidradenitis suppurativa* was first used in 1865 by French surgeon Verneuil who linked the skin inflammation to the disease of apocrine sweat glands [7, 10]. Recently a new term, *acne inversa*, has been proposed but has not yet gained widespread popularity.

It is a rare disease affecting about 1% of the population [8]. The etiology remains unclear. The name suggests that it is caused primarily by follicular occlusion with secondary inflammation of the apocrine glands. The initiating events are micro-tears in the hair follicle caused by mechanical friction in the intertriginous areas of the skin [11, 12]. These tears lead to discontinuity of the epithelial lining, inflammation subsequent to leakage of follicular content, and the formation of characteristic *acne inversa* lesions.

Recently much attention has also been given to the role of the sebaceous gland in the etiology of *acne inversa* [13-20]. It may be possible that propensity to *acne inversa* is the consequence of the loss of one or more of several sebaceous gland functions: anti-bacterial, endocrine, or anti-inflammatory [21]. So, the infection, most often caused by the colonization of *Staphylococcus aureus*, may be a secondary event and therefore treatment focused on bacterial elimination alone cannot be successful. It is for this reason that new topical therapies for *acne inversa* have been described. These new therapies are based on the administration of an anti-TNF drug such as infliximab [22, 23, 24]. Photodynamic therapy (PDT) with 20% 5-aminolevulinic acid (ALA) may also be a safe and effective option [25]. However, these results are preliminary and require more clinical studies.

Acne inversa affects patients' lives in many aspects. Advanced disease has a significant emotional impact on patients and leads to their isolation due to fear of stigmatization. Sexual life is often disturbed if the lesions involve the sexual organs as in the presented case [26]. Unfortunately, many studies show that patients are often treated conservatively for very long periods time, even when the treatment is evidently ineffective, and that surgical intervention is not offered to them early enough [27-30]. This is likely caused by the lack of knowledge about this disease, fear of surgical treatment, and the location of the lesions that make the surgical excision difficult. [29-32]. On the otherhand, we know that non-effective treatment of *acne inversa* can lead to severe complications such as tissue contractures, systemic infections, anemia, amyloidosis, arthropathy, or even squamous cell carcinoma [33, 34].

In most cases, surgical treatment of recurrent and progressive disease should not be limited solely to skin incision and drainage. It may provide some pain relief, but is not curative and, on the contrary, often only leads to extensive scaring caused by poor wound healing. Many authors emphasize that the complete excision of the involved skin areas together with subcutaneous tissue is the only curative treatment for *acne inversa* [1, 9, 35]. However, wide tissue excision poses the problem of excised skin replacement [1, 9, 35]. Thus, many different kinds of skin flap techniques have been proposed for the closure of defects in *acne inversa*, such as: lipocutaneous, fasciocutaneous, myocutaneous, and free flaps [27, 30, 36-39].

Fig. 2. The partial-thickness skin graft from thigh used to cover the penile skin defect.

Fig. 3. Result after 2 years of follow-up.

In the presented case we chose the lipocutaneous flap to close the defects on the scrotum and a meshed split-thickness skin graft to cover the penile shaft. It must be underlined that meticulous dressing care and antibiotic therapy were crucial to achieve proper healing.

The described technique resulted in less deformation of the organs and made it possible to obtain good graft acceptance and wound healing [40, 41]. The follow-up did not reveal any new lesions in the operated areas, but the patient will be monitored further as the disease may recur [42].

CONCLUSIONS

Sometimes the only curative option for extensive *acne inversa* affecting the sexual organs is aggressive surgery. Delaying its implementation may lead to severe local and generalized complications. In the presented case the surgical treatment was effective and well tolerated. We recommend it for all advanced cases of *acne inversa* as well as those resistant to conservative treatment. However, such therapy should be performed in centers with expertise in penile surgery.

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