Case report

Tensor Fascia Lata (TFL) muscle Flap associated with a skin graft, as a salvage solution in deep abdomino-perineal and external genitalia burns:

Abstract

A burn corresponds to a destruction of the skin and/or deep subcutaneous structures caused by a thermal, electrical or chemical agent. When it is deep, it poses the problem of reaching the underlying noble structures. Burning by hot contact in the context of an epileptic seizure, starting from the mutilations they cause, often requires the use of shreds to cover the losses of the substances generated. It causes significant morbidity and mortality, hence the importance of urgent and adequate initial management. The abdomino-perineal region and the external genitalia (EG) are rarely affected. We report a case of deep burn of the abdomino-perineal region and EG occurring in the context of a work accident in which the exposure of underlying noble elements required the use of Tensor Fascia Lata (TFL) muscle Flap. It was a 31-year-old man, chronic smoker at 10 PA and epileptic for 8 years, having stopped his treatment, who was admitted to hour 2 (H2) for his burn by hot contact which occurred following an epileptic attack.

The patient had fallen on a hot welding instrument in the context of an informal work accident. Initially transferred to a local hospital, he was sent to us for care.

Examination found a 3rd degree burn affecting the abdomino - inguino -pubic regions, the sheath of the penis, the scrotum and the postero-external face of the left forearm.

The initial management consisted of hemodynamic stabilization, the realization of a relief incision at the level of the sheath of the penis and local care.

An early excision of the postero-external face of the forearm and abdomino-perineal on day 3 had been performed having exposed the spermatic cords, followed by coverage on day 10 by a Tensor Fascia Lata muscle Flap of the inguinal region - pubis, skin graft of the sheath of the penis and of the postero-external face of the left forearm. The postoperative course was simple.

Key words : Deep burn, hot contact burn, abdominal-perineal burn, Tensor Fascia Lata muscle Flap, EG skin graft.

Introduction

The deep burn poses the problem of reaching the underlying noble structures. Burning by hot contact in the context of an epileptic seizure, starting from the mutilations they cause, often requires the use of shreds to cover the losses of the substances generated. It causes significant morbidity and mortality, hence the importance of urgent and adequate initial management. The abdomino-perineal and EG regions are rarely affected. Being at the urogenital and digestive crossroads, these regions are characterized by the presence of digestive and urogenital orifices as well as the risk of secondary infection that they entail.

Genital and perineal burns have serious physical, functional, sexual and psychological consequences that have a direct influence on quality of life [1]. The American Burn Association classifies these burns as major burns. They are very worrying, not only for the victim, but also for the treating surgeon [2, 3, 4].

Reconstruction can be very demanding because it is necessary to preserve the sexual and excretory functions of the perineal area, to prevent the occurrence of postoperative eventration [5].

Clinical case

He was a 31-year-old man, chronic smoker at 10 PA and epileptic for 8 years, having stopped his treatment and admitted to hour 2 (H2) for his burn by hot contact which occurred following an epileptic attack.

The patient had fallen on a hot welding instrument **(Figure 1)** as part of an informal work accident. Initially transferred to a local hospital, he was sent to us for treatment.

The examination found a 3rd degree burn involving the inguino -pubic regions, the sheath of the penis, the scrotum and the postero-external face of the left forearm **(figures 2 and 3).**

The initial treatment consisted of hemodynamic stability, performing a relief incision at the level of the sheath of the penis **(figure 4)** and local treatment using silver sulfadiazine- type flammazine cream associated with sheets of tulle gras.

Figure 1: Automatic electric heating system for the welding machine

Figure 3: Deep burn on the postero-external aspect of the left forearm with underlying muscle exposure.

Figure 2: Third-degree burns on the inguinal-pubic regions, the shaft of the penis, and the scrotum.

We proceeded to an early excision (day 3 of the burn) of the abdomino-perineal areas, of the sheath of the penis exposing the spermatic cord (**figure 5**) and an early excision - skin graft of the postero-external face of the left forearm (**figure 6**). The sheath of the penis was grafted on day 2 of the excision (**figure 7**). The exposure of the spermatic cords was covered on day 10 (D10) with a flap of the tensor fascia lata allowing easy bilateral coverage of the inguino - pubic region and skin grafting of the adjacent areas (**figure 8)**. The postoperative course was simple.

We noted no necrosis of the flap, nor lysis of the skin grafts. The delbet blade was removed at the first dressing change on day 3 (D3). The skin graft staples were removed on day 5, and the donor area staples were removed on day 10.

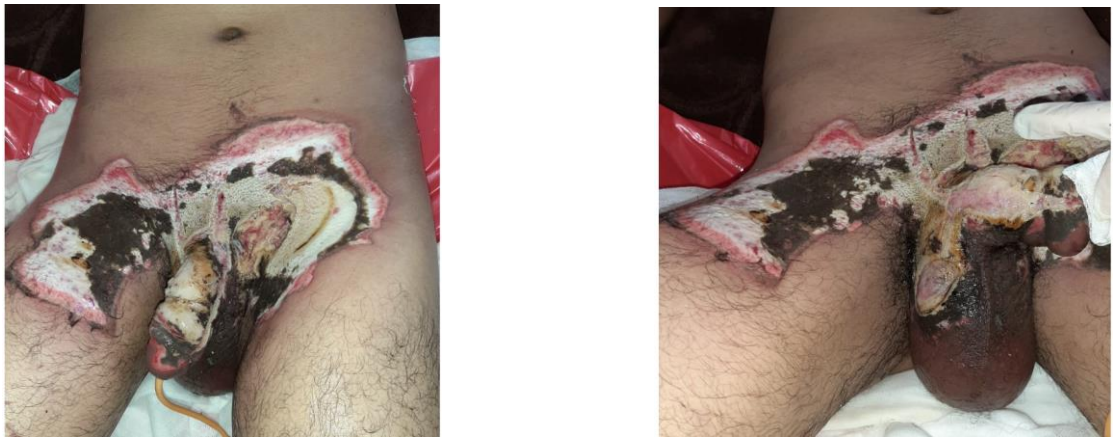

Figure 4 : showing the discharge incisions on the shaft of the penis

The patient had received very early rehabilitation on postoperative day 10. Discharge was permitted on day 15. Follow-up was carried out in outpatient consultations on day 30, 3 months, and 6 months. Skin coverage was satisfactory, with good skin flexibility and trophicity. There was a resumption of sexual function and good socio-professional reintegration. The patient reported being satisfied with the results (**Figure 9).**

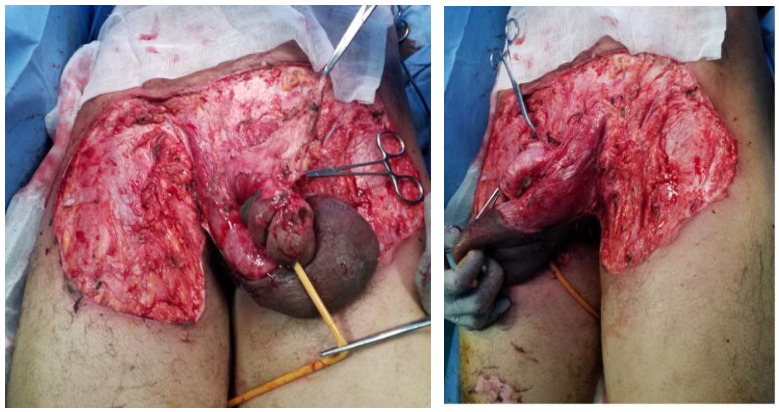

Figure 5: Early excision by avulsion of the abdomino-perineal areas, the shaft of the penis, exposing the spermatic cord.

Figure : Early excision and skin grafting of the postero-external aspect of the left forearm.

Discussions

Deep abdomino -perineal burns associated with external genitalia are rare [1, 6]. They are often encountered in extensive burns. The external genitalia have important anatomical, functional and physiological functions for the human body. Their burns lead to serious physical, functional, sexual and psychological consequences that have a direct influence on the quality of life [1, 4, 6, 7].

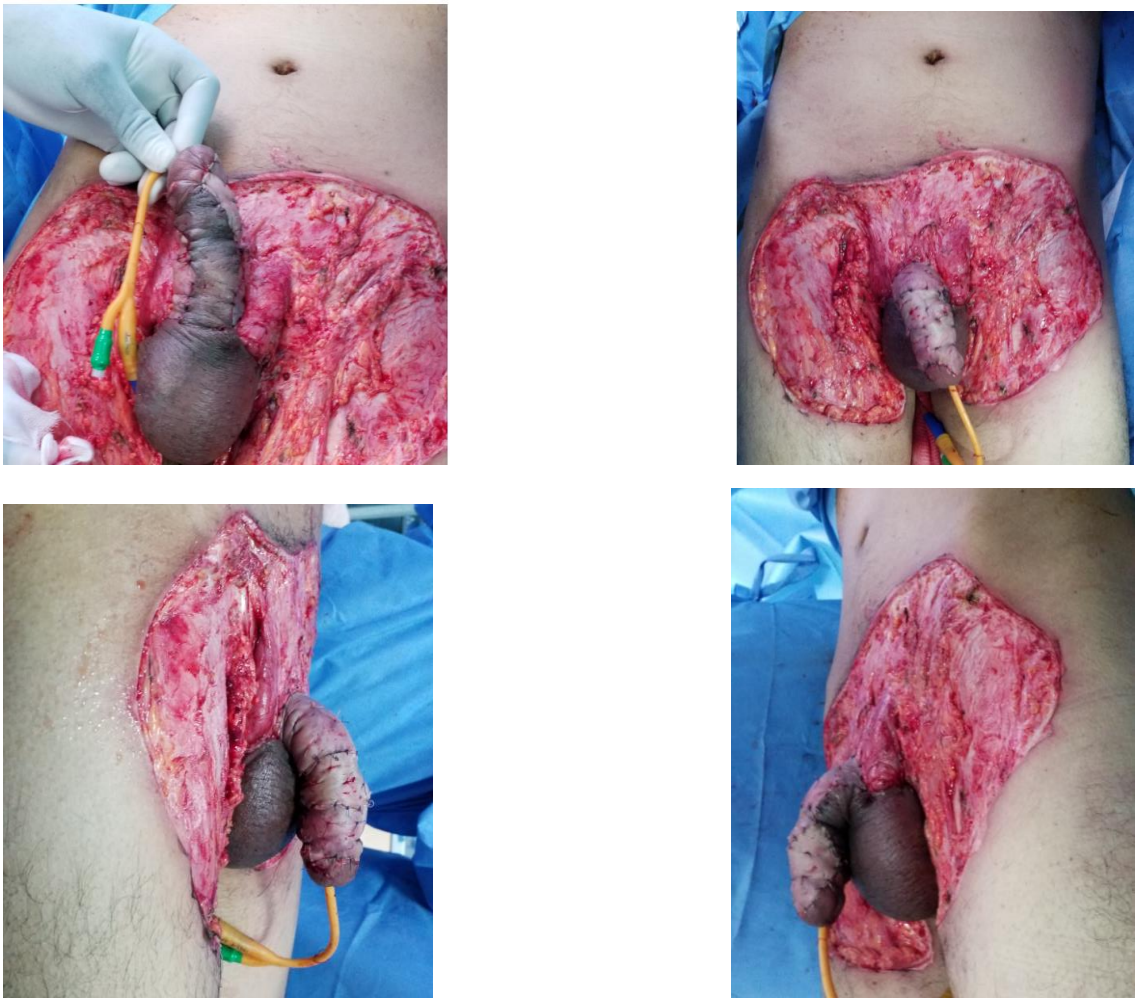

Figure 7: Split-thickness skin graft on the shaft of the penis. Note the exposure of the spermatic cords.

Abdomino-perineal and EG burns are immediately considered a serious factor with a risk of secondary infection and sepsis. They require transfer and care in a specialized center.

The circumstances of the occurrence of these burns, such as epileptic seizures, are in themselves a pejorative element due to prolonged contact with the injuring agent [9]. Initial

management in a specialized center should guarantee not only vital functions but also adequate local treatment. From admission and in parallel with the continuation of resuscitation measures, a thorough initial clinical examination to search for associated trauma is required in all cases.

Figure 8: The coverage of the spermatic cords with a TFL flap bilaterally and skin grafting of adjacent areas.

Maintenance of fluid and electrolyte balance is important and should be adapted to the patient's metabolic and renal status. Cutaneous relief incisions, particularly in our patient at the sheath of the penis, must be performed urgently within 6 hours before signs of tissue damage appear [10]. In our patient, they were performed at hour 2 (h2).

Figure 9: 6 months postoperative front, strict left and right profiles, and 3/4 left and right profiles

Early excision-grafting is necessary in order to reduce the risk of infection and improve local trophic status [11]. Our patient benefited an early excision by avulsion of the abdomino-perineal areas, of the sheath of the penis exposing the spermatic cord (**figure 5**) and an early tangential excision-cutaneous graft of the postero-external face of the left forearm (**figure 6**). The sheath of the penis was grafted on day 2 of the excision (**figure 7**).

When there is exposure of a noble element, namely nerve, tendon, vessels, joint or bone, the provision of local, regional or distant pedicled or free flaps is necessary [12]. In our patient, the exposure of the spermatic cords was covered on D10 by a flap of the TFL allowing easy coverage of the inguino -pubic region bilaterally and skin grafting of the adjacent areas **(figure 8).**

The spermatic cord is made up of arteries, veins, lymphatics, nerves and the vas deferens. The testicular artery supplies blood to the testicles, while the vas deferens is the excretory duct of the testicles. Damage or injury to the cord at any point in its course can affect testicular blood flow and/or interrupt the continuity of the vas deferens [13, 14, 15]. It is clear here that coverage by a flap is necessary. Furthermore, the fragility of this inguino-crural region requires a strong reconstruction. The choice of the flap of the tensor fascia lata seemed judicious to us because of the sufficient tissue it provides. Other flaps, such as the difficult-to-dissect anterolateral thigh flap, could be used, but its rotational axis does not allow for bilateral coverage of the inguino-pubic region. Artificial dermis, due to its cost and risk of infection, did not appeal to our choice, and muscle flaps are not indicated in this area [16, 17, 18].

The fascia lata flap allowed for effective and bilateral coverage of the exposed spermatic cords. The postoperative course was uneventful.

It is important to initiate early functional rehabilitation and physiotherapy in order to prevent the development of sequelae. Our patient underwent early rehabilitation starting on the 10th postoperative day. Discharge was permitted on the 15th day. Follow-up was conducted through outpatient consultations at 30 days, 3 months, and 6 months. The skin coverage was satisfactory, with good skin suppleness and trophicity. Copulation function was restored, and there was a good socio-professional reintegration. The patient reported being satisfied with the results. Psychological follow-up was also provided.

Conclusion

Deep abdomino-perineal burns and burns of the external genitalia are rare but serious, especially since they occur during an epileptic seizure. Early excision-graft and coverage by a flap of the noble structures are necessary. The use of a tensor fascia lata flap in the case of exposed spermatic cords is an interesting option. It allows effective coverage and simple technique.

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