Reconstruction of the perineum using Bilateral crural flap after Fournier's gangrene

YAHYA TFEIL[1*,] SID 'AHMED LIMAM[2], MOHAMED KAH[1,] FAH MOHAMIYAYE[3,] AHMEDOU MOULAYE IDRISS[1], MOHAMED JIDDOU SIDI BABA[1]

1 : URAC - FMPOS Nouakchott, 2 : SAMU, 3 : Hôpital régional de Zouerate.

**: corresponding author: Dr Yahya tfeil (e-mail: tefeil2000@gmail.com)*

Key words: *Fournier gangrene, lateral crural flap, necrotizing fasciitis, scrotal reconstruction, clinical anatomy research unit*

ABSTRACT

Fournier's gangrene, a rapidly progressive necrotizing fasciitis of the perineum and external genitalia resulting in extensive soft tissue necrosis, remains a medical and surgical emergency. The authors present a case of coverage of a scrotal loss of substance with testicular exposure by a median fascio-cutaneous flap of the unilateral thigh after debridement and initial medical treatment of Fournier's gangrene in a 30-year-old worker. Clinical examination at 8 months showed an aesthetic and functional result. The trophic-cutaneous thigh flap enables the scrotal region to be covered with relatively thick skin of a color and texture like that of the scrotum. It also offers technical simplicity, moderate scarring and functional remnants at the cost of less morbidity.

INTRODUCTION

Fournier's gangrene is one of the most relevant etiologies because of its rapidly progressive nature and high mortality rate (1).

Scroto-perineal defects are often difficult for reconstructive surgeons (2). There are multiple reconstructive alternatives for this type of defect, of which the most frequently used are primary or secondary closure, skin grafts, fascio-cutaneous flaps, musculocutaneous flaps and muscle flaps (3). However, choosing the right reconstructive method is a challenge for surgeons, given the patient's status, associated co-morbidities, the extent of the defect and the involvement of various anatomical regions, requiring each case to be personalized to define the best therapeutic alternative to save the patient's life. This essential tissue sacrifice poses two problems: skin reconstruction and procreation in men.

OBSERVATION

We present a 30-year-old male patient with no known comorbidity who was admitted for Fournier's Gangrene. The clinical examination shows a patient with appropriate weight and height and a good functional status. Prior to intervention, inflammatory (C-reactive protein, sedimentation rate) and hematologic (total blood count) screenings were performed. The findings revealed hyperleukocytosis with a high sedimentation rate (SR = 150). There were no imaging or histopatholical examinations performed. A surgical debridement was realized, and a triple antibiotic therapy consisting of clindamycin, metronidazole, and gentamycin implemented. Following the surgical debridement and the initial medical treatment, he presented a high loss of the scrotal tissues leading to testicular exposition (Figures 1and 2).

The unilateral left medial thigh pedunculated Fascio-cutaneous flap was used to cover the defect at the 45th day of hospitalization following the normalization of the inflammatory screening results and the resolution of the local and general signs of infection. We drew a 6 × 15 cm unilateral flap on the medial part of the thigh adjacent to the scrotal defect, with a proximal base (toward the area of low venous pressure). The extent of the substance loss, the desired movement (translation, rotation, etc.), and the possibility of immediate closure of the donor area influenced the direction of the flap's large axis. The harvesting was done from distal to proximal, including skin, fat, and superficial fascia9figures 3,4,5,6)

Because there was no direct communication between the donor and recipient sites, the donor area was closed directly without draining. We were able to move the flap to the perineum by rotation. The presence of a skin bridge between the donor and recipient sites justified a second surgical weaning step on the 30th postoperative day.

After 8 months of follow-up, the results were judged satisfactory (Figures 7,8,9 and 10).

Figure1: Necrosectomy of the perineum (Image after 2weeks)

Figure 2: Budding (1 month after necrosotomy)

Figure 3: Harvesting the right crural flap

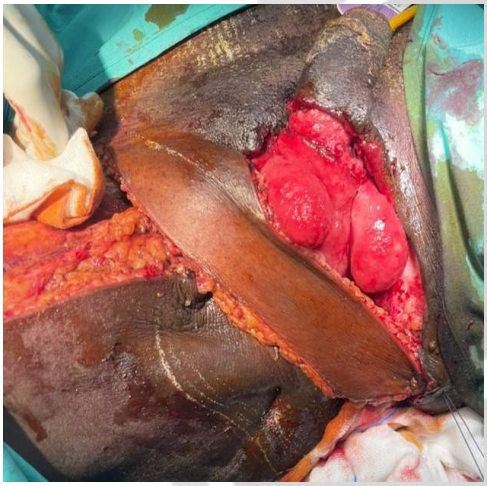

Figure 4: Start of right flap fixation

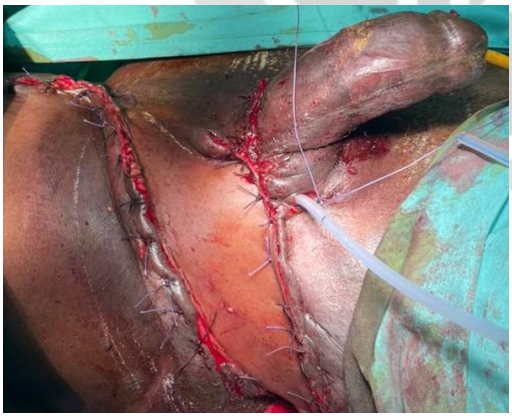

Figure 5: End of right flap fixation

Figure 6: First dressing of the right flap

Figure 7: healing of the perineum

Figure 8: Harvesting the left crural flap

Figure 9: suffering from the left flap

Figure 10: Result

DISCUSSION

Several skin reconstruction techniques have been proposed to compensate for the defect left by the debridement of Fournier's gangrene: directed healing, skin grafts, fascio-cutaneous and muscle flaps and skin substitutes. However, the graft leaves a thin, atrophic skin that is liable to macerate and ulcerate, and causes the testicles to adhere to the perineum through scar retraction.

The lateral fascio-cutaneous thigh flap is regularly proposed by authors because it is easy to perform, provides scrotal coverage with thick skin, with less scarring, and is preferred to the inguinal flap which uses relatively thick and sensitive tissue with a mixed aesthetic result due to the absence of pilosity and lighter skin than the scrotal region.

Other authors advocate the use of mesh skin grafts. However, this results in a cover that is too thin, atrophic, and susceptible to skin maceration and ulceration in the inguinal fold. Furthermore, the testicle is adhered to the perineum by graft scar retraction. Some authors propose using a pedicled musculocutaneous flap, which provides repair tissue that is too thick and useless for the area to be repaired. The surgical trauma is also out of proportion to the area to be rebuilt.[5,7,8,9,10] Barham et al. propose the use of the Integra^{TM} dermal regeneration template with good results. However, it is cost prohibitive in our con- text where the population is poor and health insurance is nonexistent.[11]

Although there is variability in therapeutic approaches, Fournier's gangrene is grieved by high mortality rate. The surgical debridement is the most recommended technique and offers a high success rate.[5,8] The surgical debridement remains at our knowledge the golden standard of care. Skin grafts and reconstruction with flaps are applied when large area of tissue is lost and offer interesting results. Other treatments include skin plasty by local tissues, split autodermoplasty, muscle plastic, stem plastic, and combined methods.[6,12] Hyperbaric oxygen, vacuum aspiration, and fecal and urinary diversions techniques are other therapeutics modality that help accelerate the healing process.[5,7] Often, more than one theater session are required for satisfactory results.

CONCLUSIONS

The lateral fascio-cutaneous thigh flap is a simple, reliable and reproducible procedure for reconstructing skin loss secondary to Fournier's disease.

CONSENT

A written informed consent was signed by the patient prior to publication of this paper.

CONFLICTS OF INTEREST

None.

AUTHOR CONTRIBUTION

YT and SAL have designed, conceptualized the study, and wrote the first draft. YT and SAL operated upon the patient. FM, MK, AMI, MJSB contributed to the drafting of the paper. All authors have reviewed and approved the final manuscript.

ABBREVIATION

fmpos: faculty of medicine, pharmacy and odontostomatology
urac: unity of research in clinical anatomy
samu: emergency medical service in Mauritania

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