

**SURGICAL MANAGEMENT OF EXTENSIVE SUBSTANCE LOSSES OF PURPURA  
FULMINANS: A CASE STUDY****\*Dr. Mariam Quaboul, Imane Yafi, Abdelkoddous Bhihi, Moulay Driss Elamrani and Yassine Benchamkha**

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**ABSTRACT**

Cutaneous necroses are of multiple origins. They can be localized or extended. They are most often caused by a trauma (burn) whereas the infectious origin remains rare but serious, jeopardizing the vital prognosis. The main treatment is etiological, but the local treatment is important. It will consist, in most cases, of cleaning the pus out of the necrosis by all means to obtain a rapid healing and to preserve the entirety of the members, knowing that the recourse to amputations is common. We report the case of a twenty-year-old patient with no particular pathological history, who suffered from meningococcal meningitis in a complex setting complicated by purpura fulminans with extensive necrosis of the four limbs. He was admitted at two months post-infection after stabilization on the general level and prophylactic treatment of all the entourage. The management stages also concerned the general plan (cachexia, anemia, hydro-electrolytic disorders...) and the local one (debridement, budding and different grafting times). Psychologist assistance and the physiotherapist team played an important role in the patient's participation in the treatment as well as his preparation for the discharge and his autonomy.

**KEYWORDS:** Cutaneous necroses; purpura fulminans; Surgical management.**INTRODUCTION**

The term purpura fulminans (PF) refers primarily to a state of septic shock associated with the presence of extensive purpura and disseminated intravascular coagulation (DIC). It is essentially meningococcal, although other organisms may be involved.

It is a rare pathology that can be life-threatening. It is a source of many complications which are systemic or localized in soft tissues with a significant risk of necrosis.<sup>[1]</sup>

We present a case of extensive loss of substance in a young man with a purpura fulminans, therein we detail our medical care.

**Medical observation**

We report the case of a patient (D, L), aged 20, with no particular pathological history, who suffered from meningococcal meningitis in a complicated collective setting of purpura fulminans with extensive necrosis of the lower and upper limbs, treated initially in a resuscitation environment, then transferred to us in the plastic surgery department of Mohammed VI University Hospital of Marrakech after two months for additional support. The clinical examination on admission found a conscious patient, hemodynamically and respiratory

stable, apyrexia, cachectic, BMI (Body Mass Index) 16.5 KG / m<sup>2</sup> weight: 39kg, bedridden and asthenic with a sequential deafness of the meningitis,

At the local level there is a presence of extensive necrosis blotches in the lower and upper limbs on a skin surface estimated at 36% (Figure 1). Management consisted of a large necrosectomy to the living tissue after which the patient was with a wide loss of substance of the two legs, buttocks, lumbar regions, lateral side of the two thighs and some parts at the level of the two upper limbs with exposed 1/3 distal right and left tibia (Figure 1).

The patient received a complete biological assessment with correction of various deficiencies and disorders, local samples and regular dressings with psychic and kinesitherapeutic food management. The patient had four operative times for skin grafts of thin skin with trepanning of the tibia bone. The frequency and type of dressing varied according to the local and general condition of the patient.

It is to be emphasized that during his hospitalization, the patient presented two episodes of *Pseudomonas aeruginosa* urinary tract infection and intravenously treated *E. coli*. After six months of hospitalization the

patient is with a coverage of 80% of the loss of substance (figure 2), weight gain of 11kg, and with psychological

improvement he manages to do the sitting alone.



**Figure 1: The different support times.**  
**A: Loss of substance with blotches of necrosis at two months post infection.**  
**B: Necrosectomy in the central block.**  
**C: Red bud at both lower limbs with exposure of the tibial bone.**  
**D: Expanded skin graft.**



**Figure 2: Patient's evolution.**  
**A: Sitting position**  
**B: Progressive verticalization**  
**C: Result after six months of management, subtotal scarring of both donor and recipient areas.**

## DISCUSSION

The management of complex and extensive loss of substance of the limbs is a major problem for the plastic surgeon. At the local level it is close to third degree burns.<sup>[2]</sup> The excision site can be covered with thin skin grafts with more or less wide mesh. If the integumentary elasticity allows, excisions sutures can be made. The extensive and serious attacks benefit to the best from the progress of the treatment of burns.

The preferred indication, in these cases, seems to be the artificial dermis. Local flaps or free flaps respond to contraindications for grafting, ie exposure of bone, tendon or vascular axis or for limb salvage.<sup>[3]</sup> Negative pressure therapy is an attractive pending option to speed the detoxing and the budding.<sup>[4]</sup> Amputations often involve the extremities where the attacks are the most serious. Due to the lack of means of coverage in our patient, the amputation of the two lower limbs was discussed but on account of the relentlessness of all the medical and paramedical team we proceeded to the classic method which is the directed scarring, then thin skin grafting in several operative times.<sup>[5]</sup> The artificial dermis represents a very good means of coverage in our patient but its cost remains high.<sup>[6]</sup>

Rehabilitation was premature during all the phases of treatment to prevent complications of decubitus and those of joint immobilization as well as tissue quality post graft.<sup>[7]</sup> The success of our management relied on blood transfusion and albumin in addition to high caloric and protein diets.<sup>[8,9]</sup> as well as the psychological care and the support of the entourage to facilitate the social reintegration of the patient.

## CONCLUSION

The medical and surgical management of patients with purpura fulminans is extremely cumbersome and multidisciplinary. Hence the importance of prevention of meningococcal infections through chemoprophylaxis and vaccination. The coverage of extended loss of substance combines more or less complex plastic surgery techniques. A place of choice can be made to the artificial dermis because lesions are most often deep and extensive.

### Competing interests

The authors declare no competing interests.

### Authors' contributions

Quaboul Mariam: conception and design of the study, data collection, data interpretation, drafting and review of the manuscript. Imane Yafi: conception of the study, data collection, data interpretation, review of the manuscript. Abdelkoddous Bhihi: design of the study, data collection, review of the manuscript. Moulay Driss Elamrani: Conception and design of the study, review of the manuscript. Yassine Benchamkha: conception and design of the study, data analysis and interpretation,

review of the manuscript. All authors revised and approved the final version of the manuscript.

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