

Challenges, terms, and conditions of nursing Fournier's gangrene in a semi-urban hospital: experience of the Aného Prefectural Hospital Centre in Togo

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Introduction: Fournier's gangrene (FG) is a rare perineogenital necrotising fasciitis with a serious prognosis. Its initial early nursing is based on resuscitation and debridement, which guarantees a good prognosis. However, it is challenged by delayed consultation or a lack of specialists in semi-urban areas.

Aim: Take up the challenges and describe the nursing terms and conditions of FG in a semi-rural environment at the Aného Prefectural Hospital Centre (PHC).

Method: This was a prospective and descriptive study over five years of patients treated for FG at the general surgery department of the Aného PHC, with a minimum follow-up of four months. The parameters studied were anatomo-clinical, therapeutic, and prognostic.

Results: We collected 13 cases of FG, all men, out of 4 127 patients over five years. The average period for admission was 15.15 ± 7.92 days (6–32). Perineoscrotal lesions were noted in eight cases, scrotal in three, and penoscrotal in two. All patients received broad-spectrum antibiotic therapy tailored to their ailment. Debridement under caudal anaesthesia (11 cases) and general anaesthesia (two cases) was performed in all patients. Two patients underwent a colostomy. The follow-up dressings in the ward were moist dressings, leading to four cases of directed healing, two skin grafts, and five medial thigh fasciocutaneous flaps with immediate closure of the donor sites. The average reconstruction period was 33.01 ± 16.08 days (24–68). The average period of hospitalisation was 49.69 ± 26.99 days (21–102). The evolution was uncomplicated in nine patients; two patients presented complications after the reconstructions, and two deaths were recorded.

Conclusion: Improving the prognosis of FG in semi-urban environments requires awareness to avoid consultation delays and the provision of more specialists.

Keywords: Fournier's gangrene, resuscitation, debridement, flaps, Aného, Togo

Introduction

Fournier's gangrene (FG) is a severe necrotising dermohypodermatitis of the perineogenital area, with a fulminating progression that can affect the lower part of the trunk. It is often polymicrobial and occurs on local urogenital, proctological, or digestive lesions in 95% of cases.¹⁻⁴ In 5% of cases, it turns out to be idiopathic and is referred to as Fournier's disease in the literal sense.⁵ These are rare ailments worldwide; the largest series comes from African environments.⁴

From a clinical diagnosis, FG is a medico-surgical emergency, and early nursing guarantees a good prognosis. The prognosis is often poor. According to Benizri et al.,⁶ the mortality rate is 50% after 60 years, 17% before, and 28% in the presence of a defect, but 23% in its absence. Early initial nursing, based on resuscitation measures, necrosectomy, and temporary urinary/digestive diversion, guarantees the best prognosis by reducing systemic complications and limiting the extension of initial lesions.^{7,8} After lesion stabilisation, surgery aims to restore as much of the locoregional anatomy as possible. In a semi-urban area, nursing may face challenges regarding delays in consultation/a lack of

specialists. This study aims to trace the route of FG nursing at the Aného Prefectural Hospital Centre (PHC).

Materials and method

This was a prospective and descriptive study from August 2019 to July 2024. It focused on patients treated for FG in the general surgery department of the Aného PHC, with a minimum follow-up of four months. The Aného PHC, located 35 km from the Togolese capital, has surgeons and a surgical resuscitation unit without an anaesthetist and resuscitator. Patients initially treated in the acute phase and not followed up until complete healing of the FG lesions after possible repair were excluded.

The parameters studied were age, sex, defects, occurrence factors, admission period, anatomo-clinical forms, resuscitation measures, the period for initial surgical nursing, initial surgical treatment types, dressing types, the period for definitive surgical nursing, definitive repair types, hospitalisation length, and the evolution. Aného PHC has no ethics committee, but administrative authorisations and patient consent were obtained for this study. Data was entered

using Microsoft Office software; variables were expressed as average and standard deviation.

Results

Epidemiologically, during the five years, 13 cases of FG were recorded from 4 127 patients (one case for approximately 317 patients). These were only men with an average age of 48.38 ± 14.62 years (23–78), and the most represented age group was 20–60. Seven patients had comorbidities it was a question of diabetes and high blood pressure in three cases, diabetes alone in three cases, and one case of sickle-cell SS anaemia. Pre-existing lesions such as anal fistula (one case) and purulent perineal hidradenitis suppurativa cysts (two cases) were noted. The average admission period was 15.15 ± 7.92 days (6–32). From an anatomo-clinical perspective, perineoscrotal lesions were noted in eight cases (Figure 1), scrotal in three, and penoscrotal in two.

All patients received probabilistic antibiotic therapy based on ceftriaxone 2 g and metronidazole 500 mg twice daily combined with gentamicin 160 mg daily in patients without renal failure. Three patients had functional renal failure on admission. The initial antibiotic therapy was adapted secondarily in six cases where the isolated germs were resistant. Four patients required blood transfusions, and all diabetic patients required perioperative insulin therapy. The initial surgical nursing period was 5.46 ± 2.18 hours (3–10). The nursing consisted of necrosectomy adapted to the extent of the lesion in the operating room in all patients (Figure 2).

Two patients required colostomy on a sigmoid colon rod in addition to debridement. These colostomies were performed in two patients with extensive perineoscrotal gangrene, with anal incontinence in one case (Figure 1B) and in the second case, a rectal perforation with faecal matter exiting through the perineal wound. The testicle or erectile body was not removed.

Initial surgical treatment was performed under caudal anaesthesia in 11 cases and general anaesthesia in two. Urethral bladder catheterisation, performed in all patients in the operating room, was retained in seven patients postoperatively to avoid soiling the dressings. Three patients had lesions that required a second “second-look” necrosectomy later in the operating room before complete wound budding.

Patient follow-up in the ward consisted of dressings every 2–4 days using a saline

solution, hydrogen peroxide, chlorhexidine, sodium hypochlorite, and sugar. In seven patients, hip baths with warm water and sodium hypochlorite for 15–30 minutes were necessary before dressings. Lesion healing was achieved by directed healing in four patients. In seven cases, repair was necessary, two skin grafts and five flaps. These were medial fasciocutaneous flaps of the thigh with immediate closure of the donor sites (Figures 3, 4). In three cases, adaptive perineal sutures with releasing incisions were performed during the same operation period as the flaps. The average reconstruction period was 33.01 ± 16.08 days (24–68). The average hospital stay was 49.69 ± 26.99 days (21–102).

The evolution was uncomplicated in nine patients; two presented complications after their reconstructions, and two deaths were recorded. One case was of anal fistula three months after the repair, treated successfully with surgery, and a case of transient venous oedema of the left pelvic limb after a medial fasciocutaneous flap of the left thigh not sparing the great saphenous vein. The two deaths (i.e. 26% of cases) were recorded in the context of septic shock in the intensive care unit within 36 hours after necrosectomy. These were diabetic patients who had undergone colostomies.



Figure 1: Extensive perineoscrotal gangrene

A – without anal incontinence, B – anal incontinence and spontaneous passage of faecal matter (yellow arrow)

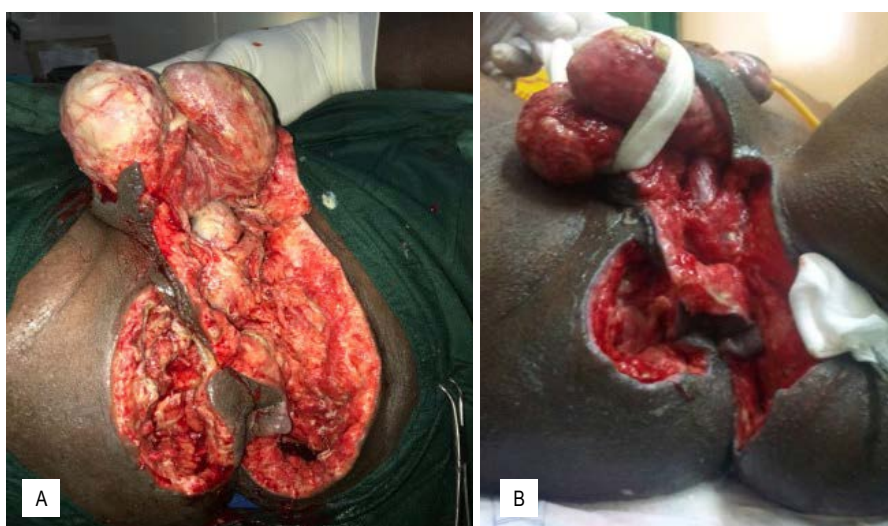


Figure 2: Appearance after first necrosectomy

A – after second-look necrosectomy, B – Figure 1A patient



Figure 3: Creation of a medial fasciocutaneous flap of the left thigh in the Figure 1A patient, allowing the reconstruction of the scrotum and the perineum
A – flap outline, B – appearance after flap creation, closure, and drainage of the donor site

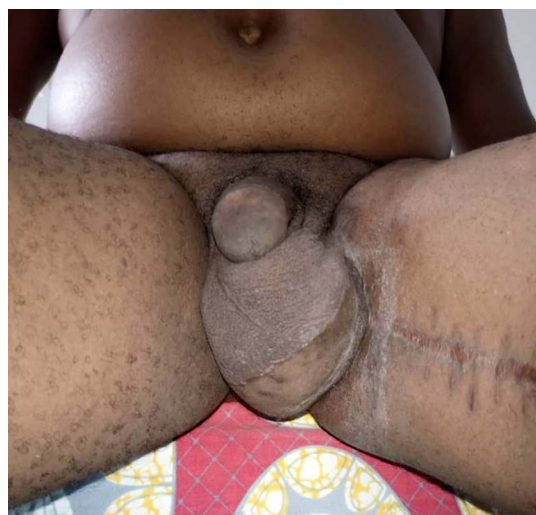


Figure 4: Postoperative evolution of the Figure 1A patient at six months

Discussion

FG is a rare ailment. Since its first description, few large series were reported in the literature, often from retrospective studies with their associated limitations. Our prospective study allowed a documented perspective of each patient to objectively report the real outcome of this rare and serious pathology.¹ FG affects men between the third and sixth decade with an average age of 50.⁹ The average age of 48.38 ± 14.62 in this study is similar to the data in the literature.^{1,9,10} This advanced average age can explain the presence or decompensation of defects in these patients with FG.

The nursing of decompensated defects also conditions the prognosis of the disease, when they exist. Appropriate FG treatment is based on three sections: resuscitation, necrotic tissue debridement, and repair. These sections constitute the cornerstone of our nursing terms and conditions. The role of antibiotic therapy is indisputable in the resuscitation section. It is initially probabilistic, broad-spectrum, at the maximum dose, and adapted to the microbiological environment of the perineogenital sphere, most often colonised by germs with anorectal/urogenital starting points.

The combination of piperacillin or imipenem, aminoglycoside, and metronidazole with or without fungizone recommended by Bjurlin et

al.¹¹ in their study could not be integrated into our treatment terms and conditions. The reason is the high cost of piperacillin or imipenem in our regions, especially since our patients pay for the care themselves in the absence of health insurance. Instead, we used the combination of ceftriaxone and metronidazole with or without aminoglycoside, depending on the renal checkup. The initial surgical treatment consisted of aggressive debridement without the removal of a testicle or erectile body. It is rare to arrive at castration or sacrifice the erectile bodies.^{7,12}

The “second-look” debridements were indicated to shorten the duration of hospitalisation. The number of

debridements could reach 10 in the past; however, recent progress in dressing techniques and methods has reduced this number.¹³ Hyperbaric oxygen therapy, which accelerates budding, was not used in this series due to its unavailability in our hospital. Moreover, it has not proven entirely effective and is only of theoretical interest in cases of *Clostridium* infection, according to some authors.¹⁴⁻¹⁷

Bladder catheterisation was indicated in seven patients. Conversely, colostomy was only performed in two patients. One had gangrene with anal incontinence, and the second had a rectal perforation with faecal matter exiting through the wound. For some authors, the indication for colostomy goes beyond our indications because it keeps the wounds clean, accelerates healing, and provides a certain comfort.^{18,19} This opinion is not widely shared because temporary diversions have complications aside from gangrene and can result in an extended hospital stay in the context of colostomy.²⁰

We indicated hip baths at each exoneration, followed by dressings in our nursing of patients with extensive perineal lesions without temporary digestive diversions. The dressings were moist and wet, preventing desiccation of the exposed testicles that were not buried during the initial debridement, an alternative to subcutaneous burial on the medial side of the thighs in case of testicle exposure.⁴

In the repair phase, small lesions were healed by directed healing. However, in the range of recovery procedures, we used medial fasciocutaneous thigh flaps for extensive perineoscrotal lesions based on their advantages and our experience. These flaps offer a single-stage reconstruction, direct closure of the donor area, lower morbidity, and skin similar to that of the scrotum with a reduced thickness.^{21,22} These flaps are particularly recommended since the medial sides of the thighs are free of lesions in FG. The infectious context does not allow free flaps, and muscular flaps are too thick for the scrotal region. In muscular flaps, muscles can create an inhospitable environment for spermatogenesis; they should especially be avoided if the patient is young/has plans for procreation.²³

The progression in our study was marked by two deaths out of 13 patients attributable to septic shock. The patients consulted late

with an average admission period of 15.15 ± 7.92 days (6–32). This period seems too long, especially for infectious lesions affecting such a richly vascularised anatomical area with continuity between the various fascia (Scapa, dartos, and Colle's fascia), which can promote vascular extension and dissemination.^{4,24}

The consultation delay can be explained by cultural and pathology-related factors. In our semi-urban environment, patients often consult only after exhausting traditional treatment means. Moreover, as an ailment affecting the private parts, few people are comfortable talking about or exposing themselves in the event of an aggression. The second factor, related to the pathology, is that FG is a disease with an aspecific onset causing diagnostic errors with a fulminating progression. Gangrene lesions can progress at a speed of 2 cm²/hour.²⁵

Conclusion

Since its first description, FG has been a rare ailment known for its serious prognosis. Its multidisciplinary nursing must not be delayed. Otherwise, it will worsen an already known poor prognosis. Improving this ailment's prognosis in semi-urban areas requires awareness to avoid consultation delays and more specialists.

Conflict of interest

The authors declare no conflict of interest.

Funding source

None.

Ethical approval

There is no ethics committee at Aného PHC, but administrative authorisations and patient consent were obtained for this study.

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