

PERINEAL GANGRENE: AN EXPERIENCE OF DIGESTIVE AND PROCTOLOGIC SURGICAL UNIT, UNIVERSITY HOSPITAL OF TREICHVILLE

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ABSTRACT

Background: Perineal gangrene is a serious and relatively frequent disease in Africa and particularly in Côte d'Ivoire. The aim of this study was to show etiology, presentation, and management in developing country.

Material & Methods: This retrospective study was carried over a period of nine years from January 2004 to December 2012 at University Hospital of Treichville. The sex, age, etiology, presentation, risk factors and management were studied. Chi square test was applied with a sensitivity of 5%.

Results: Thirty-one patients were studied. The patients' mean age was 45 years with a male prevalence (27 men for 4 women). Nicotinic and alcoholic intoxication was noted in 14 cases, diabetes (n=4), HIV disease (n=2) and cardiomyopathy (n=1). An etiology was identified in 20 patients, dominated by the anal fistula (n=10). The average time of consultation was 12 days. All patients were at the stage of gangrene which was extended to the near areas in 5 cases. The reanimation, the excision of necrotic tissues and the antibiotherapy constituted the essence of treatment. Daily dressings after sit bath in Dakin were associated. No colostomy was carried out. The mortality was 22.6% (n=7). The presence of shock and high serum creatinine were bad prognostic signs.

Conclusion: Perineal gangrene is a serious disease that affects adult males more frequently. It may arise from traumatic lesions or infections of perineal area. Delayed presentation is a common feature of advanced lesions. An early consultation in all perineal nuisances whatever their origin, might prevent and improve the prognosis.

KEY WORDS: Perineum; Gangrene; Perineal gangrene; Fournier gangrene; Necrotizing fasciitis.

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INTRODUCTION

Perineal gangrene is a serious disease, common in Africa and especially in Côte d'Ivoire.¹⁻⁴ Its seriousness is due to both celerity of turning into necrotizing cellulitis and myonecrosis with associated risk factors like deficient immune function, diabetes, alcoholism, etc.⁵

In African context, the disease is mostly observed at the stage of gangrene.³ Diagnosis is also easy according to clinical features and biologic investigations aiming to systemic effects. Debridement is the main treatment, along with administration of antibiotic.

Despite modern intensive treatment which includes hyperbaric oxygen, the mortality remains

high about 30%.⁶ We don't have at our disposal hyperbaric oxygen which is subject of controversy without randomized studies to confirm its use.⁷

The aim of this study was to show etiology, presentation, and management in developing country.

MATERIAL AND METHODS

Thirty one patients with perineal gangrene were treated in the Digestive and Proctologic Surgical Unit at University Hospital of Treichville from January 2004 to 31 December 2012. The medical records of these patients were reviewed retrospectively. The sex, age, etiology, presentation, risk factors and management were studied. Chi square test was applied with a sensitivity of 5%. About the mortality, patients' age, diabetes, cardiomyopathy, alcohol and tobacco, period of consultation, shock, serum creatinine, Hepato nephritis, and extent of lesion were assessed by Chi square test with a sensitivity of 5%.

RESULTS

Most of the patients were males (27/4). Their

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Table 1: Etiology of perineal gangrene (n=31).

| Etiologies | Number | Percentage |
|-------------------|--------|------------|
| Anal fistula | 10 | 32.25 |
| Furuncle | 4 | 12.90 |
| urinary infection | 3 | 9.68 |
| Evacuant enema | 1 | 3.23 |
| Traumatism | 1 | 3.23 |
| Insect bite | 1 | 3.23 |
| Not identified | 11 | 35.48 |

age ranged from 29 to 83 years with a mean of 45 ± 27 years. Consumption of alcohol and tobacco was observed in 45.2% (n=14), diabetes in 12, 9% (n=4), HIV-1 infection is observed as the same frequency as obesity in 6.5% (n=2) and one case of cardiomyopathy (3.2%). Etiologies are mentioned in Table 1.

Period of consultation ranged from 4 to 60 days with a mean of 12 days. When admitted at hospital, patients had poor general performance with infectious aspect (n=11), jaundice (n=7), shock (n=6).

Table 2: Prognosis factors in patients with perineal gangrene (n=31).

| Variables | Alive (n=24) | Death (n=7) | p-value |
|---|--------------|-------------|---------|
| 1. Age | | | |
| ≥47 years | 10 | 04 | 0.38 |
| <47 year | 14 | 03 | |
| 2. Anal fistula | | | |
| Present | 08 | 02 | 0.59 |
| Absent | 16 | 05 | |
| 3. Diabetes Mellitus | | | |
| Diabetic | 03 | 01 | 0.66 |
| Non-diabetic | 21 | 06 | |
| 4. Cardiomyopathy | | | |
| Present | 00 | 01 | 0.23 |
| Absent | 24 | 06 | |
| 5. Use of alcohol & tobacco | | | |
| Yes | 11 | 03 | 0.62 |
| No | 13 | 04 | |
| 6. Period of consultation (days) | | | |
| ≥7 | 16 | 06 | 0.32 |
| <7 | 08 | 01 | |
| 7. Shock | | | |
| Yes | 02 | 04 | 0.01 |
| No | 22 | 03 | |
| 8. Extent of Lesions | | | |
| Extended | 02 | 03 | 0.06 |
| Limited | 22 | 04 | |
| 9. Serum creatinine (mg/l) | | | |
| ≥16 | 06 | 05 | 0.04 |
| <16 | 18 | 02 | |
| 10. Hepatonephritis | | | |
| Present | 01 | 01 | 0.41 |
| Absent | 23 | 06 | |



Figure 1: Ischio-anal gangrene.



Figure 2: Perineal gangrene extended to thigh (photograph after debridement).



Figure 3: Perineal gangrene extended to the abdominal wall (stage of cicatrization).



Figure 4: Perineo-scrotal gangrene after debridement.

Lesions had various locations: perineal (35.5%; n=11), perineo-scrotal (35.5%; n=11), scrotal (29%; n=9). They were extended to thigh in 3 cases and to abdominal wall in 2 cases (Figure 1-3).

Early blood examination revealed leucocytosis in 71% (n=22) ranging from $10, 1.10^3$ to $33, 1.10^3$ cells/mm³ and anemia in 64.5% (n=20) ranging from 5.7g to 11.5g/dl. Kidney function disorder with high serum creatinine 35.5% (n=11). High serum transaminase was noted in 4 cases (ASAT: n=2; ALAT: n=2).

Local bacteriologic swab performed only in 9 cases and revealed: *Staphylococcus aureus* (n=3), *Escherichia coli* (n=2), *Citrobacter* spp. (n=2), *Enterobacter aerogenes* (n=1). *Staphylococcus* was associated with *candida albicans* in one case. The test was negative in the last case. Bacteriological analysis of urine showed *Staphylococcus aureus* in 3 cases.

At presentation, all the patients received hydro electrolytic reanimation and 3 patients got blood transfusion as well. First intention antibiotherapy was carried out: third generation cephalosporin (67.7%; n=21), quinolone (12.9%; n=4), M penicillin (19.4%; n=6) and metronidazole used in all patients. Aminoglycoside was used when kidney function was normal. In 2 cases (6.5%), antibiotherapy was accommodated by using imipenem (case of *Citrobacter* spp. and one affluent continued suppuration).

General anesthesia was given to point out anal fistula in 10 cases (32.26%), and then debridement was performed. (Fig. 4)

In all patients operated, dressing with Dakin

was carried out twice a day, after bath with the same liquid till suppuration dried. After words, ointment was used every two days during dressing until cicatrization was complete.

Diabetics and positive HIV patients received insulin and anti-retroviral therapy respectively. None digestive derivation was performed.

Iterative debridement was necessary in 4 patients (12.9%). Perineorrhaphy for burying testicles was carried out in 4 other cases after six weeks of operating time.

Duration of hospitalization ranged from 6 to 72 days with a mean of 21 days. Morbidity was about 9.7% (n=3), involved thrombophlebitis and bronchopneumonia with good evolution after treatment (heparinotherapy, antibiotherapy). The third case concerned a partial and temporary anal incontinence.

Seven cases of death were noted (22.6%). Six caused by septic shock and one by heart failure. The age of these patients ranged from 30 to 60 years with a mean of 47 years. In six cases (85.7%), the diagnosis was late, at least 7 days. A defect was observed in 2 patients (diabetes, cardiomyopathy). Anal fistula was the etiology in 3 cases. Perineal gangrene was extended to thigh (n=2) and abdominal wall (n=1). Their mean serum creatinine level was 22.13 mg/l (10-38 mg/L). In our study, death predicting factors were shock and high serum creatinine. (Table 2)

DISCUSSION

Perineal gangrene is a hypodermic tissue infection. Whatever its appellation (Fournier syndrome, gas gangrene, perineal necrotic fasciitis), it is characterized by quick and unpredictable evolution towards necrosis and genital and perineal soft tissues gangrene.⁸

Mainly an attribute of young men, perineal gangrene affects a large group of population from neonatal period to the older age.⁹ Mostly male patients in their fourth decade are affected, according to several African studies.^{1,4,8,10} as ours in which, the mean age was 45. In developed countries, it occurs particularly after 50.^{7,11,12}

Nowadays perineal gangrene is no more idiopathic¹³ but in our study no etiology was found in 35.5% cases. That report might partially due to decency when it was about disease affecting urogenital and anal area; it's also difficult to identify the origin of infection in such necrotic lesions. Basoglu et al¹¹ recommend a careful examination under general anesthesia before the excision of necrotic tissues in order to find an anal cause. It was the procedure that led us to determine anal fistula as a cause in our patients. Anal fistula dominated etiologies (32,25%),

followed by cutaneous infections (furuncle) and urinary infections respectively in 12,9% and 9,68% patients respectively. All these etiologies were already noted in the literature.

We pointed out two particular causes; evacuant enema and insect bite that is also reported by Khan et al.¹² In our study, it caused an intense pruritus with scrotal swelling which complicated into gangrene after traditional poultice.

Alcoholism, diabetes, obesity and HIV are risk factors noted by several authors^{6,8,9,14,15} and founded in our study. They are involved either by depressing the immune system or favoring maceration and genital area's infection. Diagnosis was made on the basis of clinical examination. No radiological examination was useful.

In African studies,^{1,3} the most of late in visit might come to use of alternative therapy before medical visit. Renal failure as leucocytosis are frequently observed by several authors^{10,14,15} during that pathology in 25 to 50%. Hepato nephritis was observed in 2 of 4 others patients who had a disorder in hepatic function. Bacteriologic swab revealed a mono microbial infection and only one case of association (Staphylococcus-Candida albicans). Mostly, a poly microbial infection from digestive commensal flora is observed.¹⁴

Concerning treatment, antibiotherapy is an important component. The most concerned group is third generation cephalosporin^{9,16} that we used in 67.7%. Morua et al¹⁷ consider quinolone as a standard. It was used in only 12.9% cases in our study. Antibiotherapy's adjustment led to use imipenem. This new generation of antibiotic is currently recommended because of its large diffusion in tissues and lower nephrotoxicity; it is likely to replace the classic tri therapy.¹⁸ But its high cost could limit the use in our setup.

Surgery must carry away devitalized tissues. The main problem is to appreciate limit with vascular tissues so the excision of necrotic tissues should be performed many times in order to assure local control of the infection without any effect on mortality rate.¹⁹ It was iterative in 4 patients (12.9%).

No colostomy was performed. As some authors,^{11,18,20} we think that it may be indicated when the lesion extended to anal sphincter with fecal incontinence.

Bath and dressing with Dakin assure tidiness causing a quick cicatrization of lesions.^{18,21} We don't have experience from honey which is claimed to have the same inherent property according to some authors.^{3,18}

The mortality rate of our study was 22.6%. It

ranges from 20 to 30% in several studies.^{7,10,20} Shock and high serum creatinine were the only factors linked to mortality in our study. Alcoholism, ano rectal infections, symptom's duration before hospitalization, and extension of gangrene in our work, are bad prognosis factors pointed out in literature.^{1,7,8,10,13,15,20}

CONCLUSION

Perineal gangrene is a serious disease that affects adult males more frequently. It may arise from traumatic lesions or infections of perineal area. Delayed presentation is a common feature of advanced lesions. An early consultation in all perineal nuisances whatever their origin, might prevent and improve the prognosis.

REFERENCES

1. Dje K, Lebeau R, Diane B, Vodi CC, Coulibaly N, Sangaré IS. Fournier's gangrene - analysis of 78 cases. *Afr J Urol* 2006; 12:44-50.
2. Kouadio K, Kouame YJ, Lehié Bi KL, Turquin H. Perineal gangrene: report of 30 cases observed at Abidjan. *Med Trop* 1998; 58:245-8.
3. Takassi E, Anoukoum T, James K, Attipou K. Le traitement de la gangrène de fournier: à propos de 64 cas. *J Rech. Sci. Univ. Lomé (Togo)* 2012; 14:119-23.
4. Touiti D, Ameer A, Beddouch A, Oukheira H. Les gangrènes périnéo-scrotales à propos de 29 cas. *La Medecine du Maghreb* 1999; 78:19-22.
5. Tazi K, Karmouni T, El Fassi J, El Khader K, Koutani A, Hachimi M, et al. Fournier's gangrene: report of 51 cases. *Diagnosis and therapeutical views. Ann Urol* 2001; 35:229-35.
6. Auboyer C, Charier D, Jospé R, Mahul P, Molliex S. Cellulites, fasciites, myosites, gangrène gazeuse. *Encycl Méd Chir, Anesthésie-Réanimation*, 36-983-H-10, 2001, 11p.
7. Brasseur P, Bakam CV, Bissen L. Fournier's gangrene: an emergency diagnosis. *Rev Med Brux* 2003; 1:47-51.
8. Borki K, Ait Ali A, Choho A, Daali M, Alkandry S, André JL. The perineo scrotal gangrene: concerning 60 cases. *e-mémoires de l'académie nationale de chirurgie* 2002; 1:49-54.
9. Dubosq F, Peyromaure M, Ravery V. Gangrène des organes génitaux externes. *Encycl Méd Chir, Néphrologie-Urologie* 2001; 18-642-A-10, 5 p.
10. El Mejjad A, Belmahi A, Choukri A, Kafih M, Aghzadi R, Zerouali ON: the perineal scrotal gangrene: a series of 31 cases. *Ann Urol* 2002; 36:277-85.
11. Basoglu M, Ozbey I, Atamanalp SS, Yildirgan MI, Aydinli B, Polat O, et al. Management of Fournier's Gangrene: Review of 45 Cases. *Surg Today* 2007; 37:558-63.
12. Khan I. Experience in management of Fournier's gangrene: a review of 19 cases. *Gomal J Med Sci* 2009; 7:65-7.
13. Daali M, Hassaida R, Borki K. Perineo scrotal gangrene. Aetiologies and treatment in 60 cases. *Afr J Urol* 2002; 8:157-65.
14. Ettalbi S, Benchamkha Y, Boukind S, Droussi H, Ouahbi S, Soussou M, et al. Perineal-scrotal gangrene epidemiological and therapeutic aspects. About 45 cases. *Ann Chir Plast Esthet* 2013; 58:310-20.
15. Querfani B, Elmhaf S, Benlamsouhi F, Adraoui J, Rabii R, Fekak H, et al. The perineoscrotal gangrene: 50 cases report. *J Maroc Urol* 2006; 4:13-6.
16. Eke N: fournier's gangrene: A review of 1726 cases. *Br J Surg* 2000; 87:718-28.
17. Morua AG, Lopez JAA, Garcia JDG, Montelongo RM, Guerra LSG. Fournier's gangrene: our experience in 5 years, bibliographic review and assessment of the fournier's gangrene severity index. *Arch Esp Urol* 2009; 62:532-40.
18. Mallikarjuna MN, Vijayakumar A, Patil VS, Shivswamy BS. Fournier's gangrene: current practices. *ISRN Surg* 2012: 1-8. 2012;2012:942437. doi: 10.5402/2012/942437. Epub 2012 Dec 3.
19. Hota PK. Fournier's gangrene: Report of 2 cases. *Emerg Med* 2012: 1-4. doi:10.1155/2012/984195
20. Sarkis P, Farran F, Khoury R, Kamel G, Nemr E, Biajini J, et al. Fournier's gangrene: a review of the recent literature. *Prog Urol* 2009; 19:75-84.
21. Assouan C, Kouadio G, Anoh N, Kouadio L, Traoré L, Kouamé J, et al. Interest of stabilized Dakin Cooper in proctology. *Médecine d'Afrique Noire* 2008; 56:185-7.

CONFLICT OF INTEREST

Authors declare no conflict of interest.
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None declared.