Facial Cellulitis and Erysipelas with Cutaneous Portal of Entry: Five Cases in Brazzaville, Congo

Edith Sophie Bayonne-Kombo[1,2,*], Yanichka Voumbo-Mavoungou[1] and Alphonse Gathsé[2]

[1]*Dermatology and Infectious Diseases Department, Talangaï Hospital, 35 avenue des 3 martyrs, Brazzaville, Congo*

[2]*Faculty of Health Sciences, Marien Ngouabi University, Avenue des jeux africains, Brazzaville, Congo*

Abstract:

Objectives: This study aimed to describe the clinical, therapeutic and evolutional features of facial cellulitis or erysipelas (CorE) with cutaneous entry portal.

Methods: It was a retrospective study, carried out from January 2016 to May 2019 including inpatients, aged 15 years or older, admitted for CorE with a cutaneous entry portal. Demographic, clinical and biological data were studied.

Results: Five patients were included and accounted for 3.12% of hospitalized cases for CorE. Three were erysipelas and two were cellulites. A previous history of CorE was not found. The entry portal was skin erosion due to herpesviruses infection in four cases and traumatic wound in one case. The systemic inflammatory response syndrome criteria were observed in all patients. Erysipelas was differentiated from cellulite by the clear demarcation of erythema. The other local aspects found were edema, bullae and purpuric lesions. HIV seropositivity was detected in four patients and one patient was diabetic. The antibiotic regimen was amoxicillin / clavulanic acid in 3 cases and ceftriaxone in 2 cases. Healing was obtained in all patients without sequelae of CorE. The mean hospital stay was 11 days.

Conclusion: Facial cellulite and erysipelas are two clinically distinct entities. The bacteriological diagnosis is still difficult and lead to the use of probabilistic antibiotic protocols. The specific risk factors for facial CorE are still unclear. These diseases require the search for comorbidity.

Keywords: Dermohypodermitis, cellulitis, erysipelas, face, HIV.

INTRODUCTION

Cellulitis is an acute dermo-hypodermal bacterial infection. It is also called bacterial dermo-hypodermitis by French dermatologists [1]. Erysipelas is a clinical type of cellulitis mainly of the dermis and involving less the hypodermis, with superficial lymphatic participation [2]. They are most often localized at the lower extremities, however the facial localization prevailed during the first part of the 20th century [3,4]. Actually, erysipelas is among the rare infections causing acute inflammatory redness of the face [5,6]. Cellulitis and erysipelas are usually thought to be caused by group A streptococci, and other microorganisms such as *Staphylococcus aureus* may be less frequent causes [2]. The bacteriological evidence is difficult in the facial location, so that the diagnosis is based on clinical criteria [7].

In Congo, studies focused only on erysipelas located in the lower limbs and cellulites of sinus or dental origins [8,9]. The aim of this study was to describe the clinical, therapeutic and evolutional features of facial erysipelas or cellulitis with a cutaneous entry portal in hospitalized patients in Brazzaville.

*Address correspondence to this author at the Dermatology and Infectious Diseases Department, Talangaï Hospital, 35 avenue des 3 martyrs, P.O Box 13423, Brazzaville, Congo; Tel: (242) 05 578 55 62;
E-mail: sophiekbb@outlook.com

METHODS

This was a retrospective study, carried out from January 2016 to May 2019 in Dermatology and Infectious Diseases Department at the Talangaï Hospital, in Brazzaville (Congo).

The study population consisted of inpatients received with the diagnosis erysipelas or cellulitis. Medical records of patients aged 15 years or older, treated for facial cellulitis or erysipelas, with a cutaneous portal of entry, were included. Cellulitis of sinus or dental origins were excluded.

Study variables were demographic, clinical, and investigation data. Demographic data were age and gender. The clinical data were the following: history of cellulitis or erysipelas, risk factors, time interval of consultation (the time between the initial symptoms and the consultation), portal of entry, local aspect, comorbidity, treatment, outcomes, and length of hospital stay.

The data were collected and processed in a centralized database (MS Excel® 2016); Quantitative data were expressed as mean and extreme values. Qualitative data were expressed in absolute value and in percentage.

E-ISSN: 2310-998X/19

RESULTS

Population Description

During the study period, 160 patients were admitted for cellulitis or erysipelas. Five patients had a facial location and accounted for 3.12% of hospitalized cellulitis or erysipelas cases. There were three men and two women. The mean age was 51.4 years old.

Clinical Features

Erysipelas was observed in three patients (Figure **1A**) and cellulitis in two patients (Figure **2A**). No patient had a previous history of cellulitis or erysipelas. The time interval of consultation was four days for 4 patients and three days for one patient. The portal of entry, the clinical presentation and biological aspects are reported in Table **1**. All patients had comorbid condition, including four HIV infections and one diabetes mellitus case. Cellulitis and erysipelas were the circumstance in which HIV infection was discovered in the 4 diagnosed cases. Blood cultures were not performed. Bacteriological specimen at the portal of entry made in two patients was sterile.

Treatment and Outcomes

All patients received antibiotic treatment, symptomatic treatment and local care at the portal of entry. The antibiotic regimen and the length of hospital stay for each patient are shown in Table **2**. The mean length of hospital stay was 11 days. All patients were healed without sequela. Figures **1B** and **2B** show the evolution of dermatological lesions after treatment.

DISCUSSION

This study describes the clinical characteristics of CorE and presents their evolution after treatment. The small sample in our study can be explained by several reasons. First, the facial location of cellulitis or

Figure 1: Facial erysipelas **A**) Well-demarcated erythema with crusts secondary to bullous lesions on the malar area and the nose. **B**) Same patient after seven days-treatment.

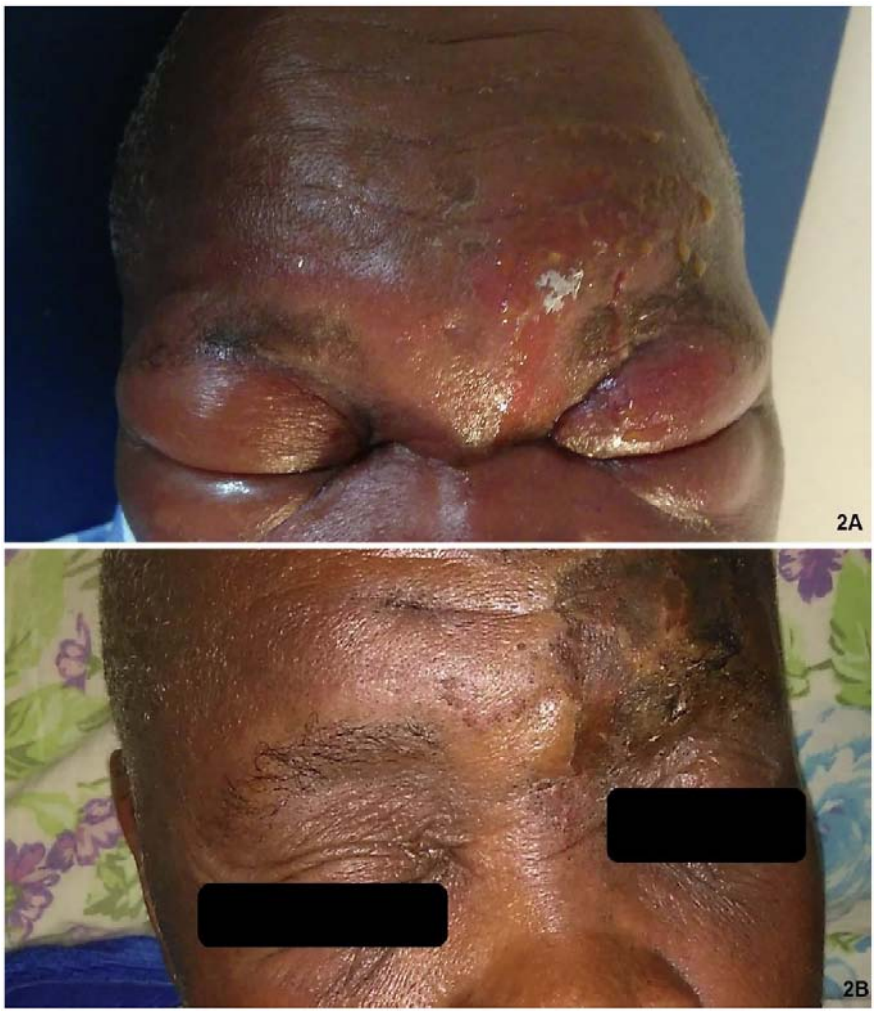

Figure 2: Facial cellulitis **A**) Bulky edema of the face predominantly periorbital with poorly demarcated erythema, oozing and a traumatic wound on the left supraorbital area. **B**) Same patient after six days-treatment.

Table 1: Clinical and Biological Characteristic in Five Patients with Cellulitis or Erysipelas

Patient number	Portal of entry	Antibiotic used prior to admission	Clinical features	WBC (count /microliter)	ESR (mm/hr)	CRP (mg/L)
1	Herpes zooster	None	Fever 39°C, tachycardia, malaise, well-demarcated erythematous plaque, lymphadenopathy.	12500	45	96
2	Traumatic wound of face	None	Fever 40°C, tachycardia, malaise, Bulky edema of the face predominantly periorbital with poorly-demarcated erythema and oozing,	11800	54	72
3	Herpes zooster	None	Fever 39°5, tachycardia, malaise, poorly-demarcated erythema and edema.	3840	66	96
4	Labial herpes simplex	Amoxicillin	Fever 39°C, tachycardia, malaise Well-demarcated erythematous painful plaque; bullae formation, lymphadenopathy.	13500	98	96
5	Nasolabial folds herpes simplex	Amoxicillin	Fever 40°C, tachycardia, malaise well-demarcated erythema and edema, purpura.	3350	30	48

WBC=white blood count; ESR= erythrocyte sedimentation rate; CRP= C-reactive protein; mm/hr = millimeter by hour.

Table 2: Antibiotic Regimens and Duration of Hospitalization of Five Patients with Cellulitis and Erysipelas

Patient number	Clinical type	Antibiotic Regimens	Duration of antibiotics treatment (days)	Lengh of stay (days)
1	Erysipelas	Amoxicillin/ clavulanic acid	10	10
2	Cellulitis	Amoxicillin/ clavulanic acid	15	7
3	Cellulitis	Amoxicillin/ clavulanic acid	15	12
4	Erysipelas	Ceftriaxone	12	6
5	Erysipelas	Ceftriaxone	15	18

erysipelas is rare [5,10]. Second, studies of CorE are poorly detailed about facial localization specificity. The other reason is that cellulites or erysipelas are also treated by stomatologists or otolaryngologists, and do not all arrive in the Dermatology Department.

Of the usual risk factors, only traumatic wound was observed in one patient in this study. Risk factors for cellulite or erysipelas are known [2,7]. However, they are hardly applicable for facial location. Lymphedema, leg ulcer, toe intertrigo and chronic venous insufficiency are not applicable for the face. There is a gap of knowledge about the risk factors of facial cellulitis or erysipelas to be filled with multicentric studies. Four out of five patients were HIV positive and one patient was diabetic. These comorbid conditions could constitute risk factors for CorE and are reflection points for research about the predisposing factors of facial CorE. In the cases of this study, the entry portal was skin erosion following herpesviruses infection in four cases. This finding suggests that systematic antiseptic care for any viral skin breakdown is necessary.

Clinical features showed the existence of pain, fever, regional edema and erythema. Erythema was well demarcated for erysipelas. It was discreet, poorly demarcated for cellulitis. Other lesions were present depending on the case. These were bullae, oozing or purpuric lesions. These aspects are the same as those usually described in erysipelas or cellulitis of the lower limbs [2,7]. Other lesions have been observed in Burkina Faso, notably hemorrhagic bullae and superficial necrosis [11]. Flokina shown that bleeding disorder in facial erysipelas correspond to the purpuric vascularitis type of hemorrhagic diathesis [12].

This study did not identify the bacteria responsible for the skin infection. The bacteriological diagnosis is often difficult because cultures are usually negative [7]. The causative bacteria are in most cases unknown, and several studies demonstrate conflicting evidence regarding prevalence of causative organisms [7]. Moreover, etiological studies of erysipelas rarely include facial locations [4]. A study in Norway showed the responsibility of the β-haemolytic streptococci in 75% of the cases of a series of 65 patients with facial cellulitis [4]. In Burkina Faso, the bacteria identified on cellulitis were *streptococcus* and *staphylococcus* [11]. Hematologic disorders were seen in all of the study patients. Needle aspiration cultures have been proposed for bacteriological diagnosis, but a prospective study in Switzerland has shown that it has a low sensitivity for detecting the responsible pathogen in patients with cellulitis or erysipelas [13]. The laboratory tests are not specific for cellulitis. Elevations in white blood cell counts,and C-reactive protein levels are observed in 34% to 50%, and 77% to 97% of patients, respectively [7].

Probabilistic antibiotic therapy was used in all patients in this study. Amoxicillin was first line choice and when amoxicillin had been used prior to admission, ceftriaxone was instituted. The treatment resulted in the healing of all patients. There is no uniformity of antibiotic treatment practices for cellulite and erysipelas [14]. In general, when there is at least one criterion for systemic inflammatory response syndrome (SIRS), the antibiotics used are penicillin G, amoxicillin/ clavulanic acid, cefazolin, ceftriaxone or clindamycin [7]. Our practice was consistent with this principle.

CONCLUSION

Facial cellulite and erysipelas are clinical entities which are differentiated by the demarcation of erythema. The bacteriological diagnosis is still difficult. Although the risk factors for this localization are not well clarified, it is necessary to look for other comorbid condition such as HIV infection and diabetes mellitus.

ABBREVIATIONS

CorE = Cellulitis or erysipelas

HIV = Human Immunodeficiency Virus

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

[1] Bonnetblanc JM, Bédane C. Erysipelas. Recognition and Management. Am J Clin Dermatol 2003; 4(3): 157-63. https://doi.org/10.2165/00128071-200304030-00002

[2] Stevens DL, Bisno AL, Chambers HF, Dellinger EP, Goldstein EJ, Gorbach SL, *et al*. Infectious Diseases Society of America. Practice guidelines for the diagnosis and management of skin and soft tissue infections: 2014 update by the Infectious Diseases Society of America. Clin Infect Dis 2014; 59(2): e10-e52. https://doi.org/10.1093/cid/ciu296

[3] O'Connor K, Paauw D. Erysipelas: rare but important cause of malar rash. Am J Med 2010; 123(5): 414-6. https://doi.org/10.1016/j.amjmed.2009.09.036

[4] Rath E, Skrede S, Mylvaganam H, Bruun T. Aetiology and clinical features of facial cellulitis: a prospective study. Infect Dis 2018; 50(1): 27-34. https://doi.org/10.1080/23744235.2017.1354130

[5] Amer M, Amer A. Rarely seen infections. Clin Dermatol 2014; 32(6): 744-51. https://doi.org/10.1016/j.clindermatol.2014.02.013

[6] Mochizuki M, Mishimagi T, Sonoda I, Sato Y, Arai N, Amagasa T. A case of facial erysipelas which caused by odontogenic infection. Oral Therapeutics and Pharmacology 2008; 27(2): 131-5.

[7] Raff AB, Kroshinsky D. Cellulitis. A review. JAMA 2016; 316(3): 325-37. https://doi.org/10.1001/jama.2016.8825

[8] Gathsé A, Obengui, Ntsiba H. Etude rétrospective de 53 érysipèles hospitalisés au CHU de Brazzaville, Congo. Bull Soc Path Exo 2006; 99(1): 3-4. https://doi.org/10.3185/pathexo2727

[9] Itiere Odzili FA, Mahoungou Guimbi K, Boumandoki PJC, Otiobanda GF, Ovoundard M, Ondzotto G. 67 cas de cellulite cervico-faciale, pris en charge sous anesthésie locale au CHUB de Brazzaville. Rev Stomatol Chir Maxillo-Faciale Chir Orale 2014; 115: 349-52. https://doi.org/10.1016/j.revsto.2014.10.010

[10] Larivière D, Blavot-Delépine A, Fantin B, Lefort A. Survey of general practitioners management of erysipelas. Rev Med Interne 2011; 32: 730-5. https://doi.org/10.1016/j.revmed.2011.07.004

[11] Sondo KA, Diendéré EA, Ouédraogo MS, Ouédraogo GA, Diallo I, Zoungrana J. Management of necrotizing and non-necrotic bacterial erysipelas of the face in tropical areas: a series of four cases and a review of the literature. Med Sante Trop 2018; 28: 273-76. https://doi.org/10.1684/mst.2018.0816

[12] Fokina EG. Some features of primary facial erysipelas under the present conditions. Ter Arkr 2014: 86(11): 70-7.

[13] Piso JR, Pop R, Wieland M, Griesshammer I, Urfer M, Schibli U, Bassetti S. Low sensitivity of needle aspiration cultures in patients with cellulitis/erysipelas. Springer Plus 2016; 5: 1578. https://doi.org/10.1186/s40064-016-3293-z

[14] Brindle R, Williams M, Barton E, Featherstone P. Assessment of Antibiotic Treatment of Cellulitis and Erysipelas A Systematic Review and Meta-analysis. JAMA Dermatology 2019; 155(9): 1033-40. https://doi.org/10.1001/jamadermatol.2019.0884

Received on 07-12-2019 Accepted on 17-12-2019 Published on 20-12-2019

DOI: https://doi.org/10.12970/2310-998X.2019.07.01