Arquivos Brasileiros de
Oftalmologia

Bilateral periorbital necrotizing fasciitis: case report

Fasciite necrosante periorbital bilateral: relato de caso

Fabio Henrique Luiz Leonardo[1], Mariana Anabuki[2], Allan Christian Pieroni Gonçalves[1,3]

1. Department of Ophthalmology, Faculdade de Medicina do ABC, Santo André, SP, Brazil.
2. BWS Institute de Dermatologia de São Paulo, São Paulo, SP, Brazil.
3. Division of ophthalmology, Universidade de São Paulo, São Paulo, SP, Brazil.

ABSTRACT | Necrotizing fasciitis is a severe infection of the subcutaneous tissue characterized by necrosis of the superficial fascia and overlying skin and is usually associated with previous trauma and comorbidities. Periorbital necrotizing fasciitis is rare and commonly causes visual loss and soft tissue defects. A better prognosis relies critically on early diagnosis, prompt medical treatment, and timely surgical intervention. We describe a rare case of periorbital necrotizing fasciitis in the absence of an inciting event. A 55-year-old female patient presented with acute painful swelling and redness of the right upper eyelid that spread to both eyelids bilaterally within 24 h. We swiftly started the patient on intravenous antibiotic therapy, and we surgically debrided the necrotic tissue the following day. We performed two further procedures to improve eyelid closure and appearance. Despite the severe presentation, timely antibiotic therapy and proper surgical interventions led to a successful outcome in this case.

Keywords: Fasciitis, necrotizing; Eye infections, bacterial; Orbital diseases; Reconstructive surgical procedures; Subcutaneous tissue; Case reports

RESUMO | Fasciite necrosante é uma infecção grave do tecido subcutâneo, caracterizada pela necrose da fáscia superficial e da pele sobrejacente. Traumas prévios e cormobidades geralmente estão associados à fasciite necrosante. Fasciite necrosante periorbital é rara. Perda visual e defeitos em tecidos moles são as morbidades mais comuns. Diagnóstico precoce, tratamento clínico rápido e intervenção cirúrgica oportuna levam a um melhor prognóstico. Reportamos um caso incomum de fasciite necrosante periorbital bilateral sem eventos desencadeantes. Uma paciente de 50 anos apresentou edema e eritema na pálpebra superior direita, que progrediu em 24 horas para ambas pálpebras bilateralmente. Ela era previamente hígida. A paciente foi submetida a debridamento cirúrgico do tecido necrótico, no mesmo dia. A paciente foi submetida a outras duas cirurgias, o que melhorou o fechamento palpebral e a aparência. Apesar da gravidade da doença, antibioticoterapia e cirurgias oportunas foram cruciais para o desfecho bem sucedido deste caso.

Descritores: Fasciite necrosante; Infecções oculares bacterianas; Doenças orbitárias; Procedimentos cirúrgicos reconstrutivos; Tela subcutânea; Relatos de casos

INTRODUCTION

Necrotizing fasciitis (NF) is a severe infection of the subcutaneous tissue characterized by necrosis of the superficial fascia and overlying skin. The regions most commonly affected by NF are the perineum, the abdominal wall, and the lower limbs[1]. This infectious process has commonly been associated with traumatic events in comorbid patients. Periorbital NF (PNF) is rare[2] and presents lower mortality rates than those for NF of other parts of the body[1]. Visual loss and soft tissue defects are the most common morbidities[1,3]. A better prognosis relies on early diagnosis, prompt medical treatment, and timely surgical intervention[3-5]. Here we report a rare case of bilateral periorbital NF in the absence of a trigger event or comorbidities.

CASE REPORT

A 55-year-old female presented with painful swelling and redness of the right upper eyelid that progressed over 24 h to the right lower eyelid and the left eyelids. She was otherwise healthy, with no history of trauma, diabetes, alcoholism, or previous facial surgeries. She was suspected of having PNF by a comprehensive ophthalmologist 2 days after the onset of her symptoms. Empirical intravenous antimicrobial therapy was initia-

Submitted for publication: November 21, 2017
Accepted for publication: February 15, 2018

Funding: No specific financial support was available for this study.

Disclosure of potential conflicts of interest: None of the authors have any potential conflict of interest to disclose.

Corresponding author: Allan C. Pieroni Gonçalves.
Av. Angélica, 1761/122 - São Paulo, SP - 05402-300 - Brazil
E-mail: allanpieroni75@gmail.com

This content is licensed under a Creative Commons Attributions 4.0 International License.

ted, and the patient was referred to an oculoplastic specialist. On emergency room examination, the patient had full facial redness with bilateral eyelid edema and four well-demarcated blue-black necrotic plaques in each eyelid, larger in the right periorbital area (Figure 1 A). Both eyes were preserved with 20/40 vision and full motility. Computed tomography scan showed substantial subcutaneous bilateral eyelid swelling, no orbital involvement, and right anterior ethmoidal sinusitis (Figure 1 B).

Surgical debridement of the patient's necrotic tissue was undertaken on the following day. For 14 days, the dressing of the exposed wound was changed daily, and intravenous broad-spectrum antibiotic therapy was maintained in inpatient care. The surgical incisions healed well, showing adequate granulation tissue with no signs of infection (Figure 2 A). The presence of group A streptococcus (Streptococcus pyogenes) was revealed by microbial culture of the necrotic tissue, and the patient was diagnosed with type II NF.

The patient underwent a second surgical procedure to reconstruct the four eyelids. Forehead flaps were performed on the upper eyelids, and an advancement flap was performed on the lower eyelids, without surgical complications. The patient maintained satisfactory eyelid closure and corneal protection (Figure 2 B). At the fourth month postoperative follow-up, the patient had a third procedure for revision of flaps and cosmetic touch ups, which improved eyelid closure and appearance (Figure 2 C).

DISCUSSION

NF is a rapidly progressive infection of superficial fascia, subcutaneous fat, and deep fascia that infects the surrounding tissues. Previous trauma (such as abrasions, insect bites, and needle injections) and comorbidities (such as diabetes mellitus, alcoholism, intravenous drug abuse, and vascular disease) are usually associated with NF[6,7]. Type I NF is polymicrobial, caused by both aerobic and anaerobic organisms, whereas type II is "monomicrobial," usually caused by streptococcus or staphylococcus, or a combination of the two (in other words, type I NF is caused by enteric organisms, whereas type II NF is caused by skin flora)[2,3]. Facial involvement of NF is rare; when it occurs, it usually presents as unilateral periorbital[1,3]. Mortality rates of PNF range from 10% to 14%, whereas NF of other parts of the body range from 20% to 35%[1].

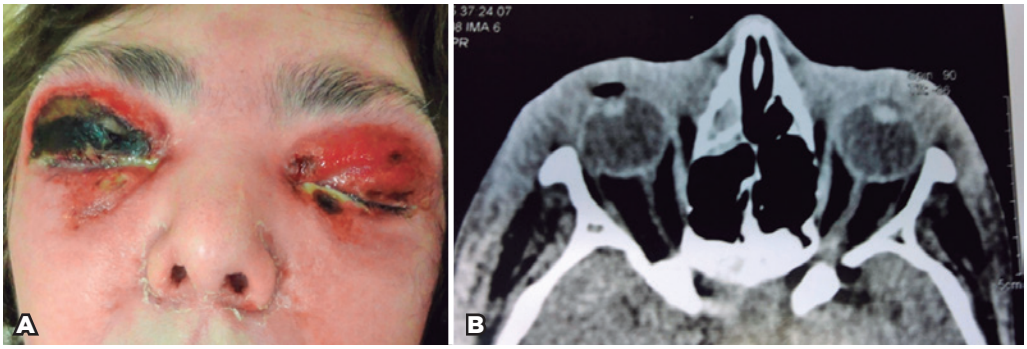

Figure 1. A) Clinical presentation: bilateral eyelid edema and full facial redness; B) Subcutaneous swelling identified in computed tomography scan.

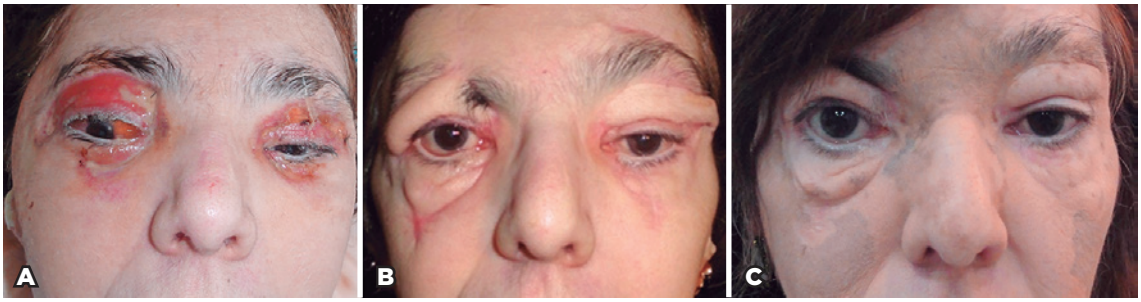

Figure 2. A) Early postoperative result after surgical debridement; B) Late postoperative result after forehead flaps and advancement flaps; C) Final aspect after flaps revision and cosmetic touch ups.

The anatomical location on the face of the superficial fascia is still controversial. Because this term is related to connective tissues in general[6], although it is not a fibrotic membrane, it is considered as a fascia. The superficial fascia is a layer of the subcutaneous tissue lying between the dermis and the deep fascia. However, on the face, those layers are less pronounced than they are in other parts of the body. The superficial fascia is continuously present in the head, but its characteristics vary according to its region. For instance, the superficial fascia of the head may be considered to include the superficial musculoaponeurotic system and its insertions, the platysma and the epicranial aponeurosis[6]. We therefore believe that the term "fasciitis" is also accurate for facial NF.

An awareness of NF diagnosis is pivotal for timely treatment. Edema beyond the erythema, necrosis, severe pain, and crepitus on palpation are the main clinical findings that should raise suspicion for NF[1,8]. Immediately after diagnostic suspicion, the clinical treatment with broad-spectrum antibiotics and supportive care should be initiated[9]. Laboratory and imaging studies, while helpful, should not delay the treatment by surgical exploration, which also confirms the definitive diagnosis. Therefore, if the patient is clinically stable, a wide and adequate surgical debridement of affected tissues should be promptly performed[7].

PNF is a rare disease demanding early diagnosis and treatment to reduce mortality and morbidity. We present an uncommon case of bilateral type II PNF with no trigger events or comorbidities. This report stresses how crucial timely diagnosis, antibiotic therapy, and proper surgical interventions are for successful outcome.

REFERENCES

1. Amrith S, Hosdurga Pai V, Ling WW. Periorbital necrotizing fasciitis - a review. Acta Ophthalmol. 2013;91(7):596-603.
2. Puri P, Innes JR. Necrotising fasciitis of the orbit: early recognition and treatment a key to success. Eur J Ophthalmol. 2001;11(2):180-2.
3. Shield DR, Servat J, Paul S, Turbin RE, Moreau A, de la Garza A, et al. Periocular necrotizing fasciitis causing blindness. JAMA Ophthalmol. 2013;131(9):1225-7.
4. Marshall DH, Jordan DR, Gilberg SM, Harvey J, Arthurs BP, Nerad JA. Periocular necrotizing fasciitis: a review of five cases. Ophthalmology. 1997;104(11):1857-62.
5. Kronish JW, McLeish WM. Eyelid necrosis and periorbital necrotizing fasciitis. Report of a case and review of the literature. Ophthalmology. 1991;98(1):92-8.
6. Ferreira LM, Hochman B, Locali RF, Rosa-Oliveira LM. A stratigraphic approach to the superficial musculoaponeurotic system and its anatomic correlation with the superficial fascia. Aesthetic Plast Surg. 2006;30(5):549-52.
7. Neeki MM, Dong F, Au C, Toy J, Khoshab N, Lee C, et al. Evaluating the Laboratory Risk Indicator to Differentiate Cellulitis from Necrotizing Fasciitis in the Emergency Department. West J Emerg Med. 2017;18(4):684-9.
8. Stevens DL, Bisno AL, Chambers HF, Dellinger EP, Goldstein EJ, Gorbach SL, et al. 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):e10-52.
9. Casey K, Cudjoe P, Green JM, 3rd, Valerio IL. A recent case of periorbital necrotizing fasciitis--presentation to definitive reconstruction within an in-theater combat hospital setting. J Oral Maxillofac Surg. 2014;72(7):1320-4.