EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 10
Issue: 12
276-279
Year: 2023

# PERIORBITAL CELLULITIS IN DIABETIC PATIENT, CLINICAL CASE

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**Article Received on 22/10/2023** **Article Revised on 12/11/2023** **Article Accepted on 01/12/2023**

## ABSTRACT

Periorbital cellulitis, or preseptal cellulitis, is an infection that affects the tissues around the eye, such as the eyelids and nearby areas. It manifests itself with symptoms such as redness, difficulty in eye movement, local heat and pain to the touch. It is more common in children than in adults, with an annual incidence of 10 cases per 100,000 children and 1 case per 100,000 adults. Adults can develop it due to medical conditions that weaken the immune system, such as type 2 diabetes. Periorbital cellulitis can be caused by wounds or infections, with Streptococcus pneumoniae and Staphylococcus aureus being common infectious agents. In the present case, the etiopathogenesis was multifactorial, due to the previous dental manipulation, as well as the immunosuppression conditioned to the patient's chronic-degenerative disease, all acting in a negative synergy to potentiate the appearance of the clinical picture in the patient.

**KEYWORDS:** Cellulite, Periorbital, Immunocompromised, Diabetes Mellitus.

## INTRODUCTION

Periorbital cellulitis, or in some cases called preseptal cellulitis, is a pathology that affects the tissues surrounding the eyeball, essentially the eyelids and adjacent structures. Being an infectious process of primarily bacterial origin, it is characterized by data of tissue invasion such as: Erythema of adjacent structures, decreased ocular mobility, sensation of heat in the affected area and pain to the touch.[1-2] Sometimes it can progress to a more serious infection known as orbital cellulitis, which involves the deeper tissues around the eye.

Speaking from an epidemiological perspective, it is mentioned that its prevalence is preponderant in children[2], with an annual incidence in children of approximately 10 cases per 100,000 and in adults 1 per 100,000 inhabitants.[3] However, adults can also present the clinical picture for various reasons.

One of the main reasons why this clinical condition may occur in adults is the decrease in the body's defense mechanism, secondary to various pathologies, such as cancer, immunological diseases, chronic-degenerative diseases such as type 2 diabetes mellitus, among others.[4]

Due to the inherent immunosuppression that people with diabetes mellitus have, they are at increased risk of contracting skin infections and cellulitis. Likewise, they also have a high risk of suffering serious complications such as sepsis.[5-6]

Studies mention that the prevalence of periorbital cellulitis in diabetic people is 2.4%.[7]

In relation to etiopathogenesis we can say that there are two types: Causes of physical or traumatic origin, that is, due to wounds or lacerations in the ocular area. And on the other hand, those of infectious origin, which may be due to processes such as: Sinusitis, upper tract infections, dental or skin abscesses.[8]

From the pathophysiological perspective there are 2 main routes, by direct inoculation and by hematogenous route, where the infectious agents or pathological processes are transported by the blood circulation to the orbit.[9]

The causal agents may be multifactorial, however the literature mentions *Streptococcus pneumoniae and Staphylococcus aureus as* responsible.[10-11]

## CASE PRESENTATION

A 65-year-old female patient, resident of the state of California, who went to a doctor for a clinical

presentation that had been going on for 8 days, presenting as an initial manifestation: Periorbital pain, predominantly on the left, which increased over time. days, in the same way he reported having presented fever, not quantified, with an intermittent pattern, accompanied by bilateral oppressive headache, focused on the left temporomandibular region. As important background information, he refers to having received a dental filling treatment on the upper left molars to combat tooth decay 2 weeks ago. Without prescription of pharmacological treatment of any kind.

On physical examination, it is oriented in its three spheres, vital signs with figures of: Blood pressure; 130/90 (mmHg), Respiration; 18 per minute, Body temperature; 38. 7°C.

Surrounding periorbital erythema with pain on palpation and slight ipsilateral eyelid ptosis was observed in the left zygomatic area. Ocular mobility was decreased. Photomotor and consensual reflexes present, field of vision preserved (fig. 1 and 2)

**Figure 1 and 2. Patient with edema in the left zygomatic region.**

**To ophthalmoscopy of the left eye**

Ophthalmic papilla was observed with defined net borders, normal macula, arterial and venous vessels of normal caliber, brightness and trajectory; retina applied and clean, fundus of eye with some evident cottony spots in the area below the papilla around the inferotemporal arch, secondary to a chronic degenerative process.

The examination of the right eye did not show any relevant alterations.

**Pathological personal history**

She reports being a diabetic of 20 years of evolution under control, treated with metformin 500 mg at a rate of 1 tablet every 12 hours. He did not report any other concomitant chronic illness.

A diagnosis of periorbital cellulitis was made and antibiotic therapy was started empirically with intramuscular ceftriaxone 1 gram every 24 hours to observe improvement and complete the regimen. Treatment for anaerobic bacteria was added with metronidazole, 500 mg every 8 hours for 3 days. In the same way, 600 mg ibuprofen was prescribed every 8 hours for 5 days.[12-13]

**Laboratory: Hematic biometry**

They showed: Hemoglobin of 14.3 g/dl, hematocrit of 40.6%, moderate leukocytosis of 12.3 x thousands/µl, lymphocytes 38%, neutrophils 3.3%, platelets 210 x thousands/µl.

**Evolution**

The patient was reassessed on the third day of treatment, where clinical improvement could be observed, with a decrease in edema in the affected region, so it was decided to continue and end the pre-established therapeutic scheme. (fig. 3 and 4.)

**Figure 3 and 4 Patient with notable improvement and decrease in the inflammatory process clinically.**

## DISCUSSION

Periorbital cellulitis is an acute infection that affects the soft tissues around the eye. Although it is more common in children and adolescents, it can occur in adults[12], and its presentation in patients with chronic diseases such as diabetes mellitus can significantly complicate the clinical picture. In this case, comorbidity could have favored the establishment of the pathophysiological process due to its impact on the immune system and the body's ability to fight infections. Inadequate dental manipulation was also a triggering or contributing factor in the spread of the infection as a gateway to surrounding tissues.[13-14]

To avoid this type of situation, it would be recommended that health professionals and patients become aware of and take measures in various aspects of the chronic degenerative evolution of the pathology in question, such as periodically reviewing glucose levels to maintain good control. Of the same. Returning to the particular case, dentists must take a complete clinical history to identify risk factors that may perpetuate or exacerbate an infectious process such as diabetes mellitus and, if necessary, prescribe antibiotics prophylactically.[15]

## BIBLIOGRAPHY


1. Izquierdo E, Ruiz Jiménez M, Blázquez Fernández JA, Prados Álvarez M, Pelegrina M, Ramos Amador JT. Revisión de celulitis periorbitaria y orbitaria: Experiencia de quince años. Pediatr Aten Primaria [Internet], 2009 [citado el 15 de octubre de 2023]; 11(44): 597–606. Disponible en: https://scielo.isciii.es/scielo.php?pid=S1139-76322009000500005&script=sci_arttext.
2. Martínez Noriega AS, García Lozano AM. Actualización diagnostica y tratamiento de Celulitis Periorbitaria en el paciente pediátrico. Ciencia Latina [Internet], 2023 [citado el 15 de octubre de 2023]; 7(2): 8311–30. Disponible en: https://ciencialatina.org/index.php/cienciala/article/view/5957.
3. González LS, Acosta BA, Gil RR, Mesa Medina O, Miranda JLD. Celulitis preseptal y orbitaria en edad pediátrica: revisión de la literatura y protocolo de actuación. Archivos de la Sociedad Canaria de Oftalmología [Internet]. 2014 [citado el 20 de octubre de 2023]; (25): 13–8. Disponible en: https://dialnet.unirioja.es/servlet/articulo?codigo=4742089
4. Patiño Arboleda M, Muñoz JF, Ocampo JM, Calzada MT, Cárdenas Prieto JM. Trombosis bilateral del seno cavernoso en un paciente con enfermedad periodontal y diabetes mellitus. descripción de un caso. Duazary [Internet], 2021 [citado el 23 de octubre de 2023]; 18(3): 328–33. Disponible en: https://revistas.unimagdalena.edu.co/index.php/duazary/article/view/4239
5. Escobar L, García C, Rivera C, Giraldo E, Cota LM, Navarro Jay S, et al. Genética de la inmunosupresión en pacientes con diabetes mellitus tipo 2. 2019 [citado el 23 de octubre de 2023]; Disponible en: http://repositorio.unisinucartagena.edu.co:8080/jspui/handle/123456789/630.
6. Ortiz López A. Análisis de la frecuencia y actividad de células reguladoras Breg, Treg17 y Th1-IL-10 en pacientes con Diabetes Mellitus tipo 2 e individuos control. 2023 [citado el 29 de octubre de 2023]; Disponible en: http://repositorioinstitucional.uaslp.mx/xmlui/handle/i/8342.
7. Yadalla D, Jayagayathri R, Padmanaban K, Ramasamy R, Rammohan R, Nisar SP, et al. Bacterial orbital cellulitis - A review. Indian J Ophthalmol [Internet], 2023; 71(7): 2687–93. Disponible en: http://dx.doi.org/10.4103/IJO.IJO_3283_22.
8. Pérez ZD, Castellanos PL, Ramos Amador JT. Celulitis orbitaria y periorbitaria [Internet]. Guia-abe.es. [citado el 1 de noviembre de 2023]. Disponible en: https://www.guia-abe.es/files/pdf/Celulitis%20orbitaria%20y%20periorbitaria.pdf.
9. Pazos BT, Jimenez YM, Martinez ME, Pla AD. Celulitis orbitaria secundaria a sinusitis por Prevotella loescheii. Rev Latin Infect Pediatr [Internet], 2023 [citado el 1 de noviembre de 2023]; 35(4): 162–6. Disponible en: https://www.medigraphic.com/cgi-bin/new/resumen.cgi?IDARTICULO=109411.
10. Gupta S, Sharma S. Orbital cellulitis: Defining multidisciplinary approach as the need of the hour. Indian J Otolaryngol Head Neck Surg [Internet], 2019 [citado el 1 de noviembre de 2023]; 71(4): 464–9. Disponible en: http://dx.doi.org/10.1007/s12070-019-01632-y.
11. Chaudhry I, Al-Rashed W, Arat Y. The hot orbit: Orbital cellulitis. Middle East Afr J Ophthalmol [Internet], 2012 [citado el 3 de noviembre de 2023]; 19(1): 34. Disponible en: http://dx.doi.org/10.4103/0974-9233.92114.
12. Quevedo-Jaramillo V, Guerra Y, Alzate A, Gil-Muñoz JC. Infecciones oculares: un estudio de caracterización y perfil de resistencia antibiótica. Revista de la Sociedad Colombiana de Oftalmología [Internet], 2023; 56(1). Disponible en: https://web.archive.org/web/20221205171303id_/https:/www.revistasco.com/files/rsco_203_22_infecciones.pdf.
13. Betancourt Pérez M, Cuevas Gandaria M de LÁ, Navarro Nápoles J, La O Torres J, Ruiz Miyares F. Celulitis facial iatrogénica como consecuencia de una sepsis odontógena. Medisan [Internet], 2013 [citado el 4 de noviembre de 2023]; 17(8): 4019–22. Disponible en: http://scielo.sld.cu/scielo.php?pid=S1029-30192013000800016&script=sci_arttext&tlng=en.
14. Neisseria gonorrhoeae: un agente causal infrecuente de celulitis periorbitaria en un niño. Arch Argent Pediatr [Internet], 2017; 115(04). Disponible en:

http://www.scielo.org.ar/pdf/aap/v115n4/v115n4a25.pdf.

15. Castro-Rodríguez YA, Cerrate VC, Rimache LC. Eficacia de la profilaxis antibiótica en la prevención de infecciones posquirúrgicas en la cirugía del tercer molar impactado. Rev cuba investig bioméd [Internet]. 2020 [citado el 7 de noviembre de 2023]; 39(3). Disponible en: https://revibiomedica.sld.cu/index.php/ibi/article/view/676/883.