Case study

Orbital cellulitis in children: experience of the pediatric service at mohammed v military hospital

Abstract

The average age of patients was 6 years, with a female predominance (58%).
The disease mainly involved the sinus (32%).Clinically, fever was present in 10
patients (41%),palpebral edema was universal, proptosis was noted in 5
cases(20.8%),chemosis and ptosis were noted in 4 cases(16.6%),bacteriological
testing identified micro-organisms in 3 cases. Orbital computed tomography
performed in 24 of the cases showed preseptal cellulitis in 14 cases (58.3%),
orbital cellulitis in 3 cases(12.5%),and orbital abscess in 7 cases.
Medical treatment was based on antibiotic,corticosteroid therapy prescribed in
5 cases.However ,surgical drainage was necessary in 3 cases .The outcome of
All cases was favorable

Introduction:

Orbital cellulitis in children is an acute inflammatory disease of infectious origin, it is a rare but potentially serious condition

Two types of cellulite should be distinguished: pre-septal in front of the orbital

septum and retro septal behind the orbital septum.

The diagnosis is essentially clinical and radiological.

the goal of this study is to analyze the epidemiological, clinical, therapeutic aspects and typical course of orbital and periorbital cellulitis in children,

Material and methods:

During the retrospective study period (2016–2019), 24 cases were hospitalized in the pediatric department at mohammed v military hospital.

Results:

The average age of patients was 6 years, with a female predominance (58%). The disease mainly involved the sinus (32%).Clinically, fever was present in 10 patients (41%),palpebral edema was universal, proptosis was noted in 5 cases(20.8%),chemosis and ptosis were noted in 4 cases(16.6%),bacteriological testing identified micro-organisms in 3 cases. Orbital computed tomography performed in 24 of the cases showed preseptal cellulitis in 14 cases (58.3%), orbital cellulitis in 3 cases(12.5%),and orbital abscess in 7 cases.

Medical treatment was based on antibiotic,corticosteroid therapy prescribed in 5 cases.However ,surgical drainage was necessary in 3 cases .The outcome of All cases was favorable.

Table I: Summary of clinical signs according to location

Clinical sign	pre-septal cellulitis	retro septal cellulitis	total
Fever	6 (25%)	4 (16.6 %)	10 (41.6%)
Palpebral edema	14 (58.3%)	10 (41.6%)	24 (100%)
Chemosis	4 (16.6%)	0 (0%)	4 (16.6%)
Exophthalmos	2 (8.3 %)	3 (12.5%)	5 (20.8%)
Ptosis	3 (12.5%)	1 (4.1%)	4 (16.6%)
Ocular mobility			
-preserved	14 (58.3%)	10 (41.6%)	24 (100%)
-decreases	0	0	0
Purulent secretions	2 (8.3%)	4 (16.6%)	6 (25%)

Discussion:

Orbital cellulitis is a relatively common cause orbital inflammation, in children it would be responsible for 0.9 for 1000 pediatric admissions per year according to a Canadian study [1]. Age average is variable between 3 years up to 7 years in the majority of series pediatric. [2]

Clinically orbital cellulitis produces inflammatory edema of the eye painful and feverish onset and rapid progression [3], a decrease visual acuity, exophthalmos, chemosis, ptosis. Imagery is essential in case of suspicion of orbital cellulitis.

The CT scan will determine the exact location, size of the orbital lesion and the condition of the facial sinuses. [4.5]

Table 2: Chandler's classification [6] allows us to define 5 stages:

Stage	Description
I	Inflammatory edema (preseptal cellulitis)
II	Orbital cellulitis (postseptal cellulitis)
III	Subperiosteal abscess
IV	Orbital abscess
V	Cavernous sinus thrombosis

Orbital cellulitis is a serious infection in children that can result in significant complications, including blindness, cavernous sinus thrombosis, meningitis, subdural empyema, and brain abscess.

The bacteriological assessment must include blood cultures, the rate of which of positivity does not exceed 45% .The most common germs found are especially: Staphylococci, Streptococci, anaerobes and in rare situations Haemophilus influenzae, the incidence of which decreased drastically thanks to the generalization of its vaccine [7].

The entrance gate is most often sinus.

The differential diagnosis arises with orbital tumors and acute, subacute or chronic inflammation, necrotizing fascitis periorbital.

The therapeutic management of orbital cellulitis is not consensual, it is mainly based on antibiotic therapy often intravenously, drainage in the forms collected ,more or less systemic corticosteroid therapy.

In the event of uncollected pre-septal cellulitis, treatment is provided on an outpatient basis. Treatment with the combination of amoxicillin and acid clavulanic is offered with clinical monitoring of the patient at 24- 48hours.

In case of retro-septal cellulitis, the treatment requires hospitalization with institution of intravenous bi-antibiotic therapy, The duration intravenous treatment is guided by the achievement of apyrexia and the decrease in eyelid edema and occurs on average on day 5 with a oral relay with amoxicillin and clavulanic acid for at least ten days.

The use of corticosteroid therapy is controversial, its addition to a effective antibiotic therapy after infection control (after 48 hours) could reduce inflammation, and decrease pressure within the orbit to protect the optic nerve [9]. Pushker and al [10] by a prospective study of 21 children with orbital cellulitis divided into 2 groups: one group receiving only intravenous antibiotic therapy and the second treated in addition by corticosteroid therapy based on prednisolone, has demonstrated the beneficial effects of corticosteroids: faster decrease in palpebral edema, chemosis and pain, reduced ptosis and short- and long-term ocular motility disorders, reduction in the duration of intravenous antibiotic therapy as well as the duration hospitalization and faster recovery of visual function.

Conclusion

Orbital cellulitis in children is a serious infection and requires close collaboration between the ophtalmoligist ,otolaryngologist, and pediatrician in order to be diagnosed and treated early so as to improve the prognosis for vision and life.

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