



Left Extracranial Orbital Abscess and Orbital Cellulitis as A Complication of Ethmoido-Maxillary Sinusitis

KEYWORDS

ethmoido-maxillary sinusitis, orbital cellulitis, extracranial orbital abscess.

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ABSTRACT Ethmoido-maxillary sinusitis in paediatric age group, often gives rise to severe complications such as orbital cellulitis and orbital abscesses, in the absence of proper management. A two-year-old boy presented to the family doctor with rhino-pharyngitis, where he was prescribed Clarithromycine and Non-steroidal Anti-inflammatory drugs (NSAIDs), for seven days. After two-weeks the child was admitted in our hospital, due to presence of purulent rhinorrhea, fever, malaise, oedema as well as erythema of the left eyelid, orbital pain and conjunctivitis. Complex laboratory tests and interdisciplinary examination including ENT and ophthalmology check-ups were performed. MRI of the head confirmed the diagnosis as it was suspected: Left extracranial orbital abscess and orbital cellulitis, as a complication of ethmoido-maxillary sinusitis. Vigorous medical treatment with multi-disciplinary approach solved the case leaving no need for surgical intervention. Hence, teamwork in such diseases is mandatory to obtain favourable evolution.

Introduction:

Orbital cellulitis generally results from extension of an infection of the paranasal sinuses (PNS), ethmoidal sinusitis being the leading cause. (1) The oedema of the sinus mucosa can narrow the ostia, producing obstruction in normal sinus drainage. The microbial flora can proliferate, invading the oedematous mucosa and determining suppuration. The infection can gain access to the orbit through the orbital wall, which is thin and perforated. The subperiosteal or intraorbital abscesses can appear with clinical signs of proptosis, ophthalmoplegia, oedema and erythema of the eyelids, fever, malaise and headache. Children develop more frequent orbital cellulitis as compared to adults, especially in male population. Laboratory tests for inflammation, level of the leukocytes and blood cultures are indicated. CT scan/ MRI are necessary for diagnosis. (2) Antibiotic treatment is mandatory, to prevent severe complications of the eyes, as there exists a high risk of visual loss. (3) Intracranial and epidural or subdural abscesses have also been reported in untreated cases. (4)

Case report: A 2-year old male child presented in our hospital suffering from fever 38.8°C, malaise, intermittent purulent rhinorrhea, oedema and erythema of the left eyelid, proptosis, ophthalmoplegia, left eye conjunctivitis and altered general status. History revealed that his family-doctor treated him two weeks ago, diagnosing rhino-pharyngitis, prescribing Clarithromycin, Ibuprofen and nasal decongestants for seven days. Except from the presence of intermittent purulent rhinorrhea from the left nostril, the evolution was apparently good, in the initial days and hence was not followed by the family doctor. The parents were convinced it to be an upper respiratory tract infection, simplest of its kind. Sudden reappearance of fever a day before, which had worsened to 39°C the next day despite of Ibuprofen administration by the mother, accompanied by conjunctivitis and orbital celluli-

tis of the left eye, was alarming both to the family as well as the family-doctor. Finally, the family doctor decided to refer and get the patient admitted to the county children hospital. At the time of admission, the little boy was clinically evaluated by on duty paediatricians and complex laboratory tests were performed. In addition to this, ophthalmology and ENT interdisciplinary consults were rapidly performed. In evolution, proptosis and ophthalmoplegia appeared. Both the specialist, together with the paediatrician decided that ultrasound of the orbit was necessary, (5) followed by an MRI of the head, as recommended in literature. (6) Neurosurgical opinion became mandatory as well.

Laboratory investigation results showed high level of WBC 25.570/mm³ with neutrophils 67%, having absolute value of 17.190/mm³ (indicating infection), and slight anaemia with 10 g/dl Hb, positive inflammatory markers with C-RP; 80.55 mg/l, ESR; 60 mm/hr and fibrinogen 6.3 g/l. Culture samples from blood, throat, nasal secretions, and ophthalmic discharge were sent for bacteriological examination. X- ray of the PNS revealed left maxillary sinusitis. ENT surgeon diagnosed acute ethmoiditis with orbital cellulitis. The ophthalmologist described palpebral oedema. Intravenous antibiotic therapy with Ceftriaxone and Gentamicin was initiated, followed by corticotherapy, antihistaminics, nasal decongestants, ophthalmic drops, anti-pyretic medications, but all proved to have an unexpected bad evolution.

Further, a swollen and painful zone was detected in the internal left eye angle, confirmed by ophthalmologist. Ultrasound examination of the eye described a tumoral zone in the left eye. Hence, an MRI of the head became mandatory. (7) MRI concluded left ethmoido-maxillary sinusitis and a 2/0.9/1.1 cm abscess in the medial 1/3rd part of ethmoid, with intra orbital penetration.

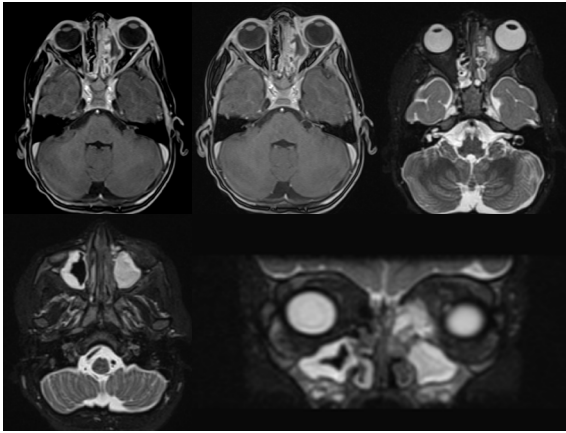


Figure 1- MRI of the head after the hospital admission showing left ethmoido-maxillary sinusitis. Small ethmoidal abscess with intraorbital extrachoanal extension, touching the right medial muscle.

Neurosurgeons were in the opinion of getting a surgical drainage of the abscess done in the ENT or Ophthalmology Department. Further, Antibiotic therapy was changed to Meropenem, Metronidazol and Vancomycin, in association with Aspirin, endonasal decongestants. A surgical intervention was discussed and planned under ophthalmology and ENT doctors valued teamwork. However, under combined antibiotic therapy, together with endonasal decongestants, the evolution was magnificent, with clear reduction of the abscess, persisting only minimal inflammatory changes in the extrachoanal periethmoid intraorbital fatty tissue, after just one week of initiation of this intensive treatment.

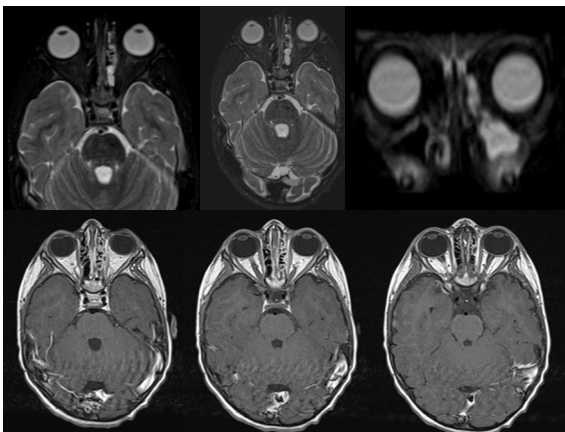


Figure 2- MRI of the head one week after intensive treatment; Left ethmoido-maxillary sinusitis. Favourable evolution with regression of the left extrachoanal orbital abscess. Minimal inflammatory changes in the extrachoanal periethmoid intraorbital fatty tissue

The child was kept under continuous observation and care until the clinical and biological status returned to normal. An MRI of the head was repeated after one month, which revealed completely normal aspect.

Discussion: Sinusitis is a specific ENT pathology. In severe cases, ethmoido-maxillary sinusitis can complicate with orbital cellulitis and extrachoanal orbital abscess, especially in young boys, which represents a specific ophthalmologic pathology. (8) Even though the location of the abscess is in the cranium, according to the neurosurgeons opinion the abscess should be surgically managed either by the ENT or ophthalmology doctors. (9) Despite this situation, the patient was intensively treated in our paediatric department, with excellent results and complete recovery.

Conclusions: Hence, it can be concluded, that teamwork plays an extremely important role in such complicated cases where the decision hangs between surgical and medical specialities making interdisciplinary approach mandatory. Intensive vigorous medical therapy can overcome the need of surgery in many cases, as was seen in our case of complicated ethmoido-maxillary sinusitis.

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