Case Report

Frontal osteomyelitis presenting as upper eyelid ectropion: A cautionary tale

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Abstract

Frontal osteomyelitis is a rare clinical entity that can occur as sequelae to frontal sinusitis, head trauma, as a postoperative complication following sinus surgery or due to haematogenous spread. It usually presents with a soft, fluctuant forehead swelling with pain and fever. Cicatricial ectropion is an extremely rare feature of frontal osteomyelitis. We present a young male patient presenting with cicatrical ectropion that occurred as the sole manifestation of an underlying frontal osteomyelitis. Extensive Medline search did not find any such reported case. We feel that frontal osteomyelitis should be kept in mind as a possible etiology when considering the differential diagnosis of cicatrical ectropion.

Keywords: Osteomyelitis, Frontal sinusitis, Cicatrical ectropion

Introduction

Ectropion is etiologically classified as involutional, paralytic, cicatrical and mechanical. The lower lid is predominantly affected. The upper lid, when affected, is usually cicatrical in nature, secondary to trauma, burns, dermatitis and ichthyosis. 1 We present a rare case of frontal bone osteomyelitis presenting as cicatrical ectropion of the upper lid in an seven year old boy. Our purpose is to increase awareness regarding this rare cause of ectropion, so that delayed diagnosis with complications can be avoided.

Case report

A seven year old boy, presented to us with the complaint of an upturned left upper lid for the past four months. Apart from that, there was no history of any ocular or periocular trauma, fever, headache, vomiting, weight loss, malaise, loss of consciousness, convulsions, diminished vision or any pain or swelling in and around the region of the affected eyelid. There was no history of any ocular or systemic illness or any history of sinus or cranial surgery. The patient was not on any topical or systemic drugs. He had no family history ocular or systemic disease. Ear, throat and dental examinations were normal. On examination he was well nourished, alert and afebrile. The physical and neurological examinations were unremarkable. The uncorrected visual acuity was 20/20 in the right eye and 20/20 in the left eye. The left upper lid had a cicatrical ectropion, with adherence of the upper lid to a scarred area adjacent to the eye brow (Fig. 1). The scar was adherent to the underlying bone and a small sinus was noted in the scarred area with a drop of thick purulent discharge. The pus from the sinus was positive for Staphylococcus aureus and smear negative for acid fast bacilli.

In down gaze lid lag was noted (Fig. 2) and there was lagophthalmos without corneal exposure. Anterior segment and fundus examination of both eyes were within normal

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limits. Peripheral blood smears showed leukocytosis with monocytosis. ESR and C-reactive protein values were raised. Fasting and postprandial blood sugar, Mantoux test and anteroposterior chest X-ray were all within normal limits. Immunological tests were normal. A CT scan of brain and orbits revealed presence of irregular and patchy areas of sclerosis involving the outer table of the frontal bone on the left side, (Fig. 4) with presence of a dense loose fragment, with irregular, sharply demarcated edges, lying within a cavity in the bone suggestive of sequestrum (Fig. 5). A diagnosis of chronic osteomyelitis of the skull was made. Bone windows showed the extent of bony destruction (Fig. 5). Intracranial MR imaging ruled out intracranial involvement (Fig. 3). The patient was started treatment with broad spectrum intravenous antibiotics and referred to neurosurgery where he is scheduled to undergo removal of the necrotic bone and drainage of the pus with continuation of parenteral antibiotics.

Discussion

Chronic osteomyelitis is usually a sequel to acute osteomyelitis though occasionally it is subacute or chronic from the beginning. The commonest site of chronic osteomyelitis is the long bones. Frontal bone is a rare site for osteomyelitis. Studies show that only 2% of all cases of osteomyelitis in children are cranial and in an even smaller number of cases, osteomyelitis involves the frontal bone.^{2}

Frontal osteomyelitis results in a typical fluctuant swelling on the forehead called the “Potts puffy tumor” after Sir
Figure 4. CT scan plate with bold arrow showing an area of osteosclerosis and loss of trabecular architecture affecting the roof of orbit on the left side.

Figure 5. CT scan plate with black solid arrow showing an area of osteosclerosis and a sequestrum below it. The white solid arrow shows an area of osteolysis.
Percival Potts described this condition in 1760, resulting from the destruction of the outer table of the frontal bone. Advent of antibiotics has made Potts puffy tumor a rare entity, with only 27 cases reported in the postantibiotic era. Frontal osteomyelitis usually results from sinusitis, trauma and as a complication of sinus surgery. It results in a soft fluctuant forehead swelling, especially if persistent and nonresolving, should raise the suspicion of frontal bone osteomyelitis. In our patient, there was no evidence of forehead swelling, pain or fever as the presenting sign of frontal osteomyelitis. There was no source of infection identifiable on examination of ear, throat and teeth. The possible etiology could have been hematogenous in nature. The sole presenting feature was cicatricial ectropion of the upper eyelid on the affected side.

The common causes of cicatricial ectropion are acid injury, burns, dermatitis and trauma. Frontal bone osteomyelitis as a cause of cicatricial ectropion is extremely rare and thorough literature search did not reveal any instance of such a presentation of frontal osteomyelitis.

Ophthalmologists often come across cicatricial ectropion in their practice and the common etiologies are usually considered. This case report emphasizes the fact that an underlying frontal osteomyelitis should also be considered, as a possible cause, since a delay in the diagnosis can be life threatening. We present this case, as we feel this cautionary tale, will help ophthalmologists to exercise a high index of suspicion and make a proper diagnosis of this rare entity.

Conflict of interest

The authors declared that there is no conflict of interest.

References

1. Kanski JJ. Bowling B. Clinical Ophthalmology, a systemic approach. seventh ed., 2011. p. 46–9.
2. Hamblem D, Hamish A, Simpson RW. Adam’s Outline of Orthopaedics. 14th ed., 2010. p. 85–103 Chapter 7.
3. Arnold PM, Govindan S, Anderson KK. Spontaneous cranial osteomyelitis in an otherwise healthy ten year old male. Pediatric Neurology 2009;45:407–9.
4. Chaturvedi VN, Raizada RM, Kennedy Singh AK, Bali S. Osteomyelitis of the frontal bone. Indian J Otolaryngol Head Neck Surg 2004;56(2):126–8.
5. Marshall AH, Jones NS. Osteomyelitis of frontal bone secondary to frontal sinusitis. J Laryngol Otol 2006;114:944–6.
6. Johnson CH. A case of osteomyelitis of the frontal bone complicating acute frontal sinusitis. Recovery. J Laryngol Otol 2007;47:63–6.
7. Ibarra S, Aquirrebergoa K, Pomposo I, Bereciartua E, Montego M, Gonzales de Zarate P. Osteomyelitis of the frontal bone (Potts puffy tumor). A report of five patients. Enferon Infec Microbiol Clin 1999;17(10):489–92.