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Case Report

Orbital apex syndrome secondary to sinusitis

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ABSTRACT

The orbital apex disorders include superior orbital fissure syndrome, cavernous sinus syndrome, and orbital apex syndrome. A 50-year female patient presented to hospital with complaints of right eye heaviness since 3 days, decrease vision since 5 days. Right sided headache, right eye blurred vision, ptosis of right eye lid for 1 week. On ophthalmologic examination ptosis and blurred vision in right eye seen. Visual acuity in right eye shows counting fingers close to fingers (CFCF), exotropia, extraocular movements reduced. Computed tomography paranasal sinus (CT PNS) plain and contract showed bilateral sphenoid, right maxillary and right posterior ethmoid sinusitis. Magnetic resonance imaging (MRI) brain showed ill-defined type 2 hyper intensity at right orbital apex and right cavernous sinus showing moderate enhancement with adjacent dural thickening and abnormal enhancement of anterior clivus suggestive of Infective etiology. Right anterior and posterior ethmoidectomy, right fronto-spehenoidectomy, right orbital decompression done.

Keywords: Orbital apex syndrome, Chronic rhinosinusitis

INTRODUCTION

The orbital apex disorders include superior orbital fissure syndrome, cavernous sinus syndrome, and orbital apex syndrome.[1] Though these disorders have been described separately based on anatomical site of involvement and clinical features, evaluation and management of these conditions are almost alike.[2] The orbital apex is an opening connecting the orbit and the cranial cavity.[3]

Orbital apex syndrome (OAS), also called Jacod syndrome, is a complex neurological disorder characterized by a constellation of signs resulting from multiple cranial nerve involvement.[4] The typical clinical features are attributed to the involvement of the orbital apex by various neoplastic, vascular, infectious, or inflammatory conditions. They primarily involve one of adjacent structures like paranasal sinuses or orbit from which they spread to orbital apex.[5]

These structures include the ophthalmic artery, the optic nerve, and the four rectus muscles, which derive from the annulus of Zinn. The cranial nerves involved in orbital apex syndrome are the optic nerve, oculomotor nerve, trochlear nerve, abducens nerve, and the ophthalmic division, the first division of the trigeminal nerve.[6]

CASE REPORT

A 50-year-old female patient presented to the hospital with complaints of right eye heaviness since 3 days, decrease vision since 5 days.

History of right sided headache, right eye blurred vision, ptosis of right eye lid for 1 week. History of diabetes on treatment and poorly controlled.

Ophthalmologic examination has found out ptosis and blurred vision in right eye. Visual acuity test performed in right eye shows counting fingers close to fingers (CFCF),

Hirschberg corneal reflex test (HCRT) shows exotropia. Extraocular movements reduced in all directions up, down, right, left, with impairment of cranial nerve vi. Application tonometry shows 15 mmHg right eye pressure. Slit lamp examination – pupil is round, regular, reacting, relative afferent pupillary defect (RAPD) - grade iii. Computed tomography of paranasal sinus plain and contract showed bilateral sphenoid, right maxillary and right posterior ethmoid sinusitis. Magnetic resonance imaging (MRI) brain showed ill-defined type 2 hyper intensity at right orbital apex and right cavernous sinus showing moderate enhancement with adjacent dural thickening and abnormal enhancement of anterior clivus suggestive of infective etiology that is bilateral sphenoidal and ethmoidal sinusitis.

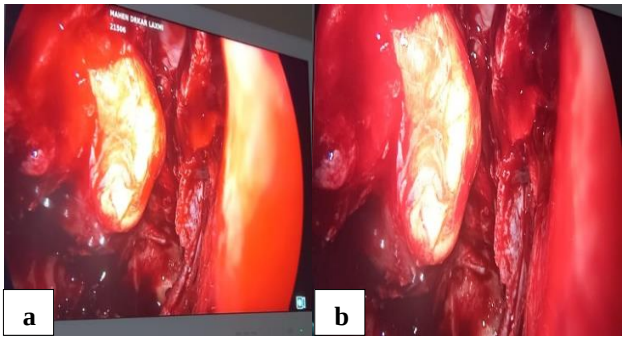

Figure 1 (a and b): Intraoperative orbital decompression.

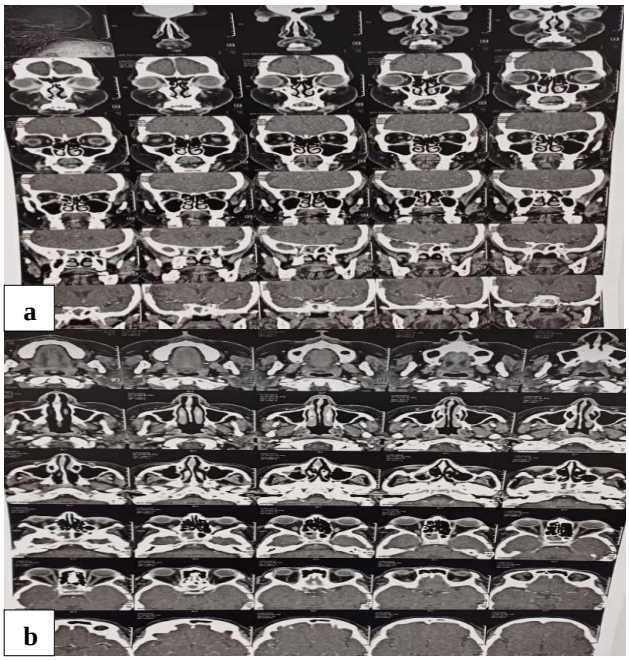

Figure 2 (a and b): Preoperative CT PNS.

After evaluation patient was diagnosed with right orbital apex syndrome with sinusitis.

After pre-operative workup and pre anesthetic checkup, patient was taken up for endoscopic surgery, right anterior and posterior ethmoidectomy, right fronto-sphenoidectomy, right orbital decompression procedure was done. Edematous cobblestone mucosal tissue in all sinus present. Inflammatory tissue noted all around the right end orbital apex.

Post-operative 3 tesla MRI imaging was done postoperative changes in sino nasal cavity and orbital apex with evidence of residual infective changes noted. Focal bony defect in right lamina papyracea with entrapment of medial orbital fat and medial rectus. Visual acuity was same, light reflex are observed. Eye movements are better compared to pre op.

The differential diagnosis of OAS is the other two orbital syndromes - the superior orbital fissure syndrome and the cavernous sinus syndrome.

The superior orbital fissure syndrome (SOF), also known as the Rochen-Duvigneaud syndrome, is characterized by the involvement of the III, IV, VI, and the ophthalmic division of the trigeminal nerve. Still, it differs from OAS with the sparing of the optic nerve.[7] The cavernous sinus syndrome, besides the features of the OAS, is characterized by the involvement of the maxillary division of the trigeminal nerve and the oculo-sympathetic fibers.[8] One of predominant features of OAS is total ophthalmoplegia; hence other muscular and neuromuscular causes of total ophthalmoplegia, like myasthenia gravis, congenital muscle fibrosis, and supranuclear palsy, should be ruled out.[9]

DISCUSSION

An uncommon appearance known as orbital apex syndrome can result from neoplasia, infections, inflammation, trauma, and other conditions.[2] It is described as group of symptoms involving several cranial nerves, including the ophthalmic branch of the trigeminal nerve, the optic nerve, the trochlear, the abducens nerve, and the oculomotor nerve. As a result, patients may experience torsional, vertical, or horizontal diplopia, either with or without compensatory aberrant head positions, and it may result in ophthalmoplegia. Additional clinical indicators include choroidal folds, proptosis, pupillary abnormalities, absence of corneal sensations, and optic disc edema.[10]

CONCLUSION

Orbital apex syndrome is a rare presentation but overlapping signs and symptoms with cavernous sinus thrombosis and superior orbital fissure syndrome. It may be challenging to distinguish between orbital apex syndrome and cavernous sinus syndrome, but primary distinction is that involvement of the optic nerve in orbital apex syndrome. It's critical to distinguish between these since their etiologies may differ greatly. The etiology determines the treatment. In our case primary etiology was bilateral sphenoidal and ethmoidal sinusitis.

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