

# A Case Report of Sub Periosteal Abscess

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## Introduction

Acute and chronic rhino sinusitis are amongst the most frequently encountered conditions by the otolaryngologist in day-to-day practice. These are usually easily manageable with proper and effective antibiotic therapy and decongestants. However, despite widely available appropriate antibiotics, the otolaryngologist often finds himself face-to-face with complications of sinusitis especially in the pediatric population. These may affect the soft tissues, bones, the orbit and even the brain with a possible fatal or functionally impairing outcome (visual loss) at times. Here we present a case of orbital complication secondary to frontoethmoidal sinusitis.

## Case Report

A 15-year old female was referred from the Department of Ophthalmology to the Department of Otolaryngology, Head and Neck Surgery, Dr. RPGMC, Kangra at Tanda, HP with the complaints of pain and swelling in the left eye since three days. She had a history of difficulty in eye opening. She also complained of intermittent left-sided nasal obstruction for the last three years. On ophthalmologic examination, she had a parallel visual axis, visual acuity of 6/24 (improving to 6/9 with pin-hole) and restricted elevation of the left eye along with a positive regurgitation test. There was diffusing, swelling, erythematous and tenderness in the upper eyelid and proposes. Slit lamp examination revealed anterior seborrhea blepharitis: cornea was clear, anterior chamber was normal. No abnormality was detected on fundoscopic examination. On ENT examination, there was marked tenderness over the left frontal sinus and bilateral ethmoidal sinuses (L>R). Nasal patency tests revealed decreased airflow from the left nasal cavity. A high resolution computed tomography (HRCT) scan suggested the possibility of orbital cellulites with abscess and sinusitis of the left frontal and ethmoidal sinuses. A combined approach frontoethmoidectomy with drainage of subperiosteal abscesses (L) was performed under general anesthesia. The intra-operative findings were: conch bullosa on the left side, purulent discharge in left middle meatus region. Frontal air cells were opened using 4mm cutting burr and around 10-15cc thick yellowish non foul-smelling pus was drained. Male cot red rubber catheter was placed in the left nasal cavity and secured. Post-operatively, the patient was put

on broad spectrum intravenous antibiotics, systemic and topical decongestants and antibiotic eye drops for instillation. In the post operative period, the patient developed papilloedema which resolved within three days. She was discharged on the tenth post operative day with a visual acuity of 6/6, minimal lid edema and full extra ocular movements (Figure 1-11).



Figure 1: Just before surgery.



Figure 2: Just before surgery.



Figure 3: Intra operative.



**Figure 4:** just postoperative.



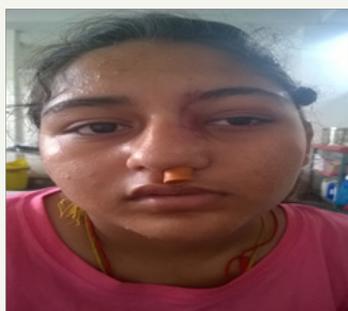
**Figure 5:** 7<sup>th</sup> post operative day.



**Figure 6:** 7<sup>th</sup> post operative day.



**Figure 7:** 14<sup>th</sup> post operative day.



**Figure 8:** 21<sup>st</sup> post operative day.



**Figure 9:** CT.



**Figure 10:** CT



**Figure 11:** CT

### Discussion

Orbital complications of sinusitis are more common in the younger age group with male preponderance being found in most of the studies [1]. As the orbit is bordered by several sinuses-the frontal, ethmoid and maxillary-infection from any of these sinuses can potentially spread to the orbit. The ethmoid sinus is almost exclusively implicated in the spread of infection to the orbit owing to the thinness of its wall, the lamina papyracea. Most orbital infections are, therefore, on the medial side of the orbit. If an abscess forms between the wall and periosteum, it is called a subperiosteal abscess. If the periosteum is violated, then an orbital abscess may form Chandler classified orbital infection into five groups in order of increasing severity. Periorbital cellulites characterized by a swollen and hyperemic upper eyelid without proptosis and chemosis is the most commonly occurring orbital complication especially in the pediatric age group. Infection is limited to the skin in front of the orbital septum. The next in the spectrum of disease is the stage of orbital cellulites seen as diffuse edema of the lining of the orbits with swelling of the eyelids, painful extra ocular movements and weakening of vision due to pressure on the optic nerve. Untreated patients may land into the next stage, stage of subperiosteal

abscess wherein fluid/pus collects below the periosteum leading to proposes. Group 4 orbital abscess, is characterized as a true abscess in the orbital space. This may manifest with proposes, impaired eye movement, and in the worst case, blindness. Group 5 is cavernous sinus thrombosis with rapidly progressive bilateral chamois, ophthalmoplegia, retinal engorgement, and loss of Visual acuity, along with possible meningeal signs and high fever [2,3]. CT scans played an undisputable role in the determination of a diagnosis and the correct differentiation of such pathologies. Controversy exists regarding the treatment modality for orbital complications of sinusitis. Most of the researchers seem to agree on conservative management for children with early stage disease, moving on to surgical intervention in case the patient worsens or doesn't show expected improvement within 24hrs of adequate antibiotic therapy. The majority of small SPAs as diagnosed on CT scans in younger children can be successfully treated medically as concluded by various researchers in the past. Surgery, however, should be considered for a worsening clinical examination [4-7]. Herrmann et al. [8] found that children at the age of 7 or older have a higher risk of simultaneously developing orbital and intracranial complications. They found in their study risk factors for intracranial complications in children served with orbital complications as a result of acute rhino sinusitis. These factors included: above 7years of age, absence of response to initial treatment, neurological alterations, pacifications of the frontal sinus in CT, lateral or upper orbital abscess, the need to drain the orbital abscess, male sex, and African or American [9]. Thus, orbital complications of sinusitis should be considered severe pathologies. They are life-threatening and also threaten the patients quality of life. The appearance of edema in the corner of the eye in a case with acute sinusitis should be recognized immediately and should be taken under serious consideration [10]. Surgical approaches being used in present day practice include endoscopic, open and combined procedures. However, no clear cut benefits of endoscopic over open approaches have yet been demonstrated. In our patient, keeping in view the duration of symptoms (3days), vision threatening disease and age

of the patient, urgent surgical intervention in the form of combined frontoethmoidectomy with drainage of subperiosteal abscess was preferred and resulted in full recovery of vision.

### Conclusion

Orbital complications of sinusitis are still a frequently seen entity in the modern era of antibiotics with the potential to impair the quality of life of the patient by threatening the vision. In the extreme case, they might prove fatal. Prompt diagnosis by the combined efforts of the otolaryngologist, ophthalmologist, pediatrician/physician followed by early decision-making as to whether medical treatment would suffice or surgical intervention would be required is the key to best visual outcomes.

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