

Ipsilateral Parapharyngeal Abscess and Orbital Cellulitis with Facial Palsy: A Case Report

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Abstract: A 32 year old Hindu male presented with pain and swelling over the left side of face for six days duration. It was accompanied by left sided facial palsy. Computed tomography showed left orbital cellulitis, left parapharyngeal abscess with parotid involvement and pansinusitis. Emergency drainage of the left parapharyngeal abscess was performed & pus sent for culture. *Staphylococcus aureus* was isolated & antibiotics started from the outset i.e Cefotaxime and Amikacin as well as oral steroids were continued. Left eye proptosis and facial palsy markedly reduced after abscess drainage, antibiotic therapy and steroids.

Keywords: Facial palsy, Orbital cellulitis, Parapharyngeal abscess, *Staphylococcus aureus*

INTRODUCTION

Staphylococcus aureus may cause a range of illnesses, from minor skin infections to life threatening diseases but bilateral pansinusitis, ipsilateral parapharyngeal abscess with orbital cellulitis and facial palsy in the same patient is a rare presentation. Rarity of this presentation has prompted us to report this case.

CASE REPORT

A 32 year old Hindu male presented with a history of pain and swelling over the left side of face for six days duration which was associated with low-grade fever, cough & cold. Three days after having pain and swelling over face, he developed difficulty in left eye opening & swelling over eyelids which progressively increased in size and was associated with pain. The left eye was red with marked tearing. The vision of the left eye was progressively getting worse. There was also a history of abscess over the left side of upper lip six days back for which incision & drainage was done.

Physical examination showed a diffuse swelling present over left side of face & neck that was firm in consistency, tender to touch with overlying skin temperature raised. The swelling was associated with restricted neck movements. The angle of mouth was deviated to right side with obliteration of left nasolabial fold. The mouth opening was restricted, with left tonsil pushed medially and the soft palate bulging forwards .

Eye examination showed visual acuity in the right eye was 6/6. Visual acuity in the left eye was 6/18. The left eyelid was swollen and partially covered the eye. There was proptosis of the left eye with no obvious mass of the orbit seen. The conjunctiva was chemotic and injected with clear cornea (Figure 1). The eye was warm and tender. The proptosed eye was nonpulsatile and elicited no bruit. There was painful ophthalmoplegia.



Fig. 1: Appearance of the left eye at presentation

The right eye was normal and not proptosed. Maxillary and frontal area was normal and non-tender. General examination revealed an ill-looking patient who was a febrile with stable vital signs. However, he was conscious and alert. Systemic examination was unremarkable. On clinical workup neutrophilic leucocytosis was seen, rest of the routine blood and urine investigations were within normal limit.



Figure 2: Computed Tomography showing left parapharyngeal abscess



Figure 3: Computed Tomography showing left parotid & bilateral sphenoid involvement

CT Scan Face (Figure 2 & 3) revealed cellulitis with extensive edema & multi-loculated collections involving left parapharyngeal space, left sided muscles of mastication, left parotid gland, left side of floor of mouth, left submandibular region, upper part of submandibular gland and left peribulbar fat, mild bulging with narrowing of inferior part of nasopharynx & oropharynx and small cervical lymph nodes suggestive of inflammatory etiology. It also suggested mild mucosal thickening involving bilateral maxillary antrum, ethmoid and sphenoid sinus.



Figure 4: Computed tomography showing left eye proptosis with orbital cellulitis

CT Scan Orbits (Figure 4) revealed extensive soft tissue edema with cellulitis involving left eyelid (preseptal), left extraconal compartment (superior & lateral part) & infratemporal fossa. An emergency drainage of left parapharyngeal abscess was carried out; pus was sent for culture & sensitivity which resulted in growth of *Staphylococcus aureus* after 48 hrs. incubation at 37 degree centrifuge. Patient was continued on Cefotaxime & Amikacin which had been already started at the time of admission.

DISCUSSION

It is estimated that 20% of the human population are long-term carriers of *S. aureus* which can be found as part of the normal skin flora and in

anterior nares of the nasal passages [1]. The skin and mucous membranes are usually an effective barrier against infection. However, if these barriers are breached (e.g., skin damage due to trauma or mucosal damage due to viral infection) *S. aureus* may gain access to underlying tissues or the bloodstream and cause infection [2]. Rapidly spreading staphylococcal infections into soft tissue are often not contained and can race across the face, down the neck, through the orbit, or down the parapharyngeal tissues.

A dangerous complication of parapharyngeal abscess includes airway obstruction due to medial bulging of the pharyngeal wall and supraglottic oedema [3].

Facial nerve paralysis is a rare complication of acute parotitis with or without abscess. It usually occurs during the acute phase of the disease and subsides with treatment. The facial nerve dysfunction can be partial or complete [4]. The mechanism of facial nerve involvement proposed includes perineuritis and local toxic effects from the intense surrounding parotitis besides the ischemic neuropathy related to the rapid expansion of the infectious parotid mass with compression of the facial nerve [5].

The common cold involves not only the nasal passages but also the paranasal sinuses. The origin of organisms that are introduced into the sinuses and may eventually cause sinusitis is the nasal cavity. The normal flora of that site includes *Staphylococcus aureus*, *Staphylococcus epidermidis*, α - and γ -streptococci, *Propionibacterium acnes*, and aerobic diphtheroid [6-7]. Mucosal thickening is observed in radiographs of 87% of patients with colds [8], probably because of excess amounts of mucus discharge from goblet cells.

Reddy reported that orbital cellulitis secondary to ethmoiditis in 25%, maxillary sinusitis in 10% and ethmoid and maxillary sinusitis in 30% of patient [9]. The thin lamina papyracea divides the orbit from the ethmoidal sinus and permits infection to spread with relative ease. Infection may erode through the bone or pass through the numerous small valveless veins that perforate the bone [9,10]. The most common bacteria isolated in orbital infection is *Staphylococcus aureus* [9, 11] as in our patient.

Orbital cellulitis can lead to serious complication including blindness, intracranial complications [7], and death. Optic nerve damage can occur either due to vascular compromise to the optic nerve, compressive optic neuropathy or due to inflammatory optic neuropathy [8].

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