

A case report on nasal vestibulitis associated with preseptal cellulitis

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ABSTRACT

Nasal vestibulitis (nasal furunculosis) is a localized infection of the hair follicle. The most common pathogens include *Staphylococcus aureus*, other Gram-positive organisms, and anaerobes. Infection in this area can spread locally even intracranially causing fulminant life-threatening conditions like septic cavernous sinus thrombosis. Here, I report a case of a 55-year-old female presented with a history of high-grade fever and right side nasal furuncle for 4 days, together with a rare association of bilateral periorbital (preseptal) swelling for 1 day. The female was hospitalized. Laboratory and radiological investigations were carried out to investigate any possible complication.

KEY WORDS: Maxillary sinusitis, Nasal furuncle, Preseptal swelling

INTRODUCTION

Nasal vestibulitis is the localized infection of the hair follicle of the nasal vestibule, which lies in the dangerous area of the face. Most likely, the causative organism for this infection is *Staphylococcus aureus*. Frequent nasal pricking and immunocompromised states (such as diabetes, systemic lupus erythematosus, and autoimmune diseases) are two of the major predisposing factors which lead to this disease. Any infection affecting the dangerous area of the face can cause potential intracranial complication, due to the valveless facial veins and the direct communication with cavernous sinus through ophthalmic vein and pterygoid plexus. Usual clinical presentations are painful swelling over nasal vestibule with fever. If these symptoms are not diagnosed and treated in the early stage, patients may develop life-threatening complications. These complications include facial cellulitis (periorbital cellulitis and orbital cellulitis), paranasal sinusitis, and cavernous sinus thrombosis (with fever, headache, and III, IV, V, and VI cranial nerve palsies 5). Treatment for this infection is usually conservative management, which include intravenous antibiotics and removal of nasal crust and local antibiotic application, to prevent complications. In

complicated cases, prognosis of the patient is poor and the mortality remains up to 35%.^[1,2]

CASE REPORT

A 55-year-old female was presented to ear, nose, and throat department with complaints of painful swelling in the right nasal vestibule accompanied with swelling in the eyes and fever for 4 days. The female was not relieved from the symptoms after taking treatment for the pain and fever. In the next few days, the frequency of fever increased with chills and rigor. In the subsequent days, she developed with bilateral periorbital swelling, initially started at right side and then to the left periorbital region. The patient did not report any history of nasal pricking, nasal trauma, altered sensorium, and blurring of vision. On clinical examination, the patient was conscious, oriented. On local examination, there was edema in nose and upper lip. On nasal examination, there was a furuncle on the right vestibule which was tender and nasal obstruction was present. The nasal cavity was found to be congested with cellulitis. The ophthalmic examination revealed a bilateral periorbital edema without ecchymosis, chemosis, and conjunctival hemorrhage. However, the vision and the perception of light were normal, without any ophthalmoplegia. All cranial nerves were found to be normal. The complete blood count revealed that white cell count and C-reactive

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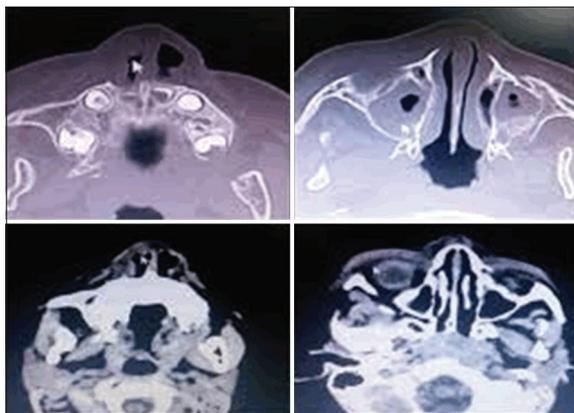


Figure 1: Computed tomography film showing nasal furuncle with preseptal cellulitis and maxillary sinusitis

protein (CRP) were elevated. Pus culture from the right nasal vestibule pointed to *S. aureus* organism, while the blood culture was found sterile. To investigate any possible complications, computed tomography (CT) scan was performed. The scan showed soft-tissue attenuation at the nasal vestibule at the left side, bilateral frontal maxillary and ethmoid sinuses showed haziness suggestive of sinusitis, with bilateral preseptal cellulitis [Figure 1]. The female was given intravenous antibiotics (ceftriaxone and vancomycin), together with topical application of mupirocin ointment at the right nasal vestibule. Three days after the initiation of medication, the child was recovered completely from the nasal vestibulitis. We have also noticed that the periorbital swelling was also subsided completely. We could prevent the further progression of the disease and associated complications, by providing the proper medication at the earliest possible time.^[3,4]

DISCUSSION

Nasal vestibulitis is the most common infection affecting children and adult population without any sex predilection. The right side is more commonly affected than left. This could be due to the right-hand predominance (90% of the population). Similarly, the case that we report here also was affected at the right. Nasal vestibulitis may be caused by several factors. Most often, it is caused by an infection of the bacterium *S. aureus*. However, certain cases of nasal vestibulitis have been linked to viral upper respiratory infections, chronic runny nose, or habitual nose picking. Symptoms include pain, redness, or a lump at the entrance of the nose. If the infection spreads, the skin may become increasingly red, hot, and swollen. Involvement of the cavernous sinus may lead to swelling or proptosis of the eye, double vision, and diminished vision. In this case, we found *S. aureus* organism in the pus culture from the right nasal vestibule, which (together with *Streptococcus*) is the most common organism that causes orbital inflammation. Even though *S. aureus* is facultative

anaerobes and seen in the normal flora of human nose, skin, and mucous membranes, the pathologic strains also have been isolated from the bacterial infections.^[5]

Antibiotics showed a considerable impact on the outcome of the disease in our patient. The use of antibiotics also reduced the risk of serious complications. Parenteral antibiotics, cefoperazone, sulbactam, and vancomycin, were effective against *S. aureus*. Effective course of antibiotics in the initial period reduced the CRP level. Radiological investigation plays a significant role in early detection of complication and for planning the surgical approach. Computerized tomography has become the investigation of choice, but in early stage of orbital abscess, ultrasonography is more useful. In our study, CT scan was not showing any signs of orbital abscess or intracranial complications, but the CT viewed bilateral periorbital cellulitis and sinusitis.^[6]

Nasal vestibulitis seems to be a simple nasal infection, but if not treated properly, it can go for severe life-threatening complications. Hence, nasal furuncle or any infection in the mid-facial skin (the dangerous triangle of face) may transmit the infection to nasal cavity, paranasal sinuses, orbit, and intracranium (cavernous sinus thrombosis). In this study, paranasal sinuses (frontal, maxillary, and ethmoid sinusitis) and periorbital region (periorbital cellulitis) were involved. Orbital inflammation is associated with a more complicated clinical course, hence needs more aggressive treatment. Considering the risk of mid-facial infections which can lead to intracranial complications, a close observation of patients is also necessary. Rare complications of nasal infections, leading to cavernous sinus thrombosis and necrotizing pneumonia, have also been reported. Hence, aggressive approach should be considered especially in immunocompromised patients and/or in patients with risk factors.^[7,8]

CONCLUSION

Nasal vestibulitis is a common infection affecting the hair follicle in the nasal region. Identified risk factors include hair plucking, nose-blowing, nose picking, and nose piercing. Diabetes and immunosuppression also contribute to the risk factors. Even in complicated cases of NV requiring admission, major complications are extremely low. Here, in this case, the female was treated with parenteral antibiotics along with topical antibiotics and supportive care. The female recovered completely and further progression of this disease to life-threatening complications could also be prevented by the administration of antibiotics.

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