Introduction

A nasal septal abscess (NSA) is formed by the transformation of a septal haematoma into an abscess. Trauma is the most important factor in the etiology. Surgical abscess drainage and proper antibiotic therapy should be instituted in time to prevent functional and cosmetic complications. Rarely, in cases with no trauma history, sinusitis has been reported in the etiology. A nasal septal abscess may be complicated by such serious conditions as orbital and intracranial abscess, meningitis, osteomyelitis, and cavernous sinus thrombosis. A case of a posttraumatic nasal septal abscess, concomitant with sinusitis and periorbital cellulitis, is presented in this paper, and discussed in the light of the medical literature.

Case report

A 35-year-old male presented to the outpatient Oto-Rhino-Laryngology department of our hospital complaining of fever, and swelling over his nose and around his eyes. A trauma had been sustained five days ago, for which the patient was evaluated in the emergency room of another medical facility. The plain films had not revealed any nasal fracture, and thus, no therapy was instituted. In the following days, swelling and redness over the patient’s nose and around his eyes developed, so he applied to our department. His medical history was remarkable for a septoplasty in 1990.

The patient’s physical examination findings were as follows: body temperature, 38.1 degrees C; blood pressure, 110/70 mm Hg; pulse rate, 80 bpm; hyperemia and edema of the periorbital area bilaterally; nasal dorsum was edematous and hyperemic, with a 2 cm × 1 cm crusted abrasion area (Figure 1). Anterior rhinoscopy revealed a soft edematous fluctuating nasal septum causing narrowing of the nasal passages bilaterally. Purulent discharge was seen in the middle meatus in diagnostic nasal endoscopy. The white blood cell count was 18,600, with a neutrophil count of 17,100. Blood chemistry values were within normal limits. A paranasal sinus computed tomography (CT) scan was obtained, revealing collection within the anterior nasal septum, and findings of acute sinusitis of the frontal, ethmoid, maxillary, and sphenoid sinuses (Figures 2,3).
The patient was assumed to have a septal haematoma or abscess. A horizontal incision was made on the right antero-inferior septal area, and the haematoma between the mucoperichondrium and the septal cartilage was aspirated. Similarly, the left septum was incised, while taking care that the incision not to be reciprocal to the one on the right. A purulent material was noted between the mucoperichondrium and the septal cartilage. A culture specimen was sent to the microbiology laboratory and the purulent collection was then aspirated, and the area was irrigated with antibiotic containing saline. A penrose drain was left in place. Anterior nasal tampons were applied bilaterally. A purulent material was drained from the crusted lesion over the nasal dorsum. Antibiotherapy was initiated with intravenous sulbactam-ampicillin, 1 gr gid, and intravenous metronidazole, 0.5 gr bid. The anterior nasal tampons were removed in the second post-operative day. No pus or haematoma was noted. The abscess culture returned positive for methicillin-sensitive staphylococcus aureus. The antibiogram sensitivity test results revealed sensitivity to the already initiated therapy, so the therapy was continued. The patient was discharged at the seventh day after admission. His therapy was continued with oral Sulbactam-Ampicillin, 750 mg bid, and Metronidazole, 250 mg, 2 x 2, to a total of 15 days. The control visit revealed substantial decrease in the periorbital edema and hyperemia (Figure 4).

On rhinoscopic examination, no pathology was noted, except for anterior mucosal edema and inferior conchal hypertrophy. On the 15th post-operative day, a paranasal CT scan revealed a thickened septum, without collection (Figure 5). Mucosal thickening was noticed in the maxillary, ethmoid, and frontal sinuses, while the rest of the sinuses were normal (Figure 6). The follow-up of the patient during the four-month post-operative period revealed no nasal pathologies.

Discussion

The most frequent cause of NSA formation is the infection of an untreated haematoma, following either surgery or trauma. Seventy-five percent of septal abscesses are traumatic in origin. Reported etiologic factors in non-trauma patients are ethmoiditis, sphenoïditis, dental abscess, and nasal vestibular furuncle. In our case, there was a trauma history.
The most frequently observed symptom is bilateral nasal obstruction. Other symptoms are nasal pain and tension, headache, malaise, fever. Our patient complained of nasal obstruction, fever, malaise, headache, and redness and swelling of the right eye.

The most frequently cultured pathogen has been Staphylococcus aureus. Streptococcus pneumoniae, Haemophilus influenzae, and group-A beta-haemolytic streptococci are among the other cultured pathogens. In our case, methicillin-sensitive Staphylococcus aureus was grown in cultures.

The blood collected between the nasal septal cartilage or bone and the mucoperichondrium or mucoperiosteum is an appropriate medium for bacterial growth and abscess formation. Within three
days after the cartilage detaches from its nourishing perichondrium, it undergoes necrosis, secondary to ischemia and pressure. The resultant cartilage necrosis leads to sepal deformity, septal perforation, and saddle nose deformity. Even without an infection, the haematoma may cause cartilage destruction, which can be accelerated by a superimposed infection. Thus, immediate treatment of the haematoma and abscess is important. Therapy consists of bilateral surgical drainage, with incisions on different septal levels to avoid septal perforation. To avoid recurrence of fluid collection, a penrose drain is left in place post-operatively.

Nasal tampons are placed, checked, and removed in 24-48 hr. Parenteral antibiotic therapy should be started immediately, and should be directed according to the culture and antibiogram results. These procedures were applied to our patient, and antibiotherapy was immediately instituted. The follow-up revealed no re-accumulation.

Nasal septal haematoma or abscess is frequently formed following trauma. Every nasal trauma patient presenting to the emergency room should undergo a thorough septum examination for the presence of haematoma or abscess. Our patient presented to the emergency room of another medical facility, where no therapy was instituted. He presented five days later to our hospital’s outpatient ENT clinic, with complaints of nasal obstruction, malaise, and fever.

Nasal septal abscesses have been reported to be complicated by serious medical conditions such as meningitis, cavernous sinus thrombosis, orbital cellulitis, and abscess, osteomyelitis, bacteremia, sepsis, extradural frontal abscess. Nasal infections drain into the cavernous sinus via the valveless angular and ophthalmic veins. Complications may also develop after spreading through bone fissures, congenital bone defects, or thrombophlebitis. NSA has been reported in a patient with AIDS. Three fatalities have been reported due to brain abscesses that complicated septal abscesses. Thomson et al. defined six indications for a obtaining a paranasal CT scan: diffuse facial and periorbital edema, meningitis findings, serious headache, no recovery following NSA drainage, significant time delay before diagnosis, and growth of an unexpected organism in the cultures. Huang et al. suggested obtaining a CT in any case of nasal septal abscess suspicion. In our opinion, in cases when NSA is diagnosed, a CT scan should be obtained to determine the extent of the abscess, to scan for possible complications, and to rule out other possible septal masses.

In cases with no history of trauma, sinusitis has been shown to be an etiological factor. Pang, Sethi and Collins suggested the possible pathway of infection to be sub-periosteal involvement of the anterior sphenoid wall, followed by involvement of the peristium of the vomer and ethmoidal perpendiccular plate, to the perichondrium of the quadrangular cartilage, and finally to septal abscess formation. NSA was also reported to be complicated by orbital cellulitis. In our patient, NSA was diagnosed five days following nasal trauma, concomitant with ethmoid and sphenoid sinusitis and periorbital cellulitis. The edema and periorbital cellulitis may have been a consequence of the injury, as well as a complication of the sinusitis.

Conclusion

In conclusion, in nasal trauma cases, the nasal septum should be examined by an ENT physician for early diagnosis and treatment of possible septal haematoma and abscess. At the time of the initial assessment, septal haematoma may not yet have formed, so reassessment two to three days following the trauma would be a proper practice. In cases of NSA diagnosis, surgical drainage and parenteral antibiotherapy should be immediately instituted. In addition, the patients should be assessed for the extent and complications of the abscess, and properly treated.

References


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