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Case Report

A case of isolated nasal bone osteomyelitis

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Abstract

Osteomyelitis is an inflammatory reaction of the bone to infection which causes bone destruction. Skull-based osteomyelitis which is a true bony infection, originates from a chronic inadequately treated infection. Treatment of osteomyelitis in head and neck bones is complex due to the nature of the bones, complex anatomy of the region and aesthetics. We report a case of isolated nasal bone osteomyelitis presented with a sinus over the dorsum of nose. Excision of the sinus and debridement of osteomyelitic nasal bone followed by Glabellar advancement flap to the nose was done.

Key words: Osteomyelitis, Nasal bone, Glabellar advancement flap

Introduction

Osteomyelitis is defined as an inflammatory condition of the bone that starts as an infection of the medullary cavity rapidly involving the haversian systems and then involving the periosteum of the infected areas. Invasion of bacteria into the cancellous bone results in compression of the blood vessels secondary to inflammation and edema of the marrow space. Compromise of the blood supply results in the development of ischemic and necrotic bone. Immobility of the stagnant blood serves as a critical nidus for development of infection.(1) Pott, in 1778 postulated that osteomyelitis of the skull was caused by a bony contusion and extradural hemorrhage. Later Van Launelongue classified cases into two types primary or hematogenous osteomyelitis and secondary or contiguous osteomyelitis. At present it is recognized by clinicians that osteomyelitis of the skull or facial bones is a complex disease with many different etiologies that requires prompt and definitive treatment.(2) The general lack of awareness of the prevalence of the disease and its features often leads to a misdiagnosis and delay in treatment. The bones reported to be involved by osteomyelitis in the head and neck is the mandible, frontal bone, cervical spine, maxilla, nasal bone, temporal bone and skull base bones. The diagnosis can be made by clinical presentations like chronic pain, discharging sinus and pathological fractures. Radiologically it is confirmed by the presence of sequestrum, involucrum and bony destruction. Surgical treatment involves debridement of necrotic bone and tissue, obtaining appropriate cultures, managing dead space, and when necessary obtaining bone stability(3). The principles of treatment in facial bone osteomyelitis is similar to the long bones i.e., excision of osteomyelitic segment of the bone, covering with well vascularised soft tissue and stability. We report a case of isolated nasal bone osteomyelitis treated by excision of sinus, debridement of bone and glabellar advancement flap to cover the defect.

Case History

A 27 year old male patient presented with history of pain and pus discharge over the dorsum of nose since 4 years. Patient had a furuncle over the nose for which he had undergone incision and drainage but discharge was persistent. There was no history of trauma to the nose. Local examination showed discharging sinus over the dorsum of nose, surrounding skin was scarred, puckered and on probing bony granules were felt. General examination revealed no other abnormality.

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Fig:1 – Discharging sinus with scar over the dorsum of nose

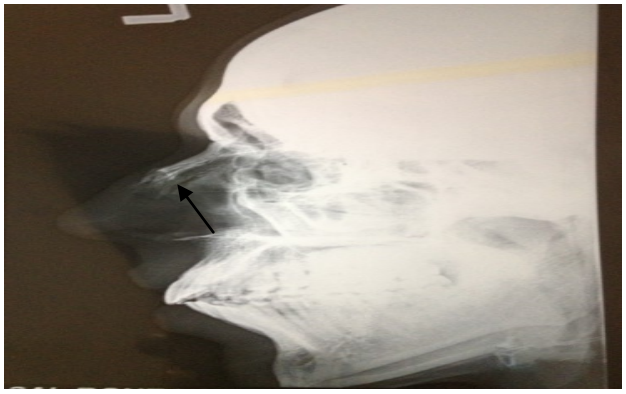

Fig:2 – Arrow indicating osteomyelitic segment of nasal bone.

Fig:3 – Marking of Glabellar advancement flap.

Fig:4 – Post operative view after a week.

Clinical diagnosis of osteomyelitis of underlying nasal bone was made. X-ray of the skull showed radiolucent areas within the nasal bone and sclerosis surrounding it confirming osteomyelitis. Culture and sensitivity of the pus from discharging sinus yield Staphyloccal aureus. Along with excision of scar, exploration of the sinus and curettage of the nasal bone was done. Biopsy of the excised specimen and bony granules showed chronic inflammation. The defect was covered with glabellar advancement flap.

Discussion

The term 'Osteomyelitis' was introduced by Nelaton in 1844, implies infection of the bone and marrow. Osteomyelitis most commonly results from bacterial infections. Although osteomyelitis in the long bones of the body can be broadly comparable to the flat and irregular bones of the head and neck as regards etiopathology, their management varies in the head and neck due to anatomical and cosmetic considerations.[4] Osteomyelitis may be classified into acute and chronic forms. The former may be further divided into suppurative or nonsuppurative. Acute forms of the disease may be caused by a contiguous focus such as trauma, surgery or odontogenic infection. Acute osteomyelitis may present as a routine infection with signs including fever, malaise, pain, and facial cellulitis. It presents as a suppurative infection accompanied by edema, vascular congestion and small vessel thrombosis. Chronic osteomyelitis may present like acute osteomyelitis with the inclusion of a chronic draining fistula. Chronic osteomyelitis require aggressive surgical debridement (partial or complete segment of the bone) and antibiotic therapy.[5]

Anatomically the bones involved in osteomyelitis of the skull include the mandible, frontal bone, maxilla, nasal bone, temporal bone, and skull base bones. Although the diagnosis is made clinically, radiologic imaging can be used for early detection and confirmation. Clinical sequel of osteomyelitis includes chronic pain and tenderness, draining sinus and bony destruction with or without pathologic fractures confirmed by imaging studies. Consequences of such an infection can be as minor as a draining tract up to malignant transformation at the infected site.[3]

Though nasal bone osteomyelitis is rare the most common cause is post traumatic open wound and fracture of nasal bones. Due to subsequent infection and avascular fractured segments the bone becomes osteomyelitic. We are reporting this rare case as the infection spread is contiguous in to the bone from the skin. The repeated infection over the dorsum of nose and debridement subsequently leads to contiguous spread of infection in to the underlying nasal

bone. The resistant organisms and chronicity of infection makes the bone osteomyelitic. Nasal bone osteomyelitis clinically diagnosed by the discharging sinus and bony tenderness. X-ray of nasal bones show hypo dense area, sclerosis and no special investigation is required. Local debridement along with a course of broad-spectrum antibiotics for a period of 1 month gives good results.

The principle of nasal reconstruction involves replacing the excised components with anatomically similar structures. The defect of the nose should be considered based on the size, shape, location and orientation[7]. The three components of the nose should be replaced if it is lost without any compromise i.e.: Inner nasal lining, support and outer cover. The defects less than 1 cm over the dorsum of the nose can be closed primarily. Defects 1.5 – 2 cm as in our case can be closed using local flap. According to Gilles' principle, smaller defect should be restored with local flaps when possible. Both aesthetic and functional outcomes are nearly always superior to any graft or distant flap.[6] Most commonly used local flaps were nasaolabial flap, bilobed flap, dorsal nasal advancement flap, forehead flap and glabellar flap. After excising the sinus and debriding osteomyelitic bone the 2 cm defect over the dorsum of nose was closed using glabellar advancement flap. Post operatively with one and half year of follow up there was no recurrence of the sinus.

Conclusion

Osteomyelitis of the underlying nasal bone should be ruled out while evaluating for any chronic discharge and persistent sinus over the nose. For smaller defects local flap like glabellar advancement flap give aesthetically acceptable result.

References

1. J David, M Pincus, B Milton. Osteomyelitis of craniofascial skeleton. Seminars in plastic surgery 2009; 23(2); 73-79.
2. Osteomyelitis. In: Peterson L, ed. Contemporary Oral Maxillofacial Surgery. 4th ed. Philadelphia,PA: Mosby Publishers; 2003:375–77.
3. Prasad KC, Prasad SC, Mouli N, Agarwal S. Osteomyelitis in the head and neck. ActaOtolaryngol 2007; 127:194–05.
4. Nelaton A. Elements de pathologiechirurgicale. Paris: Germer-Bailliere; 1844-59.
5. Tuon F F, Russo R, Nicodemo A C. Brain Abscess Secondary to Frontal Osteomyelitis. Revista do Instituto de Medicina Tropical de Sao Paulo. 2006; Accessed August 27, 2007.
6. Schusterman M A, Reece G P, Miller M J. Osseous free flaps for orbit and midface reconstruction. Am J Surg. 1993; 166:341–45.
7. Guo L, Pribaz JR, Pribaz JJ. Nasal reconstruction with local flaps: a simple algorithm for management of small defects.PlastReconstr Surg. 2008 122(5):65-67.