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Case Report

Expanding hematoma with facial nerve palsy: an unusual complication of mandibular fracture

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ABSTRACT

The mandible is one of the most commonly fractured facial bones, along with the nasal and zygomatic bones. The most common cause of fracture is trauma, such as a motor vehicle accident, a physical altercation, an industrial accident, a fall, or a contact sport injury. Because of its position and the complex anatomy and environment surrounding it, the mandible is extremely vulnerable and often breaks when a traumatic injury is made to the face. Complications of mandible fractures can range from 7 to 29%, depending on the severity of the injury, the location of the injury, and the number of areas affected. The most frequently encountered complications include infection, hardware failure, osteomyelitis, non-union, mal-union, and wound dehiscence. Here, we report an unusual complication of an expanding hematoma with left sided facial nerve paresis that resulted after 2 months of mandible fracture.

Keywords: Hematoma, Mandible fracture, Facial nerve paresis, ORIF

INTRODUCTION

The mandible is the only mobile bone of the maxillo-facial region and it forms the lower third of the face. The mandible is the most prominent part of the facial skeleton. Because of its position and the complex anatomy and environment surrounding it, the mandible is extremely vulnerable and often breaks when a traumatic injury is made to the face. The anatomy and structure of the mandible and the presence of teeth also create weak points in the mandible and increase the risk of fractures.[1] The mandible, along with the nasal and zygomatic bones, is among the most frequently fractured facial bones. These fractures are mainly caused by trauma, such as road traffic accidents, assaults, falls, and contact sports.[2] The rate of complications associated with mandible fractures ranges from 7% to 29% and is closely linked to the severity of the fracture, location of injury, and number of affected areas. The most frequently encountered complications include infection, hardware failure, osteomyelitis, non-union, mal-union, and wound dehiscence.[3] Here, we report an unusual complication of an expanding hematoma with left sided facial nerve paresis that resulted after 2 months of mandible fracture.

CASE REPORT

A 60 yr female patient presented with gradually increasing swelling over left parotid region and mandibular region. The patient had history of fall at home 2 months ago. She noticed incomplete eye closure with angle of mouth deviation towards right side immediately and swelling below ear after 5 days of trauma. She took treatment for the same at a local medical practitioner. She

was diagnosed with left ramus mandibular fracture but she didn't go for the surgery. 2 months later she presented in ENT OPD with progressive increasing swelling in left side of face below the ear. On physical examination, there was a tense diffuse swelling over left parotid and mandibular region of approx 10×8×6 cm which was firm in consistency, non-pulsating, mildly tender, local temperature was not raised and skin overlying was tense and shiny. There was a huge bulge present over left parapharyngeal region pushing the tonsil, uvula and soft palate medially.

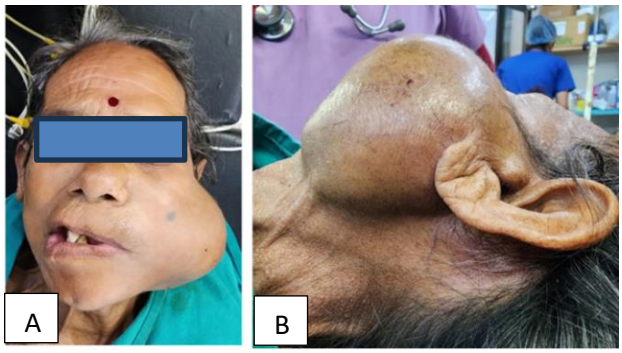

Figure 1: Preoperative photograph of patient showing the swelling over (A) left parotid and (B) mandibular region with left nerve paresis.

Left sided Grade IV facial nerve paresis (House Brackmann Grading) was present (Figure 1). Fine needle cytological aspiration showed features suggestive of infected vascular lesion? infective hematoma. A computed tomography scan showed comminuted fracture of the left ramus of mandible involving posterior part, extending to mandibular arch and displaced anterior and superiorly. A large hyperdense collection seen over the left parotid region with medial extension to the left parapharyngeal region and causing compression on the parapharyngeal area. Collection size measured in CT was approx 8×6×5 cm (hematoma). Sclerotic changes with mild erosion seen in the fractured segment (osteomyelitis changes) (Figure 2).

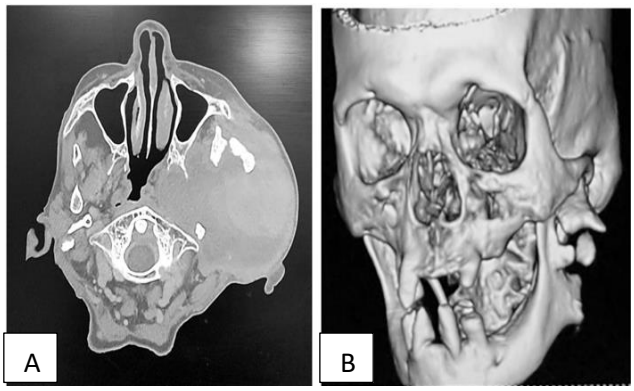

Figure 2: CT-scan showing (A) active hematoma and (B) 3D Ct-scan showing the fracture of left ramus of mandible.

Routine blood investigations and coagulation tests were normal. A diagnosis of Post traumatic mandibular fracture with active hematoma was made.

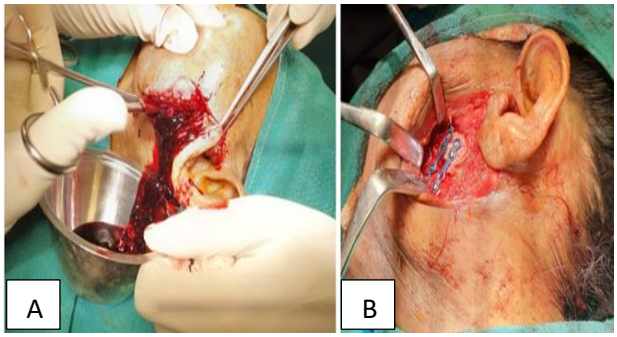

Figure 3: Intraoperative view of patient showing (A) Evacuation of hematoma and (B) Open reduction with internal fixation of mandibular fracture at same site.

The patient was operated under general anesthesia. Modified Blair incision was given and approx 100cc hematoma was evacuated. No healthy parotid tissue was present and facial nerve could not be identified. Through the same site, the mandibular fracture was managed by open reduction and internal fixation (Figure 3). Corrugated drain was kept after closure. On follow-up patient is progressing satisfactory but there was no improvement in facial paresis (Figure 4).

Figure 4: Postoperative photograph of patient.

DISCUSSION

With old age, the incidence of maxillofacial fractures increases, especially mandibular fractures. This occurs because the mandible weakens with advancing age due to loss of teeth, decreased blood flow or reduced vascularity in elderly, and loss of bone mass. The most common causes of fractures in elderly patients are falls, assaults, and motor vehicle accidents.[4] The challenges posed by edentulous mandibular fractures are unique. Old age is a contributing factor to poor outcomes after trauma. Comorbid conditions such as high blood pressure,

diabetes, stroke or dementia limit the patient's ability to cope with surgery and post-operative recovery. The atrophic mandible also has compromised blood supply and little osteogenic potential, leading to delayed bone healing. Bilateral mandibular fracture or bucket handle fracture occurs most commonly in elderly. There is some controversy regarding the treatment of edentulous mandibular fractures. Some advocate for closed reduction, while others favour open reduction with internal fixation. According to Bradley, "Sub-periosteal Plexus" is the major blood supply to the mandible[5]. Reflection of periosteum in ORIF can severely reduce vascular access to the bone, leading to nonunion. Extramucosal intraoral plating for ORIF is advocated by only few authors in edentulous mandibular fractures. It maintains blood flow to mucosa and bone while providing adequate stability.[6,7] The techniques of edentulous atrophic mandible fracture management are; closed reduction: when open surgery cannot be performed due to patient's systemic conditions, this technique is used. It can be used if mandibular height is 30mm or higher. It is difficult to achieve closed reduction if the mandibular height is <10 mm. This technique can be used using a preexisting denture. If there is no existing denture, gunning splint can be used. The denture/splint is used for immobilization and fixed to the mandible using circum-mandibular wiring. The main Advantage of this technique is that it maintains Periosteal supply to the bone. The Chances of infection and pulmonary issues are the major disadvantages of this technique. Open reduction and internal fixation (ORIF): In this technique plates and screws are used for fixation of fractures. Options for ORIF include use of miniplates or larger reconstruction plates. Miniplates are small and hence it requires smaller incision. Screws of miniplates are also small which can easily contain thin fragments. For larger fractures, it is best to use a load-bearing reconstruction plate. The main advantage of ORIF is adequate fixation with no/minimum Maxillo-mandibular fixation. While the main disadvantage is delayed healing with loss of periosteal blood supply. Complications of mandibular fractures are consequences of many factors. As such, they may be secondary to the original injury, a result of the subsequent treatment, or, in some cases, a result of failure to render treatment. Complications can show up as an immediate issue at the time of injury, or they can show up during the operative or postoperative phase of treatment. Airway compromise presents as an immediate complication that may be result of the mandibular fracture attributable to swelling, bleeding, foreign body aspiration, or amount of displacement, in addition to the nature of the fracture. Although bleeding from soft tissue and bone is common, severe hemorrhage after mandibular fracture is a rare immediate complication. Due to vulnerable position of the teeth, the important immediate complication of mandibular fracture is concomitant injury to teeth or alveolar bone.[1] Delayed complications include infection, malunion, non-union, long term, and growth disturbance.[8] Expanding active hematoma is an unusual complication that has not been reported in literature. The internal maxillary artery and its branches is the origin of bleeding in mid-facial trauma like in our case.[9] This unusual presentation of enlarging parotid and mandibular region mass after fall is interesting because of its diagnostic evaluation and presentation. Differential diagnosis of enlarging parotid and mandibular mass includes abscess, parotid and mandibular tumor, and soft tissues tumors. Computed tomography scanning of maxillofacial region is an important investigation to diagnose this complication. We conclude that this expanding haematoma of parotid and mandibular region may have occurred due vascular injury caused during the trauma and movement of the non-fixed fracture edges of the fragments of the mandible.

CONCLUSION

The fracture of mandible is a commonly occurring fracture due to its prominent position within the facial skeleton. More potentially life-threatening injuries should be treated before any definitive treatment of mandibular fractures. Complications can occur during any of the phases of treatment- immediate or delayed. There should be an accurate diagnosis and appropriate treatment plan to achieve success in the treatment with minimal complications. Early recognition and proper management of minor complications is necessary before they become complex and more difficult to manage.

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