Case Report

Retroparotid Approach in the Management of Subcondylar Fractures of Mandible: A Case Report

K. Vivek Manohar[1]*, P. Jerusha[2]

[1]Department of Oral and Maxillofacial Surgery, Gitam Dental College and Hospital, Visakhapatnam, Andhra Pradesh, India.
[2]Department of Periodontics, Gitam Dental College and Hospital, Visakhapatnam, Andhra Pradesh, India.

Abstract

Despite the extensive research and analysis, differences do exist around the management of subcondylar fractures. A multitude of treatment options have been put forward such as conservative management, open reduction internal fixation (ORIF) using a variety of approaches to the fracture site and endoscopic surgery. With the inclination of the maxillofacial fraternity toward ORIF conservative closed reduction has become obsolete. In contrast to other approaches, retromandibular approach seems to be appropriate in the management of subcondylar fractures attributable to its advantages such as adequate exposure, reduced operating time, and less risk of injury to the vital structures like marginal mandibular branches of facial nerve with minimal or no complications. Retromandibular approach has two variations: Which are transparotid and retroparotid approaches. The retroparotid modification of retromandibular approach has an added advantage apart from the above mentioned advantages. As the name suggests, the dissection is carried out posterior to the parotid gland thus protecting it from injury during dissection. Several studies have been conducted and proved the potential of retroparotid variant. This paper describes the positive results obtained by employing retroparotid approach in a patient with subcondylar fracture.

Keywords: Retromandibular approach, Retroparotid approach, Subcondylar fractures.

Introduction

The condylar region is one of the most frequent sites of mandibular fracture, accounting for 9–50% of all such maxillofacial fractures.[1] Condylar fractures are intricate attributable to the articulation of the mandible with the squamous part of the temporal bone.[2] Perplexity still exists among oral and maxillofacial surgeons with respect to management of condylar fractures. Most of the oral surgeons plan the treatment based on their experience and clinical expertise.

Closed treatment by inter-maxillary fixation (IMF), with early physical therapy has been the only method of choice previously.[3] However; open reduction using various surgical approaches has been suggested lately for the management of condylar fractures such as submandibular, retromandibular, preauricular, rhytidectomy, and intraoral. Retromandibular approach gives proper access to ramus and condyle and therefore is considered ideal in the surgical management of condylar injuries. Retromandibular approach has two variations, namely transparotid and retroparotid approaches. These variants differ in the incision placement and the anatomic dissection to the mandible.

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The current paper reports on a case diagnosed with sub condylar fracture of mandible which was managed by open reduction and internal fixation (ORIF) using retroparotid approach.

Case Report

A 35-year-old male patient presented with a chief complaint of pain over the right TMJ area and inability to clench his teeth. Patient had a history of fall from a two wheeler 10 days ago. He was immediately taken to a nearby hospital where primary management was done by prescribing antibiotics and analgesics. Extra oral examination revealed slight asymmetry of the right lower half of the face. On palpation, tenderness was positive over right TMJ region along with symphysis

Address for correspondence: K. Vivek Manohar, Department of Oral and Maxillofacial Surgery, Gitam Dental College and Hospital, Visakhapatnam, Andhra Pradesh, India.
Email: vivekmanohar305@gmail.com

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region. Mouth opening was restricted to 20 mm. On intraoral examination, step deformity was seen in relation to 31 and 41 associated with marked derangement of occlusion on the right side (Figure 1). Panoramic radiograph disclosed a right subcondylar and associated symphysis fracture (Figure 2). Treatment was planned for ORIF using retroparotid approach, a variant of retromandibular approach for subcondylar fracture and an intraoral approach to reduce the symphysis fracture under general anesthesia (GA).

Surgical management

Preoperatively, surgical profile was done and patient was considered fit to undergo the surgery under GA. Furthermore, oral prophylaxis was done followed by arch bar placement under local anesthesia (LA) before the surgical procedure. Pre-operative medication was started 1 day before the surgery. Patient was advised to restrain from taking anything orally from the midnight. On the day of surgery, nasal intubation was done uneventfully. Incision lines were marked along the posterior border of the mandible for retromandibular retroparotid approach. LA (2% Lignocaine with adrenaline 1:200000) was administered superficially into the skin along the markings. An incision was made through the skin and subcutaneous tissue extending from a point below the mastoid process to a point slightly below the angle of the mandible. Subcutaneous tissue was undermined and superficial musculo aponeurotic system (SMAS) was exposed. An oblique incision was given over SMAS and posterior border of parotid gland was identified. Dissection was then carried out behind the gland. The gland was lifted off the masseter muscle and retracted anteriorly. After reaching the posterior border of the mandible, an incision was made through the pterygomassetric sling followed by stripping of the masseter muscle from the ramus using a periosteal elevator. Care was taken not to incise the masseter. Dissection was further carried out posteriorly until fracture site was exposed. Care was taken not to injure marginal mandibular branch of facial nerve. Fracture ends were reduced and fixation was done using a 2 mm trapezoidal condylar miniplate with screws (Figure 3). Pterygomassetric sling and subcutaneous tissue was sutured using 3–0 vicryl suture and skin was closed using 5–0 prolene. Later, the symphysis fracture was exposed and reduced by an intra-oral approach. Fixation was done using two 2 mm 4-holed miniplates with gap and closed using 3–0 vicryl suture. IMF was done and patient was extubated following which, the patient was administered with I.V medications. An orthopantamogram was taken post-surgery to assess the reduced fracture sites (Figure 4). Postoperative occlusion was satisfactory. Patient was followed up for 6 months and no complications were noted except for the scar which was inconspicuous.

Figure 1: Deranged occlusion with step deformity in relation to 31 and 41

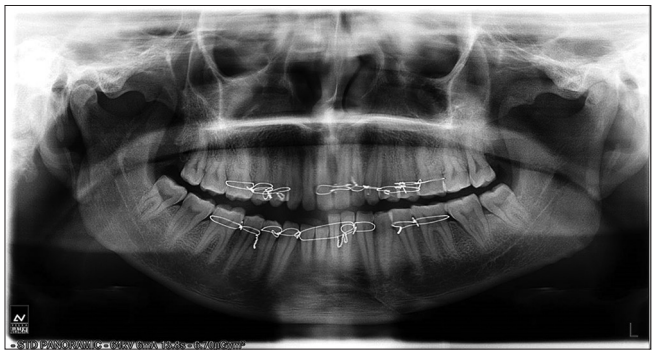

Figure 2: Pre-operative panoramic radiograph showing right subcondylar fracture

Discussion

Management of subcondylar fractures remains one of the most debatable topics of mandible surgery despite the high incidence of these fractures.[4] Closed reduction was considered the only option for decades. However, a low subcondylar fracture case was first treated by open reduction in 1925, and recently, it has become a usual and familiar procedure, probably because of the introduction of plate and screw fixation devices that allow for the stabilization of such injuries.[5] According to Lindahl, a sub condylar fracture is defined as a fracture line that starts at the sigmoid notch and extends to the posterior border of the mandible.[6] At least 48% of condylar process fractures are associated with other mandibular fractures, with half of these being in the symphysis and parasymphysis regions.[7] The present case manifested a symphysis fracture along with the fracture of subcondyle.

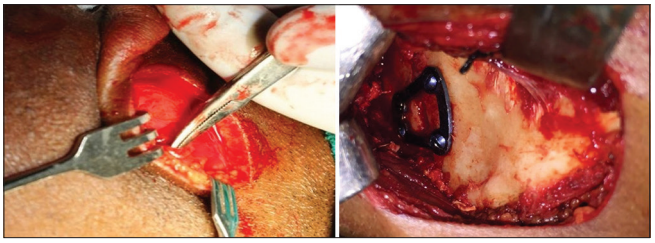

Figure 3: Open reduction and internal fixation of subcondylar fracture using retroparotid approach

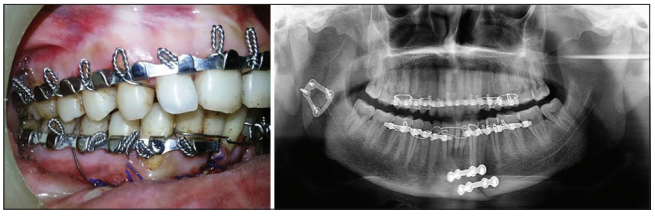

Figure 4: Post-operative occlusion and orthopantomogram

The retromandibular approach was the first described by Hinds and Girotti[8] in 1967 and modified by Koberg and Momma[9] in 1978. Retromandibular approach provides an adequate access to the condyle and therefore minimizes the operating time.[10] Furthermore, it offers advantages like avoiding injury to the marginal mandibular nerve by utilizing the void left between the buccal branches and the marginal mandibular branches and the resultant scar through a retromandibular approach is quite unnoticeable and almost always hidden in the retromandibular shadow.[11] The retroparotid variant of retromandibular approach in turn has an advantage of not dissecting through the parotid thus ending up not injuring the gland.

In his study, Kshirsagar *et al*. proved that retromandibular approach provides adequate exposure in an average duration of 39 min.[11] Kapil Tomar's study has proven the efficacy of retroparotid variation of retromandibular approach in subcondylar fractures. The study demonstrated satisfactory results with restoration of vertical ramal height, satisfactory mouth opening, stable occlusion, and no post-operative facial nerve damage.[12]

Conclusion

The present case showed better results and thereby supports the literature and the studies that were conducted earlier. Therefore, retroparotid variation of the retromandibular approach should be considered an excellent alternative in the management of subcondylar fractures.

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