

Trans Parotid and Retroparotid Approach for the Management of Condylar Fracture (Case Study)

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Abstract: Treatment of fractures of the mandibular condyle fractures varies among various centres. Approaches for treating condylar fracture is still a dilemma. The aim of this article is to determine the safety and efficiency of surgical treatment using a transparotid approach for direct plating. The fractures were treated surgically with a transparotid face lift or retromandibular approach using miniplates and screws for fixation. Patients were carefully followed up every 3 months to know their improvement. Success of the treatment, since treatment of fractures of the condylar neck and the subcondylar region presents some of the same problems regarding the choice of an adequate approach, since both lie under the parotid gland and facial nerve. The parotid fascia was opened just above the fracture site and by dissecting the parotid gland and masseter muscle, the fracture was directly exposed. The facial nerve itself was not dissected expressly. All fractures could be reduced accurately and fixed firmly with miniplates. A direct approach just above the fracture site provided good access to fracture to avoid facial nerve palsy caused by strong retraction. Moreover, by not dissecting the facial nerve, the operation time was shortened. This approach was useful for surgical treatment of both condylar neck and subcondylar fracture.

Key words: Condylar And Sub Condylar Fracture • Parotid Gland • Miniplates • Facial Nerve Palsy

INTRODUCTION

Condylar fractures account for 25-35 % of mandibular fractures and deserve a special consideration due to their anatomical differences and healing potential. In spite of so many advances in the field of surgery, the management of condylar fractures in adults still remains controversial. The major controversy has been between conservative and surgical management of such type of fractures. There are various approaches to the condyle explained in the literature. Retromandibular approach was first described by Hinds and Girooti in 1967 and modified by Koberg and Momma² in 1978 in relation to vertical subcondylar osteotomies and was later popularized for management of subcondylar fracture. However, it was not widely used because of the proximity to facial nerve and parotid gland and the associated risks. The main advantage of this approach is that it allows the exposure of the entire ramus of the mandible including the condylar neck through skin incision placed along the posterior border of the mandible

Patients and Procedure: A total of 28 patients with condylar process Class II and IV fractures according to classification of Spiessl and Schroll, were included in the present study. Of the 28 patients, were 11 female and 17 male. The patient age range was 20 to 60 years. All patients were treated using the transparotid approach, with rigid internal fixation using miniplates. Follow-up examinations were performed for a minimum of 6.5 months and a maximum of 25 months after surgical treatment. At the follow-up examination, the patients completed the Mandibular Function Impairment Questionnaire and the examiner completed the Helkimo index. X-rays taken before, directly after and 6 months after surgery were compared.

With a patient in general anesthesia and naso tracheal tube skin markings were made. Skin markings were made for incision behind the pre auricular region lifting the flap almost to the lobule with sharp dissection at this stage care is needed that not to damage the auricular nerve. The pre auricular type of incision was performed up

Photographs



Fig. 1: Pre Operative



Fig. 2: Pre Op Radiograph



Fig. 3: Incision Marking



Fig. 4: Exposing The Site

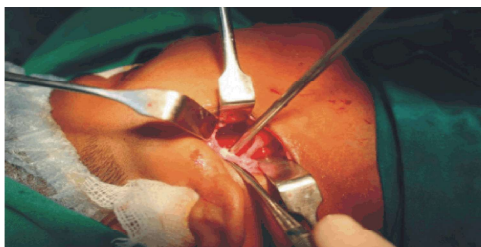


Fig. 5: Parotid Approach To



Fig. 6: Wound Closure Condyle



Fig. 7: post operative



Fig. 8: Post Op Radiograph

to zygomatic arch, when joining the pre auricular and retro auricular incision skin flap was elevated with sharp trans section to about 1cm in front of the posterior rim of the ramus of the mandible when branches of the facial nerve were encountered (usually at least 5mm deep to the parotid fascia) they were dissected anteriorly for about 10-15mm and posteriorly for about 5-10mm, which enabled retraction of the branches with very little tension. Beneath the retracted nerve branches, the masseter was soon encountered (point E). The dissection was now carried posteriorly, to the posterior rim of the ramus and in this way, the retro mandibular vein (RV) was avoided, as it was retracted posteriorly within the parotid parenchyma. The pterygomasseteric sling was incised on the posterior rim of the ramus (point F) and periosteal elevators were used

to expose the Fracture site. The fracture was reduced by pulling down the ramus, an assistant exerting traction on the mandibular angle with the aid of a transcutaneous bone clamp and/or digital pressure on the posterior molars the same time, the surgeon manipulate the condyle.

Postoperative Care and Follow-up: Postoperatively, patients were recommended to take a soft diet for 4–6 weeks. They are immediately encouraged to practice mouth opening and closing. Check radiological imaging was performed, using the same views as preoperatively. Drains were removed 1–3 days postoperatively and patients were usually discharged 3–5 days postoperatively. Sutures were removed 7 days postoperatively. Subsequently, patients had regular follow-up checks 1, 2 and 12 months post operatively. Sensory deficit of great auricular nerve was not encountered in any of the case. One patient developed sialocele which was managed by compressive dressing and antibiotics, the parotid fascia must be sutured with meticulous care to attain water tight closure.

DISCUSSIONS

Indications for surgical management for fracture condyle in adults are controversial. There are various approach to the condyle explained in the literature. Pre auricular and post auricular approach are suitable for high condylar and intracapsular fracture. Retromandibular, Submandibular and Rhytidectomy approach are preferred for subcondylar fracture. Submandibular approach is too low for subcondylar fracture and requires transcutaneous trocar for placement for screws[1]. Retromandibular approach allows the exposure of the entire ramus of the mandible including the neck of the condyle. The retromandibular approach offers advantage over the other approaches in working at a much shorter distance from the incision to the condyle

This approach has adequate exposure for manipulation and reduction of displaced condylar fracture. The angulation of screw placement was perpendicular to the ramus of the mandible which is comparatively difficult in other approaches. We believe this latter technique minimizes the risk of permanent damage to branches of the facial nerve as the nerve lies in a deeper plane in this region and identification of the nerve is made easier against a background of parotid parenchyma. Our study demonstrated 33% incidence of temporary marginal mandibular nerve weakness compared to 30% by Manisali *et al.*[3] and Ellis *et al.*[4] In all cases

the nerve function returned to normal within 3 months. Chossegros *et al.*[5] describes a technique using a posterior mandibular incision in which the angle and the ramus are approached by lifting the tail of the parotid without identifying the marginal mandibular branch of facial nerve. Widmark *et al.*[6] describes an approach to the condyle using a posterior mandibular incision but the cervical fascia and platysma identifying the marginal mandibular branch anterior to the parotid. But these techniques differ significantly from those described by Ellis and Dean[7] where the blunt dissection is performed to transgress the tail of the parotid gland in order to reach the mandible. We were able to achieve the anatomical position of the condyle when treated surgically. Post-operative mouth opening was more than 38 mm in all the cases. No patients developed Frey's syndrome in our study. There was no case of permanent damage of facial nerve when using retromandibular approach[7], in their clinical study the retromandibular Tran's parotid approach seems to be a safe and efficient method for reduction and internal fixation of condylar fractures with little or no risk to the branches of facial nerve[8]. On high cervical trans masseteric anteroparotid approach for open reduction and internal fixation of condylar fracture in 21 patients, they concluded their study by no facial palsy, even transient, has occurred to date. Cosmetic results were satisfactory[9]. 20 patients with a mean age of 25 years were included twelve months after surgery, all patients were examined by means of magnetic resonance imaging (MRI) showed, on the treated side, 5 cases of anterior dislocation of the disc, 1 case of disc degeneration, 1 case of parotid fistula[10], in their study 36 patients with condylar fractures and those of the mandibular ramus and coronoid process were treated using a modified retromandibular approach indirectly from the edge of the parotid gland, this method is simple and short and the completely exposed operative field facilitates reduction and fixation, compared with trans parotid approaches, it substantially reduces the risk to the facial nerve[11]. The biochemical basis of two load sharing plates fixation in the mandibular condyle fractures the use of two condyle plates provide greater stability with a single plate, reducing the possibility of displacement of the condylar segment[12]. Transmasseteric anteroparotid approach of orif of condylar fractures they described that transmasseteric anteroparotid technique, which offers swift access to the condylar neck while substantially reducing the risk to the facial nerve and eliminating the complications associated with Tran's parotid approaches[13].

CONCLUSION

Our results demonstrated that, when open reduction with internal fixation of subcondylar fracture is indicated the Retromandibular trans- parotid approach is an effective and safe technique providing good access and satisfactory functional outcome with low morbidity and good patient satisfaction. The transparotid approach to condylar process fractures is most appropriate for strongly displaced Class II fractures. Especially for very old patients with dementia, for whom maxillomandibular fixation is contraindicated, this approach is very appropriate. Another benefit to this type of patient is the short operating time, with an average of 45 minutes

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