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The retromandibular transparotid approach: Our clinical experience

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ABSTRACT

Introduction: Mandibular condylar fractures are very common. There is general agreement that an intracapsular fracture requires conservative treatment, but the treatment of extra-capsular fractures is controversial. Extraoral approaches have different advantages and disadvantages. The possibility of damage to the facial nerve is always present but, in our experience, always recovers in a short time.
Materials and methods: From June 2008 to June 2009, we admitted 25 patients with mandibular condylar fractures to our department. Nineteen patients received a retromandibular transparotid approach to identify and stabilize the condylar fracture site. None of them developed infection.
Surgical technique: A 2 cm incision extending in the retromandibular hollow is the first step. Initial dissection in a forward and upward in the direction of the SMAS layer is mandatory to gain good mobility of the soft tissue flaps. Blunt dissection through the parotid gland is performed between the marginal and buccal branches of the facial nerve. Periosteal elevation of all the lateral surface of the mandible provides good exposure of the bony surfaces and mobilization of the soft tissues.
Conclusions: We believe that this approach is a safe and time sparing alternative to the intraoral endoscopic approach

1. Introduction

Open reduction and rigid internal fixation of condylar fractures (which comprise approximately 25–50% of all mandibular fractures) (Tang et al., 2009) has long been a matter of controversy, but currently represents a standard care by an increasing number of authors (Trost et al., 2009). Surgical treatment must follow the biomechanical principle and be in accordance with the principal stress trajectory during rigid internal fixation. Therefore the surgical approach should ensure good visualization and allow the surgeon to perform correct rigid internal fixation. Preauricular, submandibular, retromandibular and intraoral approaches have been described (Tang et al., 2009) but all have specific advantages and disadvantages.

Many authors specifically reported their experience in the retromandibular approach in the treatment of the mandibular condyle fractures (Manisali et al., 2003; Wilson et al., 2005; Biglioli and Colletti, 2008, 2009; Tang et al., 2009; Trost et al., 2009; Klatt et al., 2010). After the identification of the SMAS system and the parotid fascia, many of them choose the anteroparotid transmasseteric or the retroparotid approach. These options lead to the need for facial nerve visualization (Biglioli and Colletti, 2008, 2009; Tang et al., 2009). With this paper we report our experience of the surgical treatment of condylar fractures and suggest the transparotid approach because it is a fast, easy and low morbidity option.

2. Materials and methods

Between June 2008 and June 2009, 25 patients with condylar fractures were admitted to our department. There were 2 females and 23 males. Their ages ranged from 17 to 65 years, with a mean age of 35.4 years

The fracture was intracapsular in 6 cases, high subcondylar in 8 cases and the condylar base in 11 cases.

The 6 patients with intracapsular fractures had conservative treatment (immediate functional rehabilitation). The remainder was treated with surgical reduction of the fracture by a transparotid approach and rigid internal fixation with 1.0 mm thick 2.0 titanium plates and screws under general anesthesia with nasal intubation.

In the postoperative period all patients received a liquid diet for 15 days and a soft diet for another 15 days. None of them received intermaxillary fixation.

Only 2 patients had a transient marginal mandibular palsy for a period of 1–2 weeks. None of them had anesthesia of the lower part of the auricle or developed infection of the wound.

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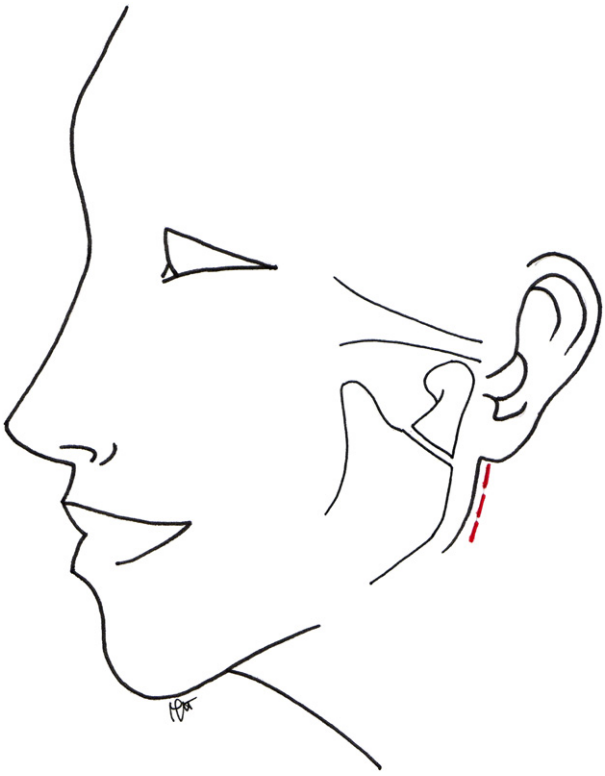

Fig. 1. Skin incision in the retromandibular shallow (red dotted line).

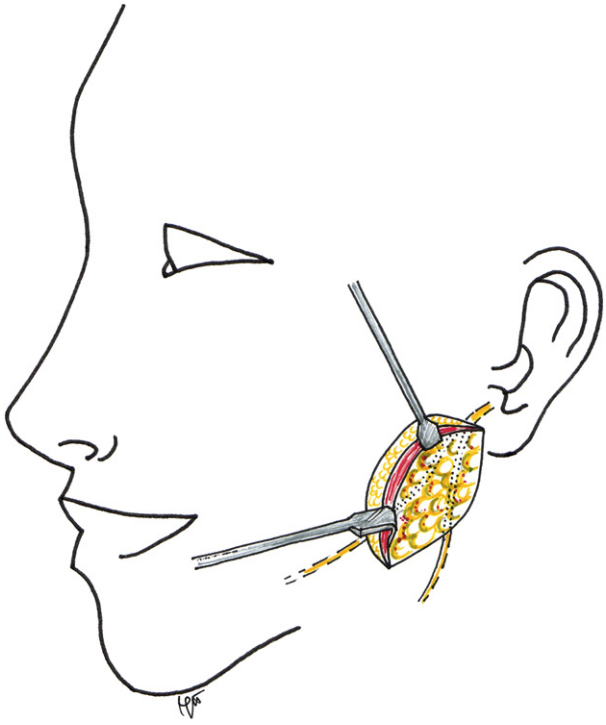

Fig. 3. Incision of the SMAS and exposure of the parotid gland.

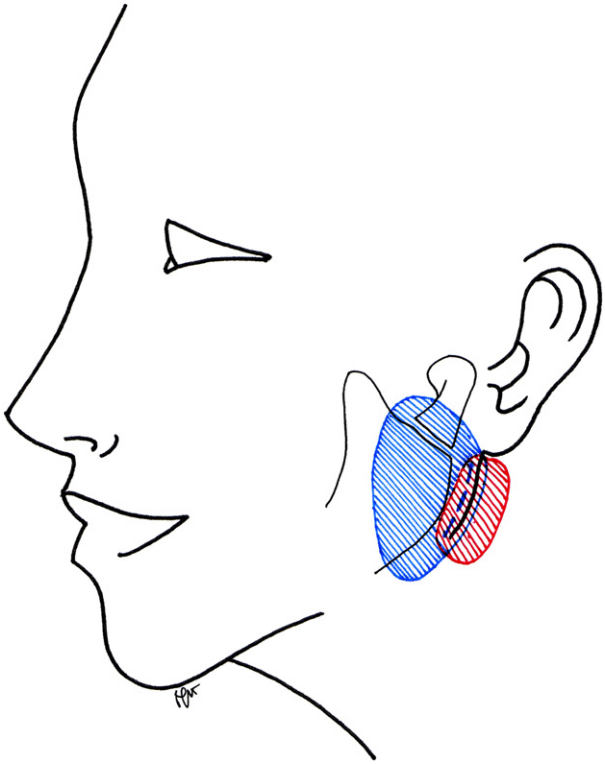

Fig. 2. Area of subcutaneous (red) and subSMAS (blue) undermining.

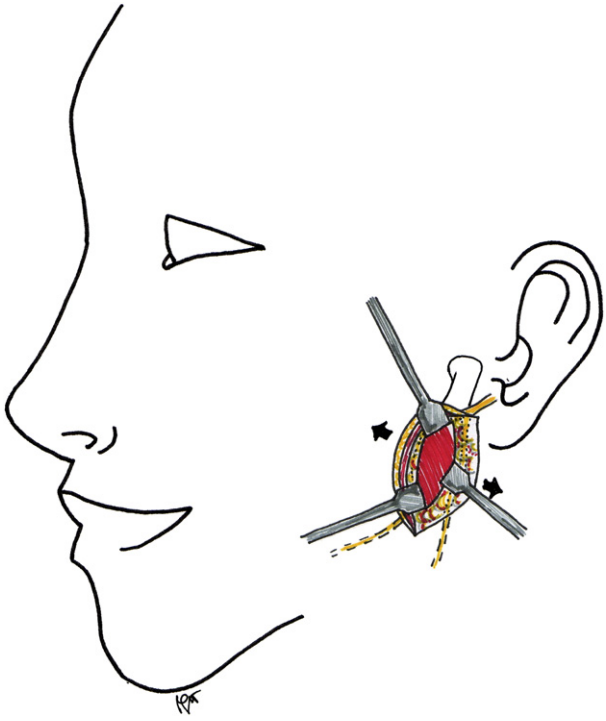

Fig. 4. Blunt dissection of the parotid gland, retraction in an anterior and posterior direction of the parotid gland between the facial nerve branches and identification of the masseteric muscle.

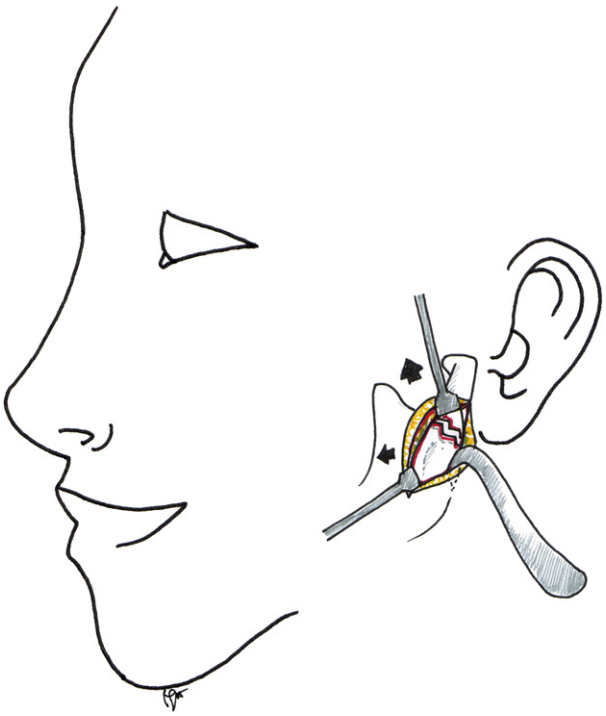

Fig. 5. Incision and elevation of the periosteum with identification of the fracture site.

3. Surgical Technique

The technique consisted of a 2 cm vertical incision of the skin and the subcutaneous tissue of the retromandibular hollow from the radix of the ear inferiorly to the mandibular angle region extended until the SMAS was identified. Dissection of the SMAS was performed anteriorly for a distance of approximately 2–3 cm with incision of the SMAS flap (Figs. 1–3).

The parotid fascia was identified and incision of the fascia and blunt dissection of the parotid tissue was then performed in an oblique line going from the external auditory canal to the antegonial region for a length of 2 cm. The dissection of the parotid gland proceeded under neurostimulation control to avoid damage to the facial nerve which was never dissected. Wide elevation of the periosteal layer of the mandible from the coronoid process to the posterior border and inferiorly to the angular region allowed good visualization of the fracture site and mobilization of the soft tissues (Figs. 4 and 5).

Under constant control of the occlusion, the fracture was then reduced and fixed with a conventional plating technique.

Any other fracture of the mandible was always reduced and fixed before the condylar fracture.

4. Discussion

The retromandibular incision was first described by Hinds and Girotti (2001) to allow better exposure of the mandibular condyle. Compared to the submandibular approach this incision allowed a closer visualization of the mandibular ramus and condylar process. The traditional retromandibular approach requires retraction of the parotid gland from its posterior or inferior lobe to expose the fracture site (Ellis et al., 2000; Tang et al., 2009). This may lead to facial nerve injury, which is reported in approximately 30% of the cases. Nerve function returned to normal within 3 months (Manisali et al., 2003). Chossegros et al., reported temporary paresthesia in the distribution of the great auricular nerve which generally resolved within a few weeks (Chossegros et al., 1996).

Fig. 6. A preoperative orthopantomography.

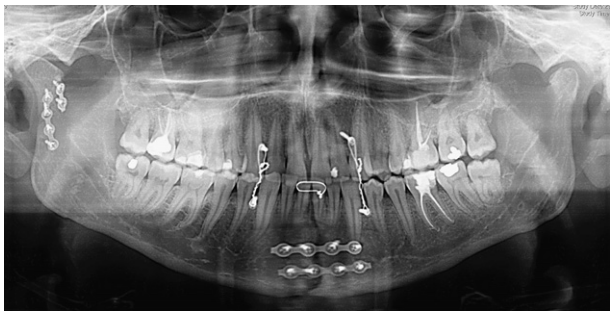

Fig. 7. Postoperative orthopantomography (same patient).

Fig. 8. Another clinical case (the greenstick fracture of the ramus was left untreated).

Fig. 9. Clinical case: dissection of the SMAS.

Fig. 10. Dissection of the parotid fascia.

Fig. 11. Fixed plates.

Paresthesia associated with the auriculotemporal nerve has also been reported by Widmark et al. (1996).

For these reasons many authors have reported modifications of the conventional technique, varying from an anteroparotid to high cervical transmasseteric approach (Trost et al., 2008). Both of these techniques lead to visualization of the facial nerve which generally causes a temporary facial nerve palsy in 30–50% of the cases (Manisali et al., 2003).

5. Conclusion

Good reduction and facial appearance were observed in all of the 19 patients treated surgically.

We did not encounter the facial nerve during the blunt dissection of the parotid tissue. Two patients had a transient marginal mandibular nerve palsy which completely recovered, one in 1 week and one in 2 weeks.

All of the fractures were reduced perfectly on clinical evaluation and either orthopantomography or computed tomography (Figs. 6 and 7).

Mandibular function was good after 1 month in all of the cases and becomes normal within 2–3 months. No salivary fistula was observed (Figs. 8–11).

The retromandibular scars were practically undetectable.

In our clinical practice, we believe that the retromandibular transparotid approach is a safe and time sparing approach for the treatment of even complex mandibular condylar fractures.

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