Transmasseteric antero-parotid approach for open reduction and internal fixation of condylar fractures

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Introduction

The management of condylar fractures in adults remains controversial.1 Even with a consensus developing on the preference for open reduction and internal fixation of these fractures,2 the clinician is still faced with the dilemma about an optimal approach to the ramus-condylar unit. The various approaches that have been published stand testimony to the shortcomings of most techniques.3 Limited access and injury to the facial nerve are the most common problems. We describe a technique that offers excellent access to the ramus-condylar unit and is unlikely to damage the facial nerve.

Technique

A preauricular incision is made that extends downwards in a curvilinear fashion in the cervicomasseteric skin crease, though any variation in this incision will suffice (Fig. 1). The great auricular

KEYWORDS

Fracture; Mandible; Condyle; Access; Approach

Summary

The morbidity that results from surgical approaches to the condylar neck, and the time-consuming nature of the operation inhibits many surgeons from using open reduction and internal fixation for the treatment of condylar fractures. The many approaches that have been described stand testimony to the disadvantages of the individual techniques. The most common problems are limited access and injury to the facial nerve. We describe the transmasseteric antero-parotid (TMAP) technique, which offers swift access to the condylar neck while substantially reducing the risk to the facial nerve and eliminating the complications associated with transparotid approaches.

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Figure 1. Preauricular skin crease incision with allowable modifications: (1) retromandibular; (2) lazy "S" cervico-mastoid; and (3) rhytidectomy.

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nerve is preserved and the flap raised in the subdermal fat plane, superficial to the superficial musculoponeurotic layer to allow access to the masseter adjacent to the anteroinferior edge of the parotid gland, just below the parotid duct. Branches of the facial nerve are readily identified and avoided with or without loupe magnification, on the surface of the masseter muscle. A nerve stimulator may be used if necessary. The buccal branch is usually the only branch seen (if any at all) in the area of dissection. The area next to the anterior edge of the parotid gland is usually relatively free of branches of the facial nerve, making this an ideal point to dissect down to the fracture (Fig. 2). If a buccal branch crosses the field it is easily retracted up or down.

The masseter is split in the direction of its fibres, which in the superficial plane run parallel to the anterior edge of the parotid. It is not necessary to sever the fibres to gain adequate access, but this may be necessary as the fibres change direction in the deeper parts of the muscle. The periosteum overlying the lateral aspect of the ramus in the region of the condylar neck is incised and the fracture site is exposed (Fig. 3). If this is not immediately deep to the incision, it is easily found by gentle retraction of the upper edge of the wound. Care should be taken not to include the condylar head in this retraction. The fracture is then reduced and fixed with appropriate plates and screws (Fig. 4). The wound is closed in layers and a suction drain left in place for 24h. Once the technique is mastered, exposure of the fracture takes about 20–25 min.

Case reports

We have used this approach in three patients, all of whom had bilateral condylar fractures. Two patients had preauricular incisions with retromandibular extensions and the third patient had a lazy-S incision, taking the inferior extension into the hairline. Postoperatively the functional
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Discussion

Access with other approaches is often difficult, which may necessitate forceful tissue retraction and oblique insertion of the plates and screws. Reduction of the medially displaced condylar fragment can be difficult. The most feared complication common to all other approaches is injury to the facial nerve, which has been reported to be temporary in 30–48% and permanent in 1%. The marginal mandibular branch is most often injured in the submandibular and retromandibular approaches, whereas the preauricular approach often causes injury to the temporal and zygomatic branches.

The branching pattern of the extracranial facial nerve has been described in detail. There is a considerably higher incidence of cross-anastomosis between the branches of the upper division than between those of the lower divisions. The incidence of cross anastomosis between the zygomatic and buccal branches is 87–100%, whereas the marginal mandibular nerve receives anastomotic branches in only 0–16% of cases. This explains its vulnerability in the retromandibular and submandibular approaches, where no attempt is made to identify the nerve. In the TMAP technique, the selection of an area adjacent the buccal branches and the formal identification of the nerve neutralises these issues and as the buccal branch is the only branch normally encountered (if any at all), its retraction, given its excellent cross anastomoses, is inherently less risky.

The incision used in this technique is of necessity longer than that used in other approaches. The preauricular element is not cosmetically important in our experience and the retromandibular extension can be tailored according to the sensitivities of the surgeon and the patient.

References
