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Case Series

Trauma

How to improve retromandibular transmasseteric anteroparotid approach for mandibular condylar fractures: our clinical experience

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Abstract. Fractures of the mandibular condyle are common and account for 25–35% of all mandibular fractures reported in the literature. Even with the development of a consensus on the preference for open reduction and internal fixation of these fractures, the clinician is still faced with a dilemma concerning the optimal approach to the ramus–condyle unit. Limited access and injury to the facial nerve are the most common problems. The most commonly used extraoral approaches are the submandibular, retromandibular and preauricular methods. In this study, we propose a modified cosmetic preauricular incision with a short end in the neck, to improve the transmasseteric anteroparotid (TMAP) approach previously described by Wilson et al. in 2005. We retrospectively analysed 13 patients treated in our department for mandibular condylar fractures. Post-operative complications, occlusal status, interincisal opening and joint tenderness were evaluated at 3 months after surgery. The wider skin incision described here provides a convenient approach for open reduction and rigid internal fixation, and good results were obtained. The follow-up ranged from 6 to 40 months.

Key words: condylar fractures; open reduction and internal fixation; transmasseteric anteroparotid approach..

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Mandibular fractures are the most common facial fractures, and among these, fractures of the subcondylar and condylar regions are generally a clinical challenge. Fractures of the mandibular condyle are common and account for 25–35% of all mandibular fractures reported in the literature.[1,2] The management of condylar fractures in adults remains controversial.[3] Even with the development of a consensus on the preference for open reduction and internal fixation of these fractures,[4] the clinician is still faced with a dilemma concerning the optimal approach to the ramus–condyle unit.[5] Limited access and injury to the facial nerve are the most common problems.[2,6] The most commonly used extraoral approaches are the submandibular, retromandibular and preauricular methods.[7] Retromandibular incision has the advantages of being located

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closer to the condylar process, causing no obvious scar, and providing better exposure of the fractured end and the posterior edge of the ramus. However, the method requires passing through parotid gland tissue, increasing the incidence of facial nerve injury and salivary fistula.[8] Ellis et al.[9] reported that the incidence of facial nerve injury with the use of this method was 6–10.5%. Although the facial component of these incisions heals with an almost imperceptible scar, a visible scar is often left on the neck despite meticulous closure.[1,9,10]

Wilson et al.[11] proposed a transmasseteric anteroparotid (TMAP) approach for open reduction and internal fixation of condylar fractures. Biglioli and Colletti[2] described a mini-retromandibular approach to treat condylar neck fractures using a 20-mm skin incision.

In this case series, we propose a modified cosmetic preauricular incision with a short end in the neck, to improve the TMAP approach previously described by Wilson et al.[11] We retrospectively analysed 13 patients treated in our department for mandibular condylar fractures. The wider skin incision described here provides a convenient approach for open reduction and rigid internal fixation, not only for condylar fractures.

Materials and methods

Surgical technique

Once in the operating room, after general anaesthesia was achieved, each patient's hair was trimmed around the incision marks. Thorough hair removal is important because hair is readily trapped in suture lines, which may pose subsequent problems. The locations of the zygomatic arch, articular fossa and mandibular ramus to the mandibular angle were identified and marked on the skin (Fig. 1). The incision began in the preauricular area. An inverted L-shaped preauricular incision starting at the caudal-most end of the earlobe was directed upward, following the earlobe crease; it crossed the intertragic incisure perpendicularly, formed a small indentation on the tragal rim, and followed the anterior border of the helical crus (if necessary). When raising the skin flap over the tragus, the perichondrium was left intact over the cartilage to preserve its blood supply and maintain its natural shape. The incision descended inferiorly, between the anterior border of the sternocleidomastoid muscle and the posterior border of the mandible, surrounding the caudal-most end of the earlobe and continuing 2 cm onto the neck, but not over the mandibular angle. The length of the skin incision did not exceed 45 mm (Fig. 2). The great auricular nerve was preserved and the flap was raised in the subdermal fat plane, superficial to the superficial musculoaponeurotic layer, to allow access to the masseter adjacent to the anteroinferior edge of the parotid gland, just below the parotid duct.

Fig. 1. The locations of the zygomatic arch, articular fossa and mandibular ramus to the mandibular angle were identified and marked on the skin.

Fig. 2. Surgical skin incision.