

Matching Surgical Approach to Condylar Fracture Type

Hany A. Emam, BDS, MS , Courtney A. Jatana, DDS, MS , Gregory M. Ness, DDS*

KEYWORDS

• Surgical approaches • Condylar fractures • Open reduction of condylar fractures

KEY POINTS

- Head and neck trauma surgeons must have an acute knowledge of surgical principles to approach a condylar fracture with an open surgical technique.
- An understanding of the classification of the fracture and the appropriate surgical access for visibility and reduction is critical.
- Practicing good surgical principles to avoid vessel and nerve injury is equally important for successful reduction of these fractures.

Introduction

Condylar fractures account for 25% to 35% of all mandibular fractures. Because of their high incidence and frequent complexity, several treatment options have been described for these fractures. Broadly, the 2 main methods are defined as either conservative (closed) or surgical (open) treatment.

Conservative therapy consists of 10 to 14 days of immobilization, which is accomplished by the control of occlusion with the use of arch bars and intermittent maxillomandibular fixation. Typically, this method is chosen because of the difficulty in exposure of the condyle, the risk of facial nerve injury, and the technical challenge in open reduction osteosynthesis of condylar fractures. However, there are negative consequences of conservative therapy, which can include malocclusion, reduced facial height and asymmetry, chronic pain, and a reduction in mobility.

In contrast, indications for surgical intervention are not universally clear, with varying conclusions drawn from the published evidence. Several studies comparing conservative with surgical treatment have shown that open reduction and rigid fixation leads to better results. Some studies report that better functional outcome can occur with open treatment.

Identifying fractures by location

Regardless of method chosen, the means of access to the fractured condyle is important in the initial treatment decision process. A necessary prerequisite for choosing between conservative and surgical treatment and determining appropriate access for treatment of condylar fracture is to identify the

location of the fracture. A fracture that is located above the mandibular foramen and runs from the posterior edge of the ramus into the sigmoid notch is classified as a fracture of the condylar process. A fracture of the condylar head is referred to either as intraarticular or diacapitular (Fig. 1). However, within these broad definitions are many fine distinctions, and differing published classification schemes can complicate injuries and the access needed to reach them.

Classification of condylar fractures is discussed in detail elsewhere, but this article uses a basic well-known system for determining appropriate access. Loukota developed this simple nomenclature to minimize the difficulty of fracture visualization and the confusion in the international terminology of the widely cited 6 types in the Spiessl and Schroll classification.

Instead, Loukota suggested the following terms (Figs. 2 and 3):

1. Neck: fracture line is mostly above line A in the lateral view (Fig. 2A), where line A is the perpendicular line through the sigmoid notch to the tangent of the ramus
2. Base: fracture line runs behind the mandibular foramen and mostly below line A (Fig. 2B)
3. Diacapitular (head): through the head of the condyle (Fig. 2C)

Surgical approaches

The decision on a particular approach to reach a fracture depends on the location of the injury and the height, location, and type of osteosynthesis being considered. Incisions used to reach condylar and subcondylar fractures include intraoral, periangular, retromandibular, preauricular, and retroauricular. Approaches to the subcondylar base and neck should be distinguished from head (diacapitular) fractures. Diacapitular fractures can be accessed through the preauricular or retroauricular approaches. Neck fractures can be accessed through intraoral, periangular, retromandibular, and preauricular and postauricular incisions. Base fractures can be accessed through intraoral, periangular, and retromandibular incisions (Fig. 4).

Division of Oral and Maxillofacial Surgery and Dental Anesthesiology, College of Dentistry, The Ohio State University, 305 West 12th Avenue, Postle Hall, Columbus, OH 43210, USA

* Corresponding author.

E-mail address: ness.8@osu.edu

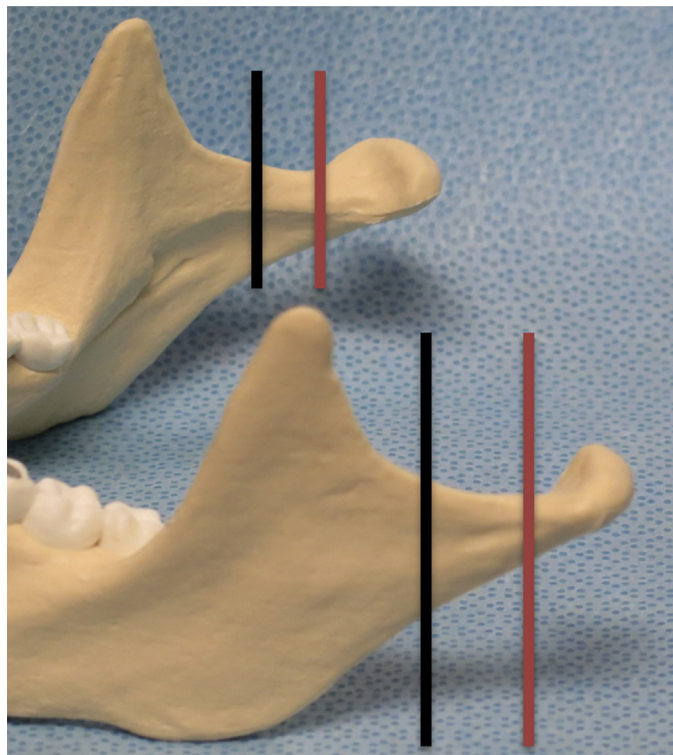


Fig. 1 Black line indicating fracture line above mandibular foramen to the sigmoid notch (condylar process). Red line indicating fracture line of the condylar head (diacapitular).

Submandibular/periangular

This approach is appropriate when access to the base and neck are required for open reduction. To allow for full access a slight extension of the classic submandibular incision in a backward and upward direction to the periangular region allows full access. The incision is marked 2 to 3 cm below the lower border of the mandible and is approximately 3 to 4 cm in length (Fig. 5). Anatomic planes transected include skin, subcutaneous fat tissue, and platysma. After division of the platysma, meticulous dissection through the superficial layer of the deep cervical fascia is performed to avoid injury to the mandibular branch of the facial nerve and inadvertent bleeding of the facial vein and artery, which may be divided to allow soft tissue reflection. After reflection of the muscular sling and periosteum, careful retraction of the mandibular branch of the facial nerve in a caudal direction is advised. With this access, mini-plate and lag screw osteosynthesis can be achieved.

Retromandibular

This approach begins with a standard incision but, after the skin and subcutaneous planes have been transected, 3 options have been described for the final dissection to the condyle. In all cases, the skin incision is marked 5 to 10 mm below the ear lobe and should run parallel to the posterior border of the mandible and be 3 to 4 cm long (Fig. 6).

The first variation of the deeper dissection is termed the transparotid approach. The parotid capsule is carefully identified and divided horizontally through the space between the

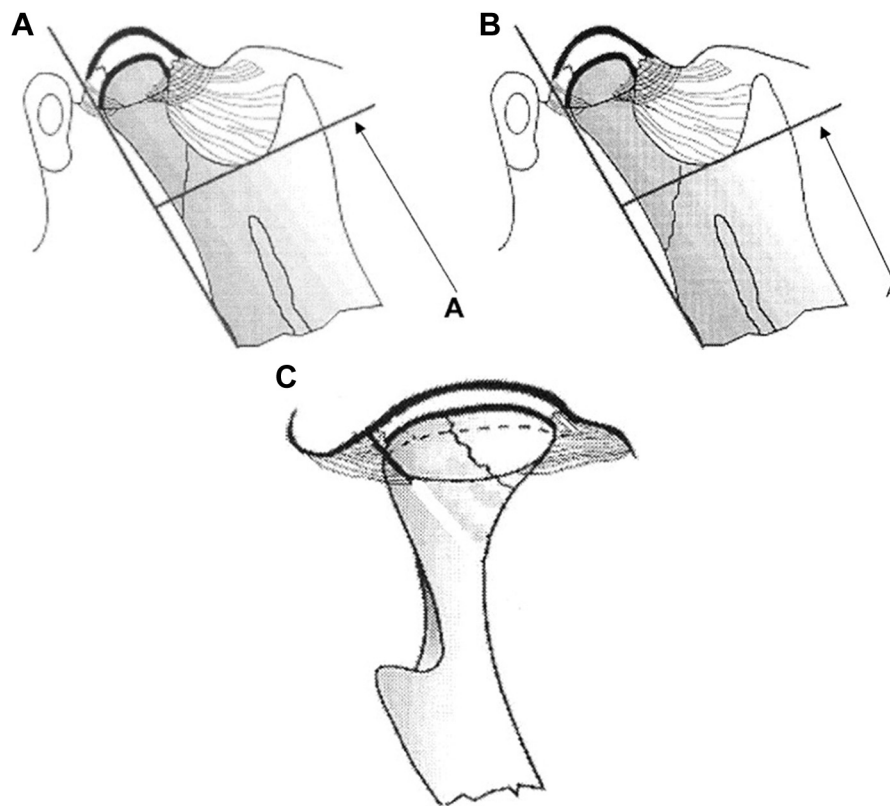


Fig. 2 Loukota classification. (A) Fracture of the condylar neck (*above line A*). (B) Fracture of the condylar base (*below line A*). (C) Diacapitular fracture (through the head of the condyle). (From Loukota RA, Eckelt U, De Bont L, et al. Subclassification of fractures of the condylar process of the mandible. *Br J Oral Maxillofac Surg* 2005;43(1):73; with permission.)

Download English Version:

<https://daneshyari.com/en/article/5638172>

Download Persian Version:

<https://daneshyari.com/article/5638172>

[Daneshyari.com](https://daneshyari.com)