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Management of Subcondylar Fracture by Intraoral Approach

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Abstract: Condylar fracture osteosynthesis is nowadays commonly practiced, but only a few studies report the intraoral approach with angulated devices. Subcondylar fractures with little or lateral displacement can be treated using an intraoral approach with satisfactory results. The advantages of this approach are the absence of visible scars, the avoidance of facial nerve injury inherent to the extraoral approach, quick access to the fracture, and a reduced risk of infection. The authors report a case of subcondylar fracture treated through an intraoral approach. Despite the considerable lateral dislocation of the condyle, treatment consisted of the reduction of the fracture and osteosynthesis with a trapezoidal condylar plate using an intraoral surgical approach.

Key Words: Mandibular condyle, intraoral approach, open treatment

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Fractures of the mandibular condyle are common, accounting for 25% to 35% of all mandibular fractures in reported series.1 The topic of mandibular condylar fracture has generated more discussion and controversy with regard to classification, diagnosis, and therapeutic management, as evident in the various schemes used to classify and subdivide these fractures.2 A simple classification based on the anatomic location of the fracture (condylar head, condylar neck, and subcondylar region) seems adequate,3 but a concomitant consideration of the degree of displacement of the fractured segment enriches management decisions.4

Different methods of osteosynthesis are currently used to achieve functionally stable results. It is therefore advisable to select a system that enables maximal stability while causing minimal trauma during insertion; easy handling increases the acceptance of a procedure by surgeons.5 The intraoral approach for the treatment of subcondylar fractures is not routinely used because the management of dislocated subcondylar fractures may be hampered by the limited visibility of the fracture site due to the coronoid process. However, intraoral treatment can be facilitated by the use of endoscopic techniques with angulated scopes.6 Moreover, the recent advent of angulated screws and screwdriver instruments makes the intraoral approach for treatment of displaced subcondylar fractures feasible without the need for endoscopic instruments or mirrors.

This article reports a case of subcondylar fracture treated through an intraoral approach and discusses the risks and benefits of this management.

CLINICAL REPORT

A 34-year-old male patient presented to our department complaining of limited mouth opening, pain, and hardening in the right submandibular region with an evolution of approximately 4 days. He reported that he had a fall before the symptoms. Extraoral physical examination revealed no facial asymmetry, only a hardened surface on the right temporomandibular joint (TMJ) region. The intraoral examination revealed malocclusion with premature contact and open bite on the left side (Fig. 1A). Three-dimensional
computed tomography (CT) reconstruction revealed a right subcondylar fracture with lateral displacement (Fig. 1B). The decision was made for a conservative approach with intraoral access. Under general anesthesia via nasoendotracheal intubation, the patient was submitted to the fracture reduction. An intraoral approach similar to sagittal split osteotomy submandibular incision to access the fracture condyle was performed. After the exposition of the fracture, a great lateral dislocation of the condyle was observed. Afterward, the Bauer and Merrill Lavasseur retractors were positioned to allow adequate access for fracture reduction (Fig. 2A). The intermaxillary fixation was achieved with intermaxillary fixation screws. Thus, angulated screws and screwdriver (Fig. 2B) were used to install a trapezoidal condylar plate (Fig. 3A). In the postoperative, there were no signs of recurrence of malocclusion, and CT scan showed anatomical reduction of the fracture (Fig. 3B).

**DISCUSSION**

An agreement has been reached regarding the open reduction, internal fixation (ORIF) of condylar fractures, namely, that displaced bilateral fractures or severe unilateral displacement in the condylar neck or subcondylar position (except in growing children) may be indications for ORIF. This is because better, quicker functional rehabilitation of the TMJ can be achieved with ORIF, and superior clinical functional results have been reported. Furthermore, if not properly treated, this injury can cause TMJ disorder, ankylosis of the TMJ, occlusal disorders, compromised ramus height, and mandible deviation and may lead to severe impairment of the stomatognathic system.

Another argument that makes the surgical treatment of condylar fractures controversial is the risk of facial nerve damage and the creation of visible scars when extraoral approaches are used. Retromandibular and submandibular approaches are currently used to expose condylar fractures, with good functional results. Moreover, the endoscope-assisted treatment of subcondylar fractures has been used widely at a number of surgical institutes in the past 10 years, where minimally invasive surgical procedures have been used to treat maxillofacial trauma by pioneering maxillofacial surgeons, with good clinical results over a relatively long-term follow-up period. Thus, the risk of nerve injury can be minimized with the exclusive use of intraoral access. Therapeutic success in the intraoral treatment approach to condylar fractures depends mainly on the possibility of the fragments being correctly reduced. This technique is possible with the aid of angulated surgical instruments, such as drills and screwdrivers.

**CONCLUSIONS**

In summary, subcondylar fractures with little or lateral displacement can be treated using an intraoral approach with satisfactory results. The advantages of this approach are the absence of visible scars, the avoidance of facial nerve injury inherent to the extraoral approach, quick access to the fracture, and a reduced risk of infection.

**REFERENCES**


**FIGURE 3.** A, Trapezoidal condylar plate installed. B, Postoperative CT.