An unusual treatment with sagittal split osteotomy: Report of a case involving an odontoma

Sagittal split osteotomy is one of the most commonly performed surgical techniques in the world and has been modified by many authors. The efficacy of this operation has been studied by many groups. When performing this surgery, there should be adequate contact of wide, cancellous bone surfaces, which guarantees excellent and rapid bony union in the desired position. In the present article, treatment of mandibular prognathism with open bite by sagittal split osteotomy with an odontoma in the third molar area is presented. (Int J Adult Orthod Orthognath Surg 1999;14:163-166)

Sagittal split ramus osteotomy (SSRO) is the most popular operative technique for mandibular prognathism, retrognathia, and open bite. The technique was first described by Schuchardt,\(^1\) then popularized by Trauner and Obwegeser,\(^2\) and improved by Dal Pont.\(^3\) In the following years many refinements were proposed by numerous authors.\(^4\)-\(^6\) Several techniques have been suggested for fixation and stability of the proximal and distal segments, including figure-eight fixation, circummandibular fixation, plate fixation, and screw fixation. The surgeon’s dexterity and experience are among the factors that influence skeletal stability. Position of the condyle during surgery and postsurgery is another important consideration.

In recent years, there has been a significant reduction in the number of complications arising from SSRO, largely due to improved communication between surgeons, which has led to modifications in the procedure. Intraoperative bleeding and neurosensory deficiency, however, remain the greatest complications. One important anatomic consideration for SSRO is the neurovascular bundle, which enters the mandibular foramen inferior to the occlusal plane of mandibular teeth. The position of the cortical fusion of the upper mandibular ramus and the thickness of the inferior border of the mandible are other important landmarks. If performed with sufficient care and attention, SSRO is the most preferred technique performed intraorally because it enables the mandible to move backward, forward, and upward.

This article presents an unusual application of SSRO in a patient who had an odontoma in the surgical field.
Case report

A 20-year-old female patient referred to our clinic complained of difficulties in chewing and inadequate esthetics. Clinical examination revealed skeletal Class III with open bite and mental muscle strain, where the only contact visible was between the molars (Fig 1). A panoramic radiograph revealed a nonhomogenous radiopaque mass 2 to 3 cm in diameter in the left posterior mandibular body (Fig 2). The mass had toothlike structures and was identified as an odontoma. The odontoma was removed (Fig 3), and the mandible was secured by miniplate fixation (Fig 4).

Ten months later, the miniplate was removed, and SSRO was performed. Osteotomy cuts were made on the right mandible, as described by Wolford et al. On the left side, because removal of the tumor had resulted in the narrowing of the mandibular ridge width, incisions were made, and the segments were split carefully.

The distal and proximal segments were secured by circummandibular wire fixation (Fig 5). In addition to the circummandibular fixation, maxillomandibular fixation was applied for 6 weeks. Figure 6 shows the condition of the short distal segment following surgery. The postoperative period was uneventful, and the patient’s progress was satisfactory (Figs 7 and 8).

Fig 1  Presurgical photograph showing mandibular excess before surgery.

Fig 2  Odontoma at the left third molar area.

Fig 3  (left) Third molar and odontoma after removal.

Fig 4  (right) Miniplate fixation after removal of odontoma.
Fig 5  Postoperative panoramic view.

Fig 6  Relation of the short proximal segment.

Fig 7  (left) Postoperative cephalograph.

Fig 8  (right) Facial appearance after surgery.
Discussion

Various intraoral techniques have been advocated for treatment of mandibular prognathism, most of which are unsatisfactory because of the limited application. Although there is a risk of damage to the inferior alveolar bundle and a poor sagittal split, the efficacy of the sagittal split osteotomy makes it the predominant technique in orthognathic surgery. To reduce the risk of a bad split of the mandible, third molars should be removed 3 to 6 months prior to surgery, as shown in the study of Lacey and Colcleugh. In review of the literature, a pathologic mass of the magnitude presented in this article had not yet been reported.

Use of sagittal split osteotomy for treatment of mandibular prognathism with open bite deformity, with an odontoma in the third molar area, was presented. We propose that this fixation technique be considered when a pathologic condition occurs in the area of the surgical field and the contact of bone is not adequate.

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References