A Two-Stage Surgical Approach in the Treatment of a Large Complex Odontoma of the Mandible

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Summary

The paper describes an example of an unusually large, complex odontoma in the mandibular angle of a 23 year-old young man. Because of the possibility of fracture occurring in the mandible during the operation a two-stage surgical procedure was applied, which proved successful and was acceptable for the patient. The authors cite data from the literature, showing other possible surgical procedures in similar cases and discussing their advantages and disadvantages, leaving the reader to decide on the justification of all applied surgical procedures to date.

Key words: *odontoma, complex odontoma, osteotomy of the mandible, two stage surgical procedure.*

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Introduction

Odontogenic tumours develop from ectodermal and ectomesenchymal odontogenic tissues which appear in the jaws independently or in different combinations. They may be soft, calcified and mixed and tissues distributed in numerous combinations and different patterns.

According to investigations of Lu et al in 1998 (1), who analysed 759 cases of odontogenic tumours in a Chinese population, ameloblastomas are the most frequent - 58.6%, followed by adenomatoid odontogenic tumours, odontogenic myxomas, complex and compound odontomas which together occur in 6.7% of cases. In relation to these data the frequency of odontomas in Germany is 57.8%, Canada 56.4% and 73.8% in the United States of America, which is quite different from the yellow race (1).

Cases of complex odontomas involve pathological changes which occur in the jaws twice as often as compound odontomas. Particularly large examples usually resulted in case presentations with the purpose of describing their exceptional size or specific operative procedure.

Two methods are possible in the surgical treatment of large examples of complex odontomas of the mandible. One is the classical intraoral approach, as in the case of alveotomy of retained or impacted teeth, which is simple to perform in the case of small examples of odontomas, where the bone is still sufficiently preserved, and there is consequently no danger of iatrogenic or pathological fracture of the jaws. It is also possible in the case of large tumours which are easily denucleated from the bone, as described by Kitano et al in 1994 (2). Knežević et al in 1995 (3) wrote of the dynamics of growth of odontogenic

jaw tumours and presented an example of a relatively large odontoma in the mandibular ramus, which was surgically removed through the buccal and mesial wall of the ramus. Postoperative healing was enabled by placement of a permanent postoperative intraoral suction, and complete restoration of the bone defect was achieved within a period of 6 months.

Another possible method is to remove the tumour by means of so-called sagittal osteotomy of the mandible. Rittersma and VanGool described this method in 1979 (4). Similar surgical procedures were later occasionally presented in the literature on the treatment of large examples of odontomas or other odontogenic tumours, Barnard in 1983, Frame in 1985, Petti, Weber and Miller in 1987, Wong in 1989 and Laskin in 1989.

Case presentation

A young man, aged 23 years, was admitted to the Department because of perimandibular subacute inflammation and a radiographically confirmed large complex odontoma in the angular region of the mandible. The mass had been detected two months earlier, after it had swollen around the mandibular angle and ramus.

Clinical examination revealed visible deformation of the right mandibular angle and ramus and an intraoral defect of the gingiva, 2x1cm in diameter on the alveolar ridge behind the first lower molar. The panoramic radiograph showed calcified tissue covering the whole thickness of the jaw, the distal root of the first, lower, right molar was connected to the mass or in its projection, and the shadow of an impacted molar could be seen on its base (Figure 1).

Because of the size and position of the mass axial CT examinations of the mandible were performed, which revealed the size of the hard, circumscribed substrate and its relation to the bony walls of the mandible. Lingually, the mass was not entirely covered by bone, although it was mainly covered with very thin bony lamella, which was partially separated from the hard dental tissue by a narrow translucent zone (Figure 2.).

Because of the possibility of fracture of the mandible during removal of the mass, all surgical methods were considered and it was decided to perform the operation by an uncommon two-stage procedure.

In the first stage the upper part of the mass was removed by intraoral method and the wound primarily sutured (Figure 3). Three months later the procedure was repeated and the remainder of the mass and the impacted tooth on the lower edge of the jaw removed (Figure 4). Postoperatively a permanent intraoral suction was inserted (Figure 5). The patient received antibiotic therapy and after 10 days the sutures and suction were removed. All procedures were carried out without complications and the patient was recommended to avoid any sudden blow to the jaw. The patient was examined after a period of one month, four months and one year, after which the X-ray showed healing of the bone defect (Figure 6.) and intraorally, at the site of the removed mass, normal epithelised area of the lowered alveolar ridge.

Discussion

A case is presented of a large, complex odontoma, which was specific for several reasons. The first is because it was a rare, large example of an odontoma surgically treated in our Department of Oral Surgery University Hospital "Dubrava", Zagreb. Similar examples have been reported in numerous papers in professional journals. Ajike and Adekeye in 2000 (10) reported an unusual case of multiple large odontomas in both jaws. The second reason is the fact that there was an intraoral defect of the soft tissue, because the tumour mass had penetrated the gingiva on the edge of the alveolar ridge and appeared to be growing in the oral cavity. An article was recently published in the literature, describing a large complex odontoma, erupting in the lateral region of the maxilla, which the authors, Ragalli et al in 2000 (11), presented as the first such example. We are citing this clinical fact, not on the pretension that the example described in the present case can be classed as an odontoma growing in the oral cavity, but because due to the size and growth of the mass or the development of inflammation a gingival defect occurred on the edge of the ridge.

The third reason why we performed the surgical operation in two stages was because of the danger of possible fracture of the mandible, with which the patient agreed and which finally proved to be successful (12, 13).

Whether it had been possible for the operation to be performed in one stage by intraoral approach, with the same success, is questionable. However we do not believe that the procedure in which the mass is removed by sagittal osteotomy in one operation is easier for the patient, because such an operation is connected with osteosynthesis and intermaxillary fixation and involves discomfort for the patient.

Conclusion

An example of a large complex odontoma in the mandible is presented, which was surgically removed in a hitherto unpublished twostage intraoral procedure.

Other procedures to surgically remove large odontomas are nearly always connected with sagittal osteotomy. Which of the above two procedures are most acceptable for the patient and involve less risk of objective complications or subjective discomfort for the patient is left for the reader to judge.