CLINICAL AND ORTHODONTIC MANAGEMENT OF IMPACTED TEETH ASSOCIATED WITH RETAINED PRIMARY TEETH

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Abstract

The impacted canine therapy presents a serious specific problem in terms of the choice of therapeutic-surgical intervention for each case in particular. In most cases in close interdisciplinary cooperation with the orthodontist.

Keywords: Treatment, impacted, canines, bimaxillary.

Introduction

Since eruption is a complex process, delayed or failed eruption may occur; therefore, the failure of eruption of permanent teeth and subsequent impaction is a common dental anomaly.

- Previous literature reports that tooth impaction is a common occurrence, and many factors influence its prevalence, including age and the timing of eruption.
- Genetic and environmental factors play a role in developmental anomalies. The incidence of impacted teeth is contradictory among different populations and ethnic groups.
- Consequently, impaction, as a seemingly simple problem that can be resolved easily and at low cost, may lead to severe complications that can even be life-threatening.
- Panoramic radiography is a simple tomographic technique that provides a panoramic view of the maxillofacial region.
- Radiographic examinations can be either digital or conventional. Digital imaging has many advantages over conventional methods, such as reduced radiation exposure, ease of image manipulation and analysis, which improves sensitivity and reduces errors.

These treatment options include:

1. Non-extraction of primary (deciduous) canines
2. No treatment with monitoring of pathological changes
3. Surgical removal and prosthetic replacement of the missing tooth
4. Surgical exposure of the tooth and alignment with orthodontic appliances in the dental arch
5. Autotransplantation of the canine

Radiological analysis is a very important auxiliary method in planning the treatment of these patients. Important factors in the radiological diagnosis of impacted maxillary canines include:

1. Tooth angulation

Group 1: 0–15° → 9.1% of cases
Group 2: 16–30° → 24.4% of cases
Group 3: ≥31° → 65.9% of cases

2. Height and bucco-palatal position

Anteroposterior position of the canine root apex:
Group 1: Above the region of the canine position → 20.5% of cases
Group 2: Above the region of the first maxillary premolar → 63.6% of cases
Group 3: Above the region of the second premolar → 15.9% of cases

3. Vertical height of the canine crown

Group 1: Below the cementoenamel junction (CEJ) → 4.5% of cases
Group 2: Above the CEJ but less than half of the root length → 68.2% of cases
Group 3: More than half of the root length but less than the full root length → 25% of cases
Group 4: Above the total root length → 2.3% of cases

4. Overlap of the canine with the lateral incisor

Group 1: No horizontal overlap → 13.6% of cases
Group 2: Less than half of the root width → 15.9% of cases
Group 3: More than half but less than the full root width → 13.6% of cases
Group 4: Complete overlap of the root width or more → 55.6% of cases
These radiographic parameters are essential in guiding the clinician toward an appropriate treatment strategy, particularly when deciding between surgical-orthodontic intervention and extraction.

Case Presentations

Case I

A 13-year-old patient was diagnosed with bilateral impaction of maxillary canines and referred for combined surgical-orthodontic management. Surgical exposure was performed using the Wassmund technique, followed by osteotomy and extraction of retained primary canines. Orthodontic traction was subsequently applied.

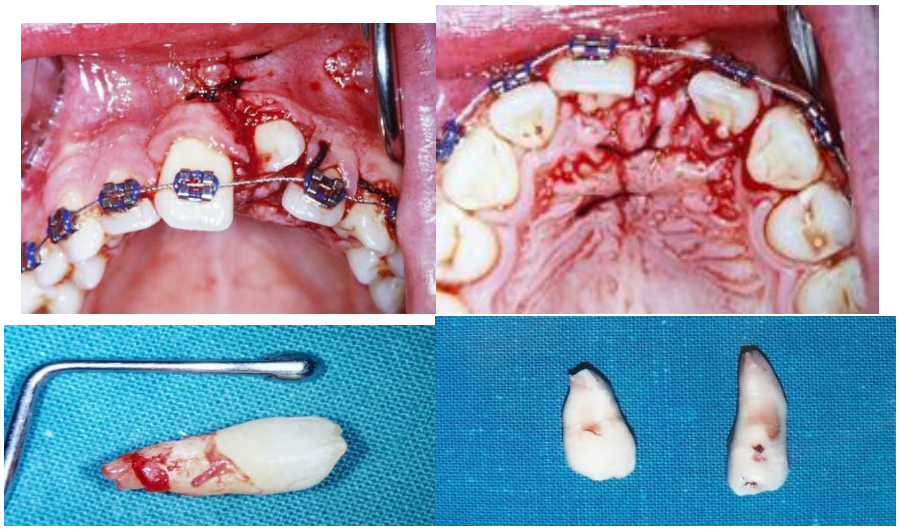
In contrast, a 29-year-old patient presented with bilateral palatally impacted canines and a pre-existing fixed prosthetic restoration, which contraindicated orthodontic alignment. Surgical extraction was performed, accompanied by cystectomy, apicoectomy of the lateral incisor, and reconstruction of the osseous defect using a bone graft substitute.

Case II

An 11-year-old patient presented with an impacted maxillary central incisor associated with supernumerary teeth. Surgical removal of the supernumerary teeth was performed, followed by exposure of the impacted incisor. Subsequent orthodontic treatment facilitated proper alignment within the dental arch.

Case III

A 14-year-old patient presented with two supernumerary teeth, one of which was in an inverted position. Initial management involved observation. Following spontaneous partial eruption, surgical intervention was undertaken, including removal of the inverted supernumerary tooth and exposure of the impacted incisor, followed by orthodontic alignment.



Conclusion

The management of impacted teeth requires an individualized, case-specific approach. Optimal treatment outcomes depend on:

1. Comprehensive etiopathogenetic assessment
2. Accurate diagnosis and differential diagnosis
3. Interdisciplinary collaboration, particularly between oral surgeons and orthodontists
4. Active patient compliance and informed parental consent

A thorough radiological evaluation remains indispensable in determining the most appropriate therapeutic strategy and improving overall treatment predictability.

Appendix

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