Surgical uncovering and stimulation of eruption of mandibular lateral incisor and canine: A case report

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ABSTRACT

The orthodontist treating patients with impacted mandibular lateral incisor and canine usually strives to build a complex treatment plan, based on uncomplicated and biological orthodontic and surgical techniques. The aim of the present report was to demonstrate by case reports the potential of the open surgical technique for stimulation of physiological eruption of impacted mandibular lateral incisor and canine. A young adult male aged 29 years presented with a Class II Division I malocclusion with impacted mandibular lateral incisor and canine was managed by the described technique. Conservative surgical exposure of the impacted mandibular left lateral incisor and canine with orthodontic traction proved to be the most appropriate treatment option for this patient.

Key Words: Impacted mandibular canine, impacted mandibular lateral incisor, orthodontic extrusion, surgical exposure.

Introduction

An impacted tooth is one that is embedded in the alveolus so that its eruption is prevented or the tooth is locked in position by bone or the adjacent teeth. Mandibular lateral incisor and canine impactions may be due to local factors such as mesial drift of teeth arising from premature loss of primary molars; ectopic positioning of the developing premolar tooth buds; or pathology such as inflammatory or dentigerous cysts. They may also be associated with over-retained or infraocclusal ankylosed primary molars or with syndromes such as cleidocranial dysostosis.

The case described below illustrates the inherent potential for even the most unfavorably impacted mandibular lateral incisor and canine to respond well to treatment. Patient presented with impactions of mandibular lateral incisor and canine that were technically demanding to manage, required considerable root torque control and were uncertain in their treatment outcome. The option of simply extracting the impacted mandibular lateral incisor and canine was not available, given the presenting malocclusion in case. Patient was treated with a combination of orthodontic relocation following conservative surgical exposure of the impacted mandibular lateral incisor and canine.

Case Report

A 29-year-old young adult male presented with a Class II Division I malocclusion. His medical and dental histories were recorded with not significant abnormality. He had a history of dental extraction of 13. Clinical examination revealed that all primary teeth had exfoliated. orthopantomogram (OPG) (Figure 1) confirmed the presence of all permanent teeth, excluding the right maxillary canine and mandibular left third molar. The mandibular left lateral incisor and canine was vertically impacted. The treatment plan was decided with the panel of dentist. OPG shows the favorable conditions of the lower impacted teeth according to the Ericson and Kurolm, hence the panel decided to surgically exposed the teeth and bracket will be bonded, and wire will be ligated and sutured. Periodically activation will be done.

The first step in the management of the impacted mandibular left lateral incisor and canine, case was fully bonded and after achieving leveling and aligning 17 × 25 SS was ligated, which
took 4 months to achieve (Figure 1). Then, surgical exposure (Figures 2 and 3) and orthodontically assisted eruption of the tooth was done. A surgical closed-flap eruption procedure was carried out under local anesthesia. An orthodontic bracket, with a steel ligature wire, was bonded with moisture insensitive primer to the impacted teeth during the surgery (Figure 4). Periodically activation was then used to commence traction of the impacted teeth. Alignment of the impacted premolar was completed without complication (Figure 5). Total orthodontic treatment time was 19 months.

**Discussion**

Treatment options for impacted teeth include observation, intervention, relocation and extraction. On occasion, there may be some interaction between these treatment options.\textsuperscript{10,11} Observation involves no treatment other than monitoring the patient clinically and radiologically. In general, it involves following a child or adolescent for a specific time, which can be divided into pre- and post-impaction periods. Intervention may involve simple extraction of a tooth or teeth, usually primary. Occasionally, a permanent tooth extraction may be warranted depending on the etiology of the impaction and the specific tooth impacted. Intervention may include a brief period of orthodontic treatment to eliminate the impaction. Relocation refers to either surgical repositioning of the impacted tooth or, more commonly, orthodontic eruption of the impacted tooth. Orthodontic relocation, illustrated in patient described above, may be more demanding in terms of time, but results in fewer long-term complications.\textsuperscript{11,12} Kokich and Mathews\textsuperscript{12} describe the surgical and orthodontic management of impacted teeth and identify the position and angulations of the impacted tooth, length of treatment time, available space and the presence of keratinized gingiva as critical factors that will affect prognosis and treatment outcome.
Operational complications, none of which occurred in this cases, include injury to adjacent periodontium, injury to adjacent teeth, nerve damage, multiple exposures of the impacted teeth and failure of the orthodontic bond when performing a closed-flap eruption procedure.2,11-13

Conservative surgical exposure of the impacted mandibular left lateral incisor and canine with orthodontic traction proved to be the most appropriate treatment option for these patients. Factors such as the patient’s medical history, dental status, oral hygiene, functional and occlusal relationships and attitude toward and compliance with treatment will influence the choice of treatment options.2,13

Conclusion

This case report illustrates the tremendous potential for treating impacted mandibular left lateral incisor and canine, even under the most unfavorable circumstances. Patient’s age, disruption to dentoalveolar bone development, severity of impaction, root form at presentation: None of these factors proved an obstacle to successful treatment.

References


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