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Case Report

An Orthodontic Considerations and Surgical Approach for Three Impacted Canines – A Case Report

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Abstract

Aim: The aim of the article is to present a clinical protocol for orthodontic treatment and related surgical management of a case with impacted canines.

Task: The tasks are to provide spaces in both arches and to involve the canines into appropriate places. The main reason for surgical manipulations is the lack of space in both jaws and unprocessed interceptive treatment to present.

Materials and Methods: The patient is 13-year-old boy with an Angle Class I malocclusion and three impacted canines – both on maxillary and one on mandible jaws. The deciduous canines were extracted a long time ago because of root resorption and narrow jaw. There were no places for three of four canines in the oral cavity of the boy.

Results: The surgical procedures should be considered in the meaning of cost-benefit analyses and the best painless approach for the patient. The whole process may lead to varying amounts of damage to the supporting tissues. The traction method is an advantageous technique and follows alignments of two canines in a shorten term - after 3 months an active treatment.

Keywords: *Impacted Maxillary and Mandible Canines; Tooth Extrusion; Orthodontic Treatment*

Introduction

According to the definition of American Dental Association "the set of parameters for an impacted/unerupted tooth is the professional judgment of the attending dentist, for a specific patient at a specific time" can be discussed the importance of these cases for the patients [1]. The most significant and basic attribute of each teeth in the dentition is that it erupts into the oral cavity. Embedded teeth are those which are unerupted because of lack of eruptive forces. For the impacted teeth, some physical factors avoid teeth from the eruption. If the tooth is missing on its due time, it must be assumed that something is wrong.

Some of the common causes for canine impaction are:

1. Tooth size arch length discrepancy;
2. Abnormal position of tooth bud;
3. Ankylosis;
4. Delayed shedding or early loss of deciduous canine;

5. Cyst and tumours;
6. Dilaceration;
7. Iatrogenic;
8. Idiopathic [2].

Incidence of canine impaction

Thilander and Myrberg a estimated the cumulative prevalence of canine impaction in 7- to 13-year-old children to be 2.2% [5]. Conversely, the upper canines are the second most commonly impacted 0.8 to 3% for Bulgarian population [6]. There is statistical difference by sex and the impactions in females are twice common (1.17%) than in males (0.51%) [7-16].

Canine impaction in the mandible is regarded as a much rare phenomenon. Mandibular canine impaction is less frequent and the prevalence is 20 times lower than that for maxillary canines [2]. Canines play a vital role in aesthetics and function hence radiographic evaluation and understanding of impacted canines are important in order to formulate an effective treatment.The problem with an impacted canine is a clinical challenge for every orthodontist and its solution depends on good advance collaboration and argumented teamwork of orthodontist and surgeon [3,4].

Aim

The aim of the study is to present a clinical protocol for orthodontic treatment of a case with impacted canines.

Case History

The patient was 13-year-old boy with an Angle Class I malocclusion. Reviews and analyses of X-ray examination show a permanent dentition and three impacted canines – both on maxillary and one on mandible jaws. Analysis of the diagnostic records is the final step in assembling the diagnostic database. This is best discussed in the context of analyzing dental alignment and occlusion for this case; evaluating jaw relationships and tooth–jaw relationships; and analyzing 2D images when to obtain a more details of skeletal and dental relationships. The patient has a previous orthodontic history of two years with Hawley appliance. He is directed from another orthodontist and now is satisfied from the result.

Clinical Diagnosis: The diagnosis of impacted canines is based on both clinical and confirmed by radiographic examinations.

Results

It's important for the teeth to erupt through attached gingiva not true the alveolar mucosa, and this must be considered when flaps for exposure of unerupted teeth are planned.

Figure 1: *Facial image before treatment. A. Frontal view at rest. B. Profile at rest with lips relaxed.*

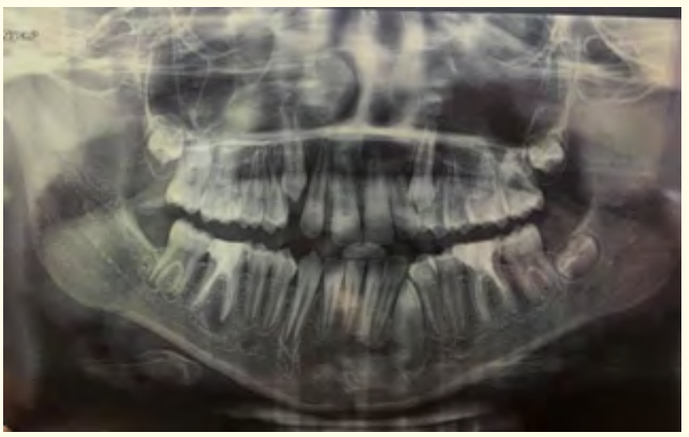

Figure 2: *Panoramic radiograph shows canines' impaction.*

Figure 3: *Pretreatment intraoral photograph. Note the absence of the right maxillary canine and the lack of space.*

Figure 4: *A. Lingual button after surgical exposure of tooth 23 was applied. B. The teeth 23 in exposure a week before. The teeth 33 surgical procedure is done and the result is visible at the moment.*

Figure 5: *3 months result.*

Treatment Progress

A sufficient space had been achieved for the maxillary and mandible jaws with springs after two months. Impaction of maxillary and mandibular canines is a frequently encountered clinical problem, the treatment of which usually requires an interdisciplinary approach. Surgical exposure of the impacted tooth and the complex orthodontic mechanisms that are applied to align the tooth into the arch may lead to varying amounts of damage to the supporting structures of the tooth, not to mention the long treatment duration and the financial burden to the patient. Hence, it seems worthwhile to focus on the means of early diagnosis and interception of this clinical situation. In the present article, an overview of the incidence and sequel, as well as the surgical, periodontal, and orthodontic considerations in the management of impacted canines is presented.

Discussions

There are many studies in which the orthodontists could find discussions about the use of removable versus fixed appliances. This is because there are many disadvantages to the use of removable appliances such as less cooperation, limited control of tooth movement and inability to extrude the impacted teeth or to finish the treatment successfully.

The use of Hawley type appliance with a screw did not give positive results because of the motivational lack and severity of the clinical case. Protecting the periodontal integrity of the attachment apparatus and preventing an apical shift of the dentogingival junction result in fewer aesthetic deformities and a more favorable long-term prognosis. Both the parents and the child were too motivated to achieve good results faster. Their motivation consisted of informed consent for conducting surgical procedures and maintaining hygiene during treatment.

Conclusions

The clinical protocol and the management of three impacted canines are often complex enterprise and needs the professional opinion of a number of clinicians. In order to provide the patient an optimal treatment have been taken into account not only orthodontics but also surgical and periodontal considerations. The most important in this case are the painless approach and faster but under periodontal control the extrusion of three canines. One of the main problems with this patient was the maintenance of good oral hygiene. After proper motivation, good control of oral hygiene was achieved.

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