Case Report:

Orthodontic Management of Bilaterally Impacted Maxillary Canines

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Abstract:

Background: Proper diagnosis and treatment planning are the first steps in management of bilateral impacted maxillary canines (BIMC). ***Case Presentation:*** A 14 years old Saudi female patient with Class II subdivision right molar relationship and BIMC managed by comprehensive orthodontic treatment. ***Conclusion:*** A well-balanced occlusion by orthodontic management of the case has been done.

Keywords: Impacted Canines, Maxillary Canines, Palatal Impaction

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Introduction:

Orthodontic treatment of BIMCis one of the challenging procedures in orthodontic practices. Early diagnosis plays an important factor that prevent complication of teeth impaction. After third molars, maxillary canines are the most common impacted teeth.[1] The prevalence of maxillary canine impaction is 2% in general population with females have twice chance than males.[2-4]The maxilla affected more than mandible and palatal impaction occur bilaterally in 8% of palatal impaction cases.[2,3]Approximately 35% of impacted maxillary canines are located labially and 75% are located palatally.[3]The complication of canine impaction includes root resorption of adjacent teeth, cyst formation or migration of neighboring teeth.[5]

In many cases an interceptive intervention by extraction of primary canine at early age of 8 or 9 years will normalize the position of palatallydisplaced canine.[3] If the canine diagnosed to be impacted, many techniques can used to move it and into occlusion. Orthodontists initially create adequate space in the dental arch for the impacted canine and apply traction forces after surgical exposure.[6-8]Canine size prediction[9-10], different intervention[11] for retraction and several approaches[12-13] are done for successful management. This article is presenting a case of BIMC treated with fixed orthodontic appliance.

Case Presentation

A 14 years old Saudi female patient presented to the orthodontic clinic with the chief complaint of "Crooked teeth and unpleasant smile". She is medically fit, no medical concern observed during interview visit. She has history of routine dental visits. She presented with straight facial profile, average nasolabial angle, average upper and lower lips position. Skeletally, she presented with a Class I skeletal pattern with a normal mandibular plane and slight increase in LFH(Figure 1).Dentally, her malocclusion is characterized by:Class II subdivision right molar relationship, 4mm maxillary crowding, 3.5mm mandibular crowding, average overbite, crossbite related to lower right central incisor, upper midline shifted 1 mm to right and lower midline shifted 1 mm to the left in relation to facial midline, retained tooth #64 and BIMC (Figures 2,3,4).

Treatment Plane

Comprehensive, Upper & Lower Non, Non-Surgical, Fixed Orthodontic Appliance (0.022" preadjusted edgewise appliance, Roth prescription).

Sequence and Progress of Treatment:

1. Periodontics consultation regarding recession in tooth #41 and physiologic gingival pigmentation.
2. Oral hygiene reinforcement and treatment plan discussion, sign consent form.
3. Upper/Lower 6s banding & bonding U/L 5-5

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except teeth #13, 23.

4. Leveling and alignment.
5. When reaching working arch wire (18x25 SS), start space opening for #13 and midline correction.
6. OPG for evaluation the position of maxillary canines.
7. Refer the patient for surgical exposure of BIMC and start traction using cantilever spring (Figures 5,6).
8. Level and align teeth #13, 23.
9. Finishing and detailing.

Retention:

- Upper: Fixed 3-3 + Hawley retainer.
- Lower: Fixed 3-3 + Hawley retainer.

CONCLUSION:

Patient successfully managed with fixed orthodontic appliance. Patientpsychological condition was improved significantly, she got great social smile. Average overjet & overbite was achieved, crowding resolved, impacted maxillary canines leveled and aligned, upper&lower midlines shift was corrected. Class I molar & Class I canine relationship achieved bilaterally (Figures 7,8,9,10).

Figure 1. Pretreatment Cephalometric Radiograph

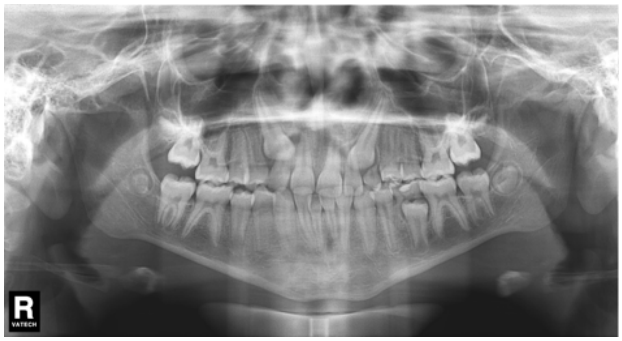

Figure 2. Pretreatment Panoramic Radiograph

Figure 3. Pretreatment intraoralPhotographs

Figure 4. Pretreatment Study Models

Figure 5. Surgical Exposure

Figure 6. Cantilever spring (mouse trap)to be attached to tooth #13

Figure 7. Post-treatment Cephalometric Radiograph

Figure 8. Post-treatment Panoramic Radiograph

Figure 9. Post-treatment intraoralPhotographs

Figure 10. Post-treatment Study Models

Conflict of Interest:

None

Author Contributions:

Intellectual content and design: AAA and MKA

Conception, analysis interpretation and drafting of manuscript: AAA and MKA

Technical and logistic support:AAA and MKA

Conception, design and provision of patient: AAA

Critical revision and final approval of article: AAA and MKA

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