Surgical transplantation of impacted maxillary incisor: A case report

Agus Dwi Sastrawan,¹ Bambang Widjanarko,² Endang Sjamsudin³

ABSTRACT

Introduction: Patients with impacted maxillary incisor is a rare case presented in polyclinic Oral and Maxillofacial Surgery Gunung Jati General Hospital Cirebon. This case can have a major impact on dental and facial aesthetics.

Case Presentation: A 16 years old female with horizontally impacted permanent maxillary on right central and lateral incisor with retained of right lateral of deciduous incisors and canine. Panoramic and upper occlusal radiographs showed horizontally impacted of right central and lateral incisor. The treatment plan including the extraction of retained deciduous teeth, surgical extraction of the impacted tooth and transplantation of right central and lateral incisor into former socket revocation, continued with interdental wiring with arch bar from right maxillary second premolar to left second premolar, and alignment to achieve normal occlusion. After three months, the tooth was stable and the alignment was proper.

Conclusion: Management of impacted maxillary incisor with surgical transplantation was a successful treatment for this case.

Keywords: Impacted maxillary incisor, transplantation, interdental wiring.


INTRODUCTION

Maxillary central incisor impaction is relatively uncommon but can be problematic for the clinician when encountered. The treatment is challenging because of its importance to major impact on dental and facial aesthetics. Various treatment modalities are available for the management of impacted maxillary central incisors; surgical transplantation is one of the treatment options. Several studies have shown that impacted teeth can be properly positioned by using surgical repositioning.¹ This case report demonstrates a successful treatment outcome with surgical transplantation.

CASE REPORT

A 16 years old female with horizontally impacted permanent maxillary on right central and lateral incisor with retained of right lateral of deciduous incisors and canine. Panoramic and upper occlusal radiographs showed horizontally impacted of right central and lateral incisor. Clinical examination showed that the patient was retained of right central and lateral of deciduous incisors and canine (Figure 1-A, B, C). Upper occlusal and panoramic radiographs showed horizontally impacted of right central and lateral incisor teeth (Figure 2 and 3).

The patient was performed extraction of right maxillary deciduous lateral incisors and canine, odontectomy of right maxillary central and lateral incisor and canine under general anesthesia. Right maxillary central and lateral incisor was then transplanted. Transplantation was chosen due to the wide post-extraction socket of right maxillary deciduous lateral incisors and canine that was available for mesiodistal of right maxillary central and lateral incisor. After transplantation of right maxillary central and lateral incisor, the treatment was continued with interdental wiring application from right maxillary second premolar to left second premolar (Figure 4-A). On the first control after seven days of operation, the intraoral suture removal was performed, there was no wound dehiscence, and interdental wiring was well fixed with arch bar. On the second control after four weeks, there was no sensitivity found on the right maxillary central and lateral incisor, there was no mobility of tooth and occlusion was intact and removed arch bar interdental wiring (Figure 4-B). On the thrid control after three months, the tooth was stable and the alignment was proper (Figure 4-C). Post-treatment panoramic radiograph showed no periodontal bone loss. (Figure 5), furthermore, the patient was contented.

DISCUSSION

Impaction of maxillary incisors requires monitoring or intervention when there is an eruption of central lateral teeth that occurred greater than six months previously, both central incisors remain unerupted and the lower incisors have erupted.
CASE REPORT

The incidence of unerupted maxillary central incisor in the 5-12-year-old age group has been reported as 0.13%. In a referred population to regional hospitals, the prevalence has been estimated at 2.6%. Literature reveals several causes of failure or delayed eruption of maxillary incisors. Eruption failure may occur if pathological obstructions, such as supernumerary teeth, odontomas, cysts, develop in the eruptive path of the incisor. Supernumerary teeth and odontomas are the most common cause; 56-60% of supernumerary teeth cause impaction of permanent incisors due to a direct obstruction for the eruption.3

Eruption failure can also be caused by tooth malformation or dilacerations. Dilacerations occur after trauma to a primary tooth, where the developing permanent tooth bud is damaged due to close proximity to the primary tooth. The degree of damage of the permanent tooth depends on the developmental stage of the tooth in question, as well as the type and direction of the trauma inflicted. Other possible causes of lack of eruption of maxillary incisors are ectopic position of the tooth bud, non-vital or ankylosed primary teeth, early extraction or loss of deciduous teeth, mucosal barriers in the path of eruption that acts as a physical barrier to eruption, endocrine abnormalities and bone disease.2

An intraoral examination should be undertaken to identify the presence of deciduous teeth retained beyond their normal exfoliation dates. Buccal or palatal swellings should be noted as well as the availability of suitable space for the eruption of the incisors 9 mm for a central and 7 mm for a lateral incisor. Radiographs should be taken. A dental panoramic tomography and anterior occlusal radiograph can be taken for general assessment purposes. For detailed assessment of position, it has been shown that the use of a horizontal parallax technique is better than vertical. For more accurate assessment of root and crown morphology, periapical radiographs should be taken using the long cone technique. More recently, cone beam computed tomography technology has become available for imaging the maxillofacial region and this can be used for the localization of impacted teeth, including incisors. This technique allows accurate localization of the impacted tooth and visualization of associated structures.3

Although several different approaches to treatment of unerupted maxillary incisors have been proposed in the literature, a common feature among them is that early diagnosis is critical to the success of the treatment. It is thought that the less time the normal eruption is delayed, the better the outcome. If there has been a loss of space, it is necessary to create space before treatment and maintain that space throughout the treatment phase. The treatment possibilities vary from conservative to more aggressive approaches. The most conservative management would be the extraction of any obstruction, the creation of space, and the

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Figure 1  A. Right lateral view, B. Frontal view, showed unerupted of right permanent central and lateral incisor, with retained of right lateral of deciduous incisors and canine, C. Left lateral view

Figure 2  Occlusal radiograph showed horizontally impacted of right central incisor tooth

Figure 3  Panoramic radiograph showed horizontally impacted of right central and lateral incisor teeth
observation for spontaneous eruption. 70% of teeth have been reported to erupt spontaneously after removal of the obstruction, without any further treatment. Surgical transplantation is one of the treatment options.4

Surgical transplantation the tooth is carefully extracted and placed in a surgically prepared socket. It is immobilized with a splint for about four weeks, when it is usually firm. Good results are obtained with young patients, but resorption of roots is a complication after 2-5 years and occasionally leads to loss of the tooth. Early endodontic treatment may help to prevent this.4,5

CONCLUSION

Management impacted of maxillary incisor treatment may have a good result if early diagnosis of the presence and removal of impacted teeth is essential. This case was done extraction of retained deciduous teeth, surgical extraction of the impacted tooth and transplantation of right central and lateral incisor into former socket revocation, continued with interdental wiring with arch bar from right maxillary second premolar to left second premolar, and alignment to achieve normal occlusion and good stability.

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CONFLICT OF INTEREST

Author declares there is no conflict of interest regarding all aspect of the study.

REFERENCES