



Buccal approach in surgical removal of lingually embedded teeth: a report of 2 cases

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Abstract

Literature specific to embedded supernumerary teeth in the area of posterior mandible is not extensive despite the fact that the prevalence supernumerary teeth varies between 0.1% and 3.8%³. This clinical report presents surgical treatment in 2 cases of embedded supernumerary teeth which occurred at the molar area of the mandibles. Both cases presented with lingually impacted positions and had very close relationship to the adjacent tooth roots as well as the inferior alveolar canals. Buccal surgical approaches were selected for these two cases while buccal cortex preservation was conducted in the following case. Finally, the embedded supernumerary teeth were totally extracted without any injury to the inferior alveolar nerves.

Key words: embedded tooth, supernumerary tooth, buccal approach

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Introduction

Embedded teeth are those teeth that are not erupted usually because of the lack of eruptive force. Genetic and environmental factors are included in the multifactorial nature of tooth eruption, which may be disturbed at any stages of tooth development¹. Supernumerary teeth (ST) are defined as those in addition to the normal series of permanent dentition. They may occur anywhere in the mouth. They may appear as a single tooth or multiple teeth, unilaterally or bilaterally, erupted or impacted and in mandible/maxilla or both the jaws. ST can be classified according to their location in the dental arch: mesiodens, paramolar and distomolar or according to their morphological forms: conical, tuberculate, supplemental and odontome². A mesiodens is a ST located between the maxillary central incisors; a paramolar most commonly occurs in the interproximal space buccal to the upper second and third molars; and a distomolar is a fourth permanent molar which is usually placed either directly distal or distolingual to the third molar. A conical ST is small, peg-shaped (coniform) teeth with normal root; a tuberculate (multicusped) ST is short, barrel-shaped teeth with normal appearing crown, or invaginated but rudimentary root. A supplemental ST resembled one of the normal series of tooth (duplication) and found at the end of a tooth series. The prevalence of ST varies between 0.1% and 3.8% and is more common in the permanent dentition³⁻⁵. The low prevalence of ST in primary dentition occurs because the ST are generally overlooked by the parents, are often of normal shape (supplemental type), erupt normally, and appear to be in proper alignment⁶. The incidence is considerably higher in the maxillary incisor region followed by maxillary third molar and incisors⁷. Although there is

no significant sex distribution in primary ST, males are affected approximately twice as much as females in the permanent dentition^{8,9}. Various treatment methods have been suggested including observation, intervention, relocation, and extraction depending on the tooth's position, the depth of the embedded tooth, the relationship with adjacent teeth, and orthodontic treatment. This clinical report describes the buccal surgical approach of lingually embedded in the mandibles.

Clinical report

Case 1

A 28-year-old lady referred after orthodontic treatment planning for the removal of an embedded supernumerary tooth in the area between the first and second mandibular molars. Cone beam CT revealed the lingual position of the tooth lying horizontally beneath the roots of those teeth and abut to the wall of mandibular canal (figure 1). The deep impacted supernumerary tooth was surgically removed from the buccal approach under local anaesthesia. A sulcular incision in the buccal gingiva extending from the third mandibular molar to the second mandibular premolar and vertical incision was continued to the buccal vestibule at the area related to the distal of the first mandibular premolar, and then a mucoperiosteal flap was raised to expose the buccal aspect of mandibular horizontal ramus (figure 2). To expose the embedded tooth, the decortication of buccal cortex was carried out with a surgical handpiece and a round bur under coolant irrigation. Tooth sectioning was performed before the tooth was completely extracted. The wound was irrigated before suturing was performed with 3-0 black silk. The surgical wound healed uneventfully and no paresthesia was reported.

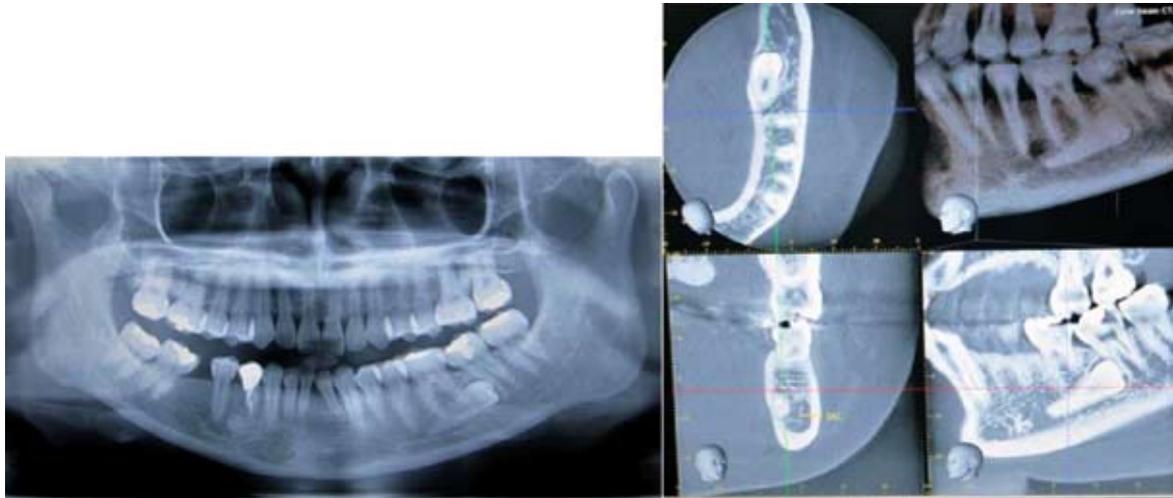


Figure 1 Panoramic film showed embedded premolar-like supernumerary tooth positioned approximately 90° to the long axis and crown of the related teeth. Cone beam CT revealed the lingual position of the ST and its root abut to the inferior alveolar canal



Figure 2 The mucoperiosteal flap was raised to expose the buccal aspect of mandibular horizontal ramus, the decortication of buccal cortex was carried out with a surgical handpiece and a round bur under coolant irrigation. Tooth sectioning was performed before the tooth was completely extracted.

Case 2

A 34-year-old female patient was referred from the orthodontist for surgical removal of the embedded supernumerary tooth which was incidentally detected from pre-orthodontic radiographic examination. Cone beam CT showed lingual embedding of the supernumerary tooth lying below the root apices of first and second mandibular molars and just above the inferior alveolar canal. This embedded

tooth was extracted from the buccal surgical approach and buccal cortex preservation was also accomplished. Under local anesthesia, the sulcular incision was made along the buccal gingiva of second premolar to second molar and vertical releasing cuts were then performed. The mucoperiosteal flap was elevated, applying the piezotome followed by the osteotomes the buccal cortex was decorticated in trapezoid shape. Owing to no covering buccal bone

the embedded supernumerary tooth came in view, odontectomy was performed prior to total removal of the tooth. The wound was irrigated, hemostasis was accomplished then the trapezoid piece of bone was repositioned preceding primary closure with 4-0 vicryl. The sutures were removed 2 weeks postoperatively. There was no serious complication nor lip paresthesia reported from the patient at the period of follow-up visit.

Discussion

Treatment of supernumerary teeth includes several controversies and varied opinions among authors, particularly with regard to the timing of removal. According to Garvey et al., extraction is not always the treatment of choice for ST. They may be monitored without removal in cases if satisfactory eruption of related teeth has occurred, if there is no orthodontic treatment required, if there is no associated pathology and

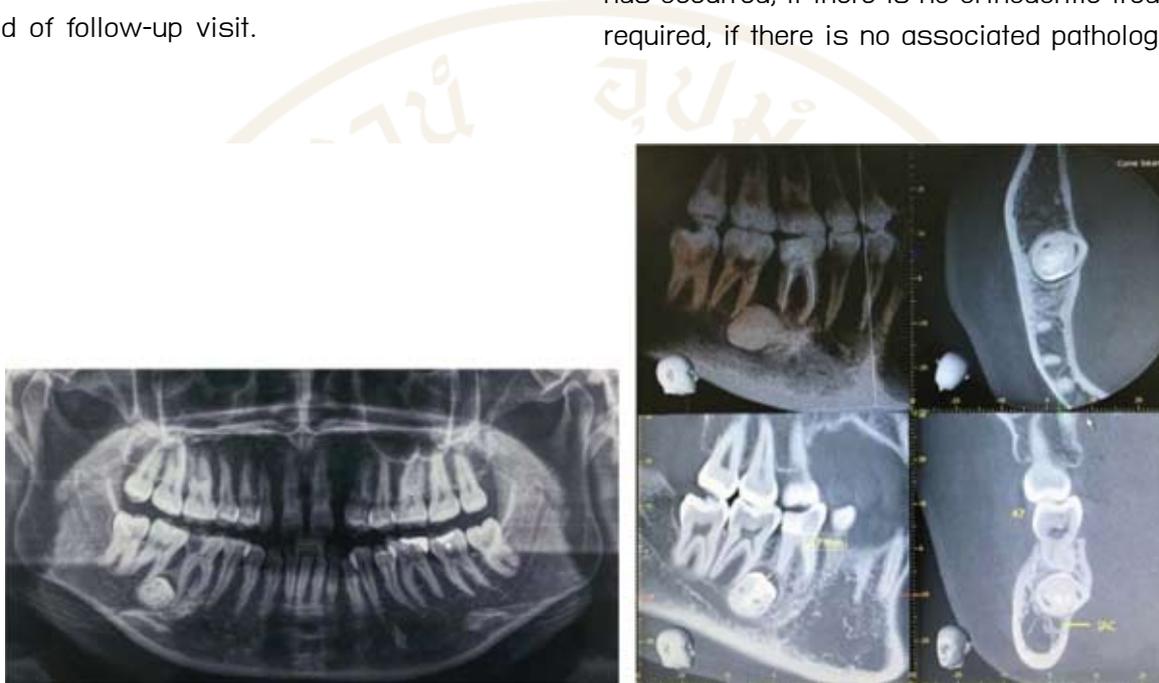


Figure 3 The supernumerary tooth was found from ore-orthodontic treatment panoramic film. Cone beam CT showed lingual embedding of the supernumerary tooth lying below the root apices of teeth 46,47 and just above the inferior alveolar canal



Figure 4 The mucoperiosteal flap was elevated, applying the piezotome followed by the osteotomes the buccal cortex was decorticated in trapezoid shape, odontectomy was performed prior to total removal of the tooth. The trapezoid piece of bone was repositioned then primary closure was completed.

if removal would prejudice the vitality of the related teeth⁹. According to Shah et al., if the supernumerary teeth cause no complications and are not likely to interfere with orthodontic tooth treatment, they can be monitored with yearly radiographic review. The patient should be warned of complications, such as cystic change and migration with damage to nearby roots. If the patient does not wish to risk such complications, it is acceptable to remove the supernumerary teeth¹⁰. Since the patients did not wish to face the risk of such complications, besides the orthodontic treatment needs, both cases in this report required surgical removal.

In selecting an appropriate treatment option, the underlying etiological factors, space requirements, need for extractions of primary molars, degree of impaction, and root formation of the embedded supernumerary tooth should be considered. Factors such as patient's medical history, dental status, oral hygiene, functional and occlusal relationship and attitude towards and compliance with treatment will influence choice of treatment options¹¹⁻¹³. In the first case, the embedded tooth was premolar-like appearance, positioned approximately 90° to the long axis and crown of the related teeth and lingually lied below the root apices of the first and second permanent molar and abuts to the wall of mandibular canal. Its root apex was also close to the mental foramen. Regardless the shape, the position of the ST in the second case was similar. Though the positions of the ST were on the lingual aspect, the buccal approach with removal of tooth was preferred. The lingual approach was not suitable for these two cases for the reason that the location of the teeth did not allow the good surgical accessibility. Care should be taken as; the buccal flap would have jeopardized the mental nerve emerging from the mental foramen and the apices of the first and second permanent molar tooth. But due to complete removal of

tooth with precise removal of buccal cortical plate over the impacted mandibular right second premolar injury to mental nerve was prevented. Careful irrigation of the surgical area to clear any bone and tooth dust in that area prevented any delay in healing and infection. Buccal cortex preservation was performed in the second case as this treatment possessed the advantage in minimizing the bone elimination but it was a time consuming procedure and needed more instruments to fulfill the surgical technique.

Correct knowledge of regional anatomy, careful manipulation of tissues, and correct application of mechanical principles involved in tooth extraction provided surgical success. These peculiar and rare cases may contribute towards the minimal literature available regarding embedded supernumerary tooth and offers buccal approach as a treatment method while preventing injury to the mental nerve as well as preserving the buccal cortex.

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