Case Report

# Atraumatic Surgical Removal of Impacted Deciduous and Premolar: Case Report

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**Abstract**

*In the natural process, deciduous teeth must undergo exfoliation for the permanent tooth to erupt in the oral cavity, but failure in the process can cause the retention of the deciduous and its successor. Impacted teeth have the potential to cause serious problems such as the development of pathologies, caries lesions, resorption in adjacent teeth, periodontal disease, and cysts or tumors. This study is justified due to the potential risks that an impacted untreated element can cause, such as the development of pathologies and injuries to teeth and adjacent structures, in addition to the fact that a deciduous dental element has caused the impaction of a permanent tooth. In this context, the article aims to report a clinical case of atraumatic extraction of two impacted dental elements, being a permanent premolar and a deciduous molar. It is important to note that dentists must have knowledge of the impact characteristics and treatment techniques for defining and concluding the case. In conclusion, the treatment of impacted teeth must be carried out taking into account factors such as age, depth of impact and risks that the impacted element represents. When opting for tooth removal therapy, less traumatic techniques should be advocated to minimize the postoperative inflammatory response. In the clinical case reported, it was possible to observe the success of the instituted therapy, the absence of pathological inflammatory conditions causing no aesthetic and functional damage to the patient.*

***Keywords***: *Ambulatory Surgical Procedures; Bicuspid; Mouth Abnormalities; Pathology; Clinical Diagnosis.*

## Introduction

The definition of dental impaction may be the state in which a tooth remains embedded in the oral or intraosseous mucosa after its normal eruption period **(**1**)**. The second premolars occupy third place in the frequency of dental impaction **(**2**)**. It can be caused by local factors such as the mesial deviation of the teeth resulting from premature loss of deciduous molars; ectopic positioning of the developing premolar, inflammatory pathologies or dentigerous cysts **(**3**)**. Dental impaction in some cases can be caused by the retention of deciduous molars **(**4**)**.

In the natural process, deciduous teeth must undergo exfoliation for the permanent tooth to erupt in the oral cavity, but failure in the process can cause the retention of the deciduous and its successor **(**5**)**. Impacted teeth have the potential to cause serious problems such as the development of pathologies, caries lesions, resorption in adjacent teeth, periodontal disease, and cysts or tumors **(**6**)**.

Several treatment methods have been proposed for the treatment of impacted teeth including observation, intervention, relocation and extraction, depending on the position of the tooth, depth of the impacted tooth, relationship with adjacent teeth, and orthodontic treatment **(**2**)**. When there is an ectopic impaction, the approach is to aim for assisting the eruption process, stimulating or establishing an eruption pathway, extracting the primary predecessor and awaiting spontaneous eruption or surgical exposure **(**7**)**.

This study is justified due to the potential risks that an impacted untreated element can cause, such as the development of pathologies and injuries to teeth and adjacent structures **(**6**)**, in addition to the fact that a deciduous dental element has caused the impaction of a permanent tooth. In this context, the article aims to report a clinical case of atraumatic extraction of two impacted dental elements, being a permanent premolar and a deciduous molar. It is important to note that dentists must have knowledge of the impact characteristics and treatment techniques for defining and concluding the case **(**8**)**.

## Case Report

A 19-year-old female patient was referred to the dental office for treatment of dental impaction and orthodontic evaluation. The patient reported an aesthetic complaint, without painful symptoms or a history of previous pathology or allergic reactions to drugs and materials, being classified as ASA I. Upon clinical examination, the patient presented mixed dentition and absence

of caries lesions. Panoramic radiography and computed tomography (**Figure 1** - **Figure 2**) were requested, where the impaction of teeth 65 and 25 were found. To solve this case, surgical treatment was instituted to remove the dental elements, since the root positioning of tooth 25 prevented the orthodontic treatment.

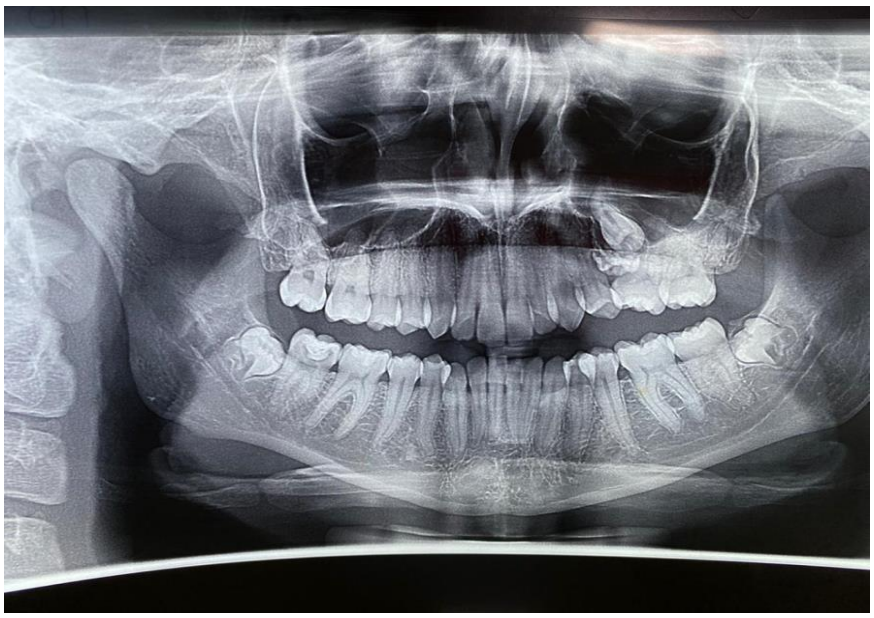

**Figure 1**: Initial panoramic radiography

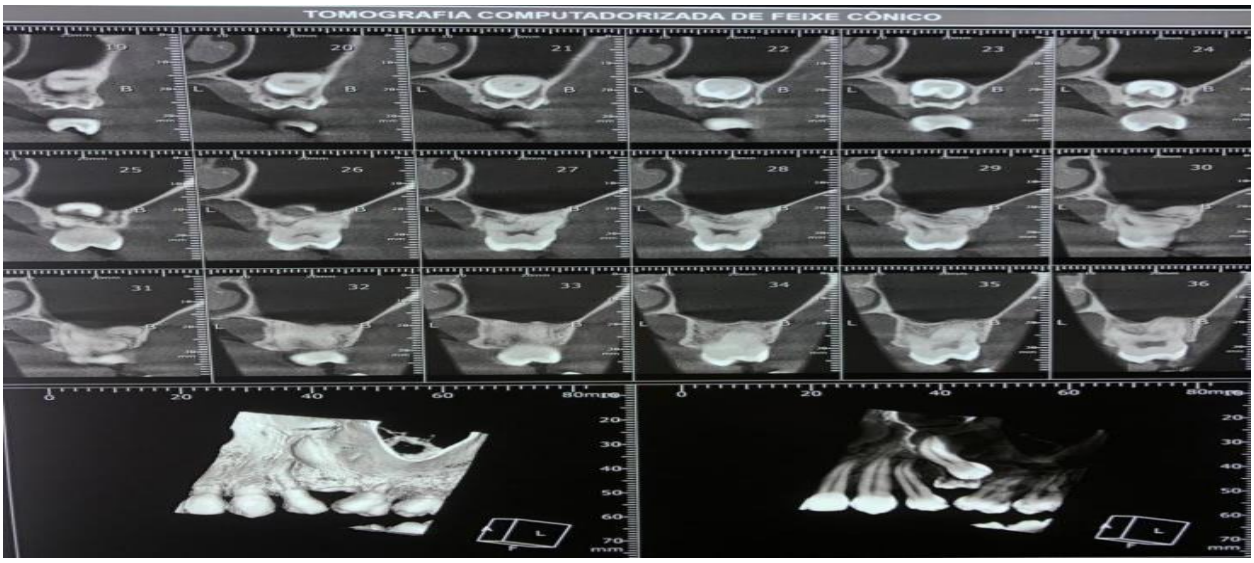


**Figure 2**: Computed tomography showing dental element 25 impacted due to the deciduous molar

The preoperative medication was not used to perform the surgery. Initially, intra-oral antisepsis was performed using 0.12% chlorhexidine digluconate and extra-oral with 2% chlorhexidine digluconate. Subsequently, anesthesia was performed by a regional block of the upper-middle and left posterior alveolar nerve using articaine 4% with vasoconstrictor epinephrine 1: 100,000.

During surgery, a modified Newman type incision was made with a scalpel blade number 15 and two relaxants to reduce the risk of complications and expand the field of view of the dental surgeon (**Figure 3**), followed by mucoperiosteal detachment and ostectomy assisted by piezosurgery with abundant irrigation using 0.9% saline to minimize trauma (**Figure 4**). Aiming to reduce postoperative morbidity, dental element 25 was sectioned and removed after extraction of 65.

**Figure 3**: Modified Newman incision with two relaxants

**Figure 4**: Exposure of the impacted dental element

After removing the dental elements (**Figure 5**), the surgical site underwent copious irrigation with 0.9% saline, to remove possible residues; the edges of the surgical cavity were also leveled with the bone file. Finally, the flap was repositioned with simple stitches using a 6-0 Nylon suture, in addition to modified Donaty in the papillae (**Figure 6**). The patient was instructed about postoperative care and the drug prescription consisted of antibiotics (amoxicillin associated with 500 mg clavulanate every 8 hours for 7 days), anti-inflammatory drugs (meloxicam 7.5 mg every 12 hours) and analgesic (500 mg sodium dipyrone every 6 hours for three days). In the immediate postoperative period, the patient responded well and did not report any pain complaints or inflammatory reactions.

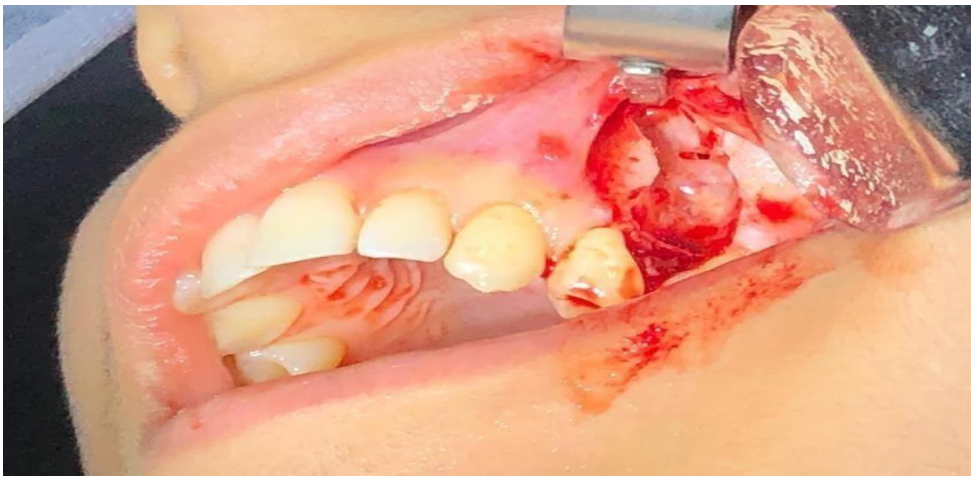

**Figure 5**: Appearance after removal of dental primaries 65 and 25

**Figure 6**: Repositioning of the flap with simple stitches in addition to modified Donaty in the papillae

After seven days, the patient returned to remove the suture and effective healing and maintenance of the gingival contour were verified. The patient did not report any postoperative complaints.

## Discussion

The treatment of impacted teeth includes several methods such as observation, intervention, relocation and extraction. In cases of pericoronitis, the presence of caries, pulp necrosis, root resorption of teeth and for orthodontic or prosthetic purposes, extraction should be considered **(**6,7,9**)**. However, removal is not advisable for patients of extreme age, compromised medical condition and the possibility of excessive damage to adjacent structures, and may use the technique of periodic observation of the element **(**10**)**.

The dentist must perform an analysis of the characteristics of the impaction and treatment techniques to define and complete the procedure **(**8**)**. In cases of dental impaction, it is possible to choose between orthodontic or surgical treatment **(**8,11**)**. However, tooth positioning and angulation factors can interfere with orthodontic treatment **(**12**)**.

In the reported clinical case, it was possible to observe that the impaction of tooth 65 prevented the eruption of the dental element 25, similar cases are less common in the literature, where a deciduous dental element prevents a permanent tooth from erupting. Orthodontic treatment was discarded due to unfavorable root positioning of tooth 25. Therefore, surgical treatment for tooth removal was instituted, taking into account the depth of impaction, root condition and the age of the patient favorable to the surgical procedure.

Surgical treatment of an impacted element requires osteotomy and odontosection techniques that, by themselves, cause tissue damage **(**8,11**)**. However, the use of piezosurgery makes the surgical procedure less traumatic, maintaining the integrity of the adjacent soft tissues and decreasing the postoperative inflammatory response **(**13**)**.

## Conclusion

In conclusion, the treatment of impacted teeth must be carried out taking into account factors such as age, depth of impact and risks that the impacted element represents. When opting for tooth removal therapy, less traumatic techniques should be advocated to minimize the postoperative inflammatory response.

In the clinical case reported, it was possible to observe the success of the instituted therapy, the absence of pathological inflammatory conditions causing no aesthetic and functional damage to the patient.

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