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Management of Palatally Impacted Canine

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Abstract;

Maxillary canine impaction is a commonly seen condition which is always challenging to the orthodontist to bring the tooth to the normal position and finish the case with proper canine class-I relationship. The "ballista spring system" has some advantages over the previously proposed systems described by different technique by different authors. Since the upper canines are the most frequently impacted teeth with

which orthodontists are concerned, the purpose of this article is to describe and discuss a relatively technical approach to the orthodontic extrusion of impacted canine teeth using ballista spring.

KEY WORDS: Diagnosis, etiology, impacted canines, orthodontic techniques, prevention, surgical techniques

I. INTRODUCTION:

Impaction refers to total or partial lack of eruption of a tooth well after the normal age of eruption. An impacted tooth is defined as a tooth that fails to erupt after the normal development pattern is complete (FIG 1 A-C). An impacted tooth may result due to variety of reasons such as inadequate space (FIG 2 A-C), some physical barrier like bone, mucosa (Fig 3 A-E), retained deciduous tooth (FIG 4 A-I), supernumerary tooth etc. in the eruption path or lack of eruptive force.[1] Normally tooth erupts when root length reaches three fourth of its final length. Maxillary canines are the most common impacted tooth, following the third molar teeth.[1,2] In maxillary canine impaction, palatal canine impaction is more common than buccal canine impaction. Disturbances in the eruption of permanent maxillary canines are common because they develop deep within the maxilla and have the longest path to travel compared with any other tooth in the oral cavity**.[3]** Canines play a vital role in facial appearance, dental esthetics, arch development and functional occlusion. As a result, orthodontists have acknowledged the significance of retaining impacted maxillary canines

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and have proposed various techniques to effectively and efficiently recover these teeth.These teeth often pose challenges in treatment planning, surgical care and orthodontic management**.[4-7]** Favourable treatment outcome relies on patient compliance; proper and earlier age of diagnosis; level, inclination and depth of impaction; proportion of root development; type of surgical exposure and orthodontic mechanics employed. All these parameters play an important role when managing impacted teeth to achieve a good alignment in the arch, good gingival level and achieve good integrity of periodontium**. [1-11]**

The methods and techniques of resolution of impaction are numerous and their selection depends on individual case.

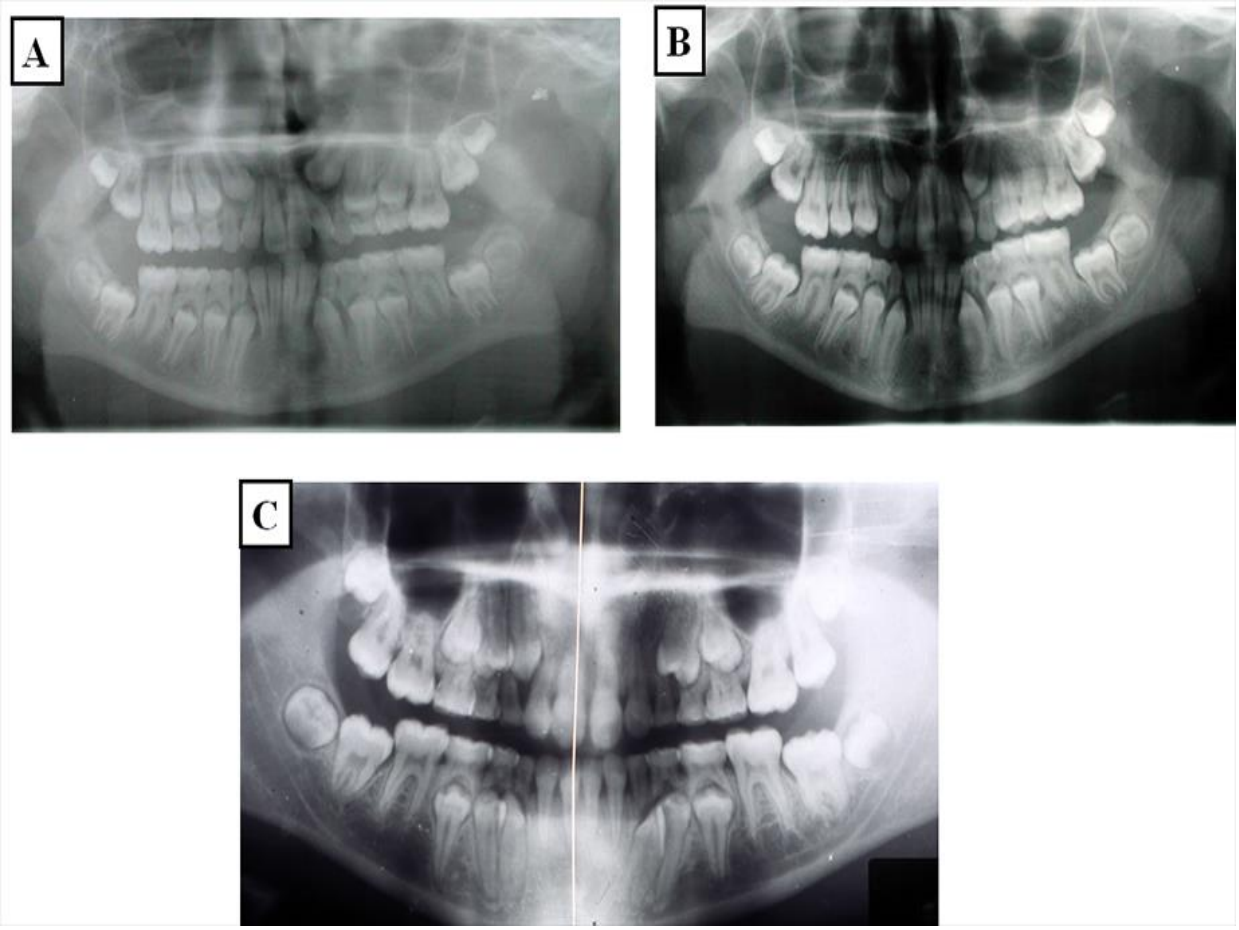

Figure 1 A-C: *Teeth are considered impacted (retained) when root development is complete but eruption has not occurred. Figures A and B illustrate early signs of impaction; in Figure C, root formation is complete, classifying all depicted premolars and canines as impacted teeth.*

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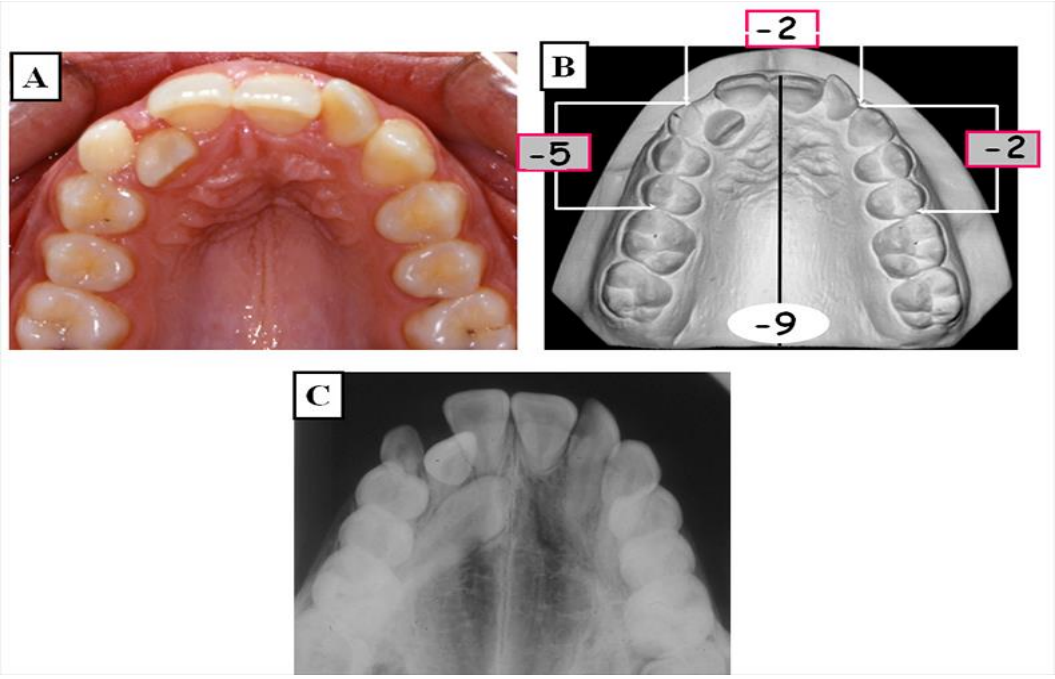

Figure 2 A-C: *Palatal impaction and displacement of tooth 13 are visible in A. The space deficiency of approximately 9 mm (B) is a contributing factor to the ectopic position. The radiograph (C) confirms the displacement of tooth 13.*

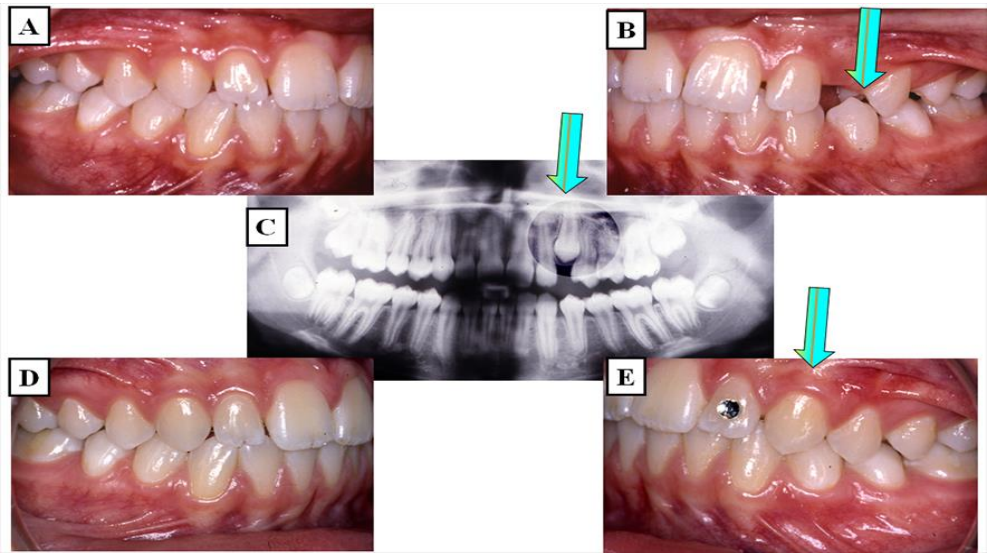

Figure 3 A-E: *Despite sufficient space for the impacted tooth 23 compared to the contralateral side (A), eruption did not occur. The reason was a thick, keratinized gingiva covering the tooth (B, C). Following a gingival incision or gingivectomy, spontaneous and rapid eruption was observed (D, E).*

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According to a study conducted by Ericson, the majority of the impacted canines are palatally positioned (85%) and only 15% are buccally impacted canines**.[12]** Also the unilateral impaction is more frequent than the bilateral one, only 8% of the impacted canines are bilateral. The majority of the impacted canines observed in Caucasians are in palatal position, while in Asian population the predominant occurrence is in the vestibular position. Related to sex, the impacted maxillary canine is twice more frequent in women than in men, with a ratio of 2.3:1 **[10,11].**

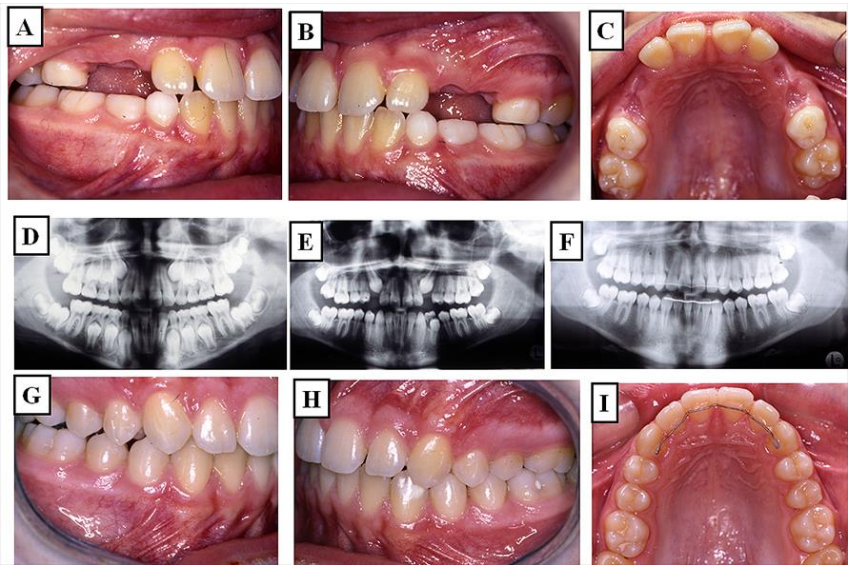

Figure 4 A-I: *To facilitate tooth eruption and prevent impaction, timely intervention was performed in this case by extracting the primary teeth..*

The purpose of this article is to describe and discuss a relatively technical approach to the orthodontic extrusion of impacted canine teeth using ballista spring.

ETIOLOGY:

The causes of impacted canines can be classified into 4 distinct groupings: local hard tissue obstruction, local pathology, disturbance of the normal development of the incisors, and hereditary or genetic factors. **.[1-12]**

- Localised
- Systemic
- Genetic

Local Pathology

-Tooth size-arch length discrepancies **.[13]**

- Failure of the primary canine root to resorb
- Prolonged retention or early loss of primary canine

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- Ankylosis of permanent canine
- Cyst or neoplasm
-The absence of maxillary lateral incisor
- Variation in timing of lateral incisor root formation **.[12]**
- Iatrogenic factors Idiopathic factors **.[14]**

Systemic

-Endocrine deficiencies **.[15]**
- Febrile diseases
-rradiation **.[12-15]**

Genetics

-Heredity
- Malposed tooth germ
- Presence of alveolar cleft

Bishara et **[11]** summarized moyer's theory that impacted canine is caused by

1. Primary causes (Localised):

(a) Tooth size-arch length discrepancies.
(b) Prolonged retention or early loss of deciduous canine.
(c) Abnormal position of the tooth bud (rotation of tooth buds).
(d) Trauma to the deciduous tooth bud.
(e) Disturbances in the tooth eruption sequence. **[14]**
(f) Presence of an alveolar cleft. **[13]**
(g) Ankylosis **[11]**
(h) Cystic or neoplastic formation
(i) Dilaceration of the root **[14]**
(j) Premature root closure
(k) Iatrogenic **[13]**
(l) Idiopathic

2. Secondary (Generalised)

(a) Abnormal muscle pressure **[11]**
(b) Febrile diseases
(c) Endocrine disturbances **[14]**

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(d) Vitamin D deficiency **[14]**

(e) Irradiation.

The most common causes for canine impactions are usually localized and are the result of any one, or combination of the following factors:

(a) Tooth size-arch length discrepancies,

(b) Prolonged retention or early loss of the deciduous canine, **.[12,16]**

(c) Abnormal position of the tooth bud,

(d) The presence of an alveolar cleft, **.[3-12]**

(e) Ankylosis,

(f) Cystic or neoplastic formation,

(g) Dilaceration of the root,

(h) Iatrogenic origin, and

(i) Idiopathic condition with no apparent cause.

Sequelae of Impaction **.[14-17]**

Shafer et al suggested that the following sequelae might be associated with canine impaction:

- Labial or lingual malpositioning of the impacted tooth.

-Migration of the neighbouring teeth and loss of arch length. **.[12-19]**

-Internal resorption

- Dentigerous cyst formation

- External root resorption of the impacted as well as neighbouring teeth.

- Infection particularly with partial eruption

- Reffered pain

- Combinations of the above sequelae. (or) no untoward effects.

CLASSIFICATION

Classification of impacted maxillary canine by Archer 1975**[14[**

Archer classified impacted canines based on their position in the panoramic radiographs into 5 groups,

Class I: palatally placed maxillary canines

-Horizontal

-Vertical

-Semi-vertical

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Class II: labially placed maxillary canines

- Horizontal

- Vertical

- Semi-vertical

Class III: involving both buccal and palatal bones

Class IV: impacted in the alveolar process between incisors and first premolar

Class V: impacted in the edentulous maxilla.

Classification by Ghoneima A et al. **[16[** 2014

They categorized maxillary canine impactions into ten different groups (Types A to J) according to their positions and locations.

Type A: canine is in a mesioangular position behind the central incisor root

Type B: canine is in vertical position behind the lateral incisor

Types C and D: canine is in vertical position either between the lateral incisor and 1st premolar or between the 1st and 2nd premolars

Type E: canines were in mesioangular direction lying between the anterior-inferior wall of the maxillary sinus and the basilar part of the nasal cavity

Types F: canine is in horizontal position either near to the inferior wall of maxillary sinus with the crown positioned distally or between the lateral incisor and 1st premolar

Type G: canines were impacted vertically with their roots inside the maxillary sinus

Type H: canine is in horizontal position either near to the inferior wall of maxillary sinus with the crown positioned distally or between the lateral incisor and 1st premolar

Type I: canine is impacted completely inside the maxillary sinus

Type J: canine is palatally positioned.

MANAGEMENT OF IMPACTION

If the clinical suspicion of canine displacement is confirmed radiologically, it is essential to carefully evaluate whether, and in what manner, orthodontic alignment of the affected tooth should be undertaken. The timing of the diagnosis and the extent of the displacement are critical factors in this decision-making process.

If signs of canine displacement become apparent during the mixed dentition phase, early intervention should be considered—such as the extraction of retained deciduous teeth—in order to prevent or mitigate further unfavorable developments.**(Fig 5)**

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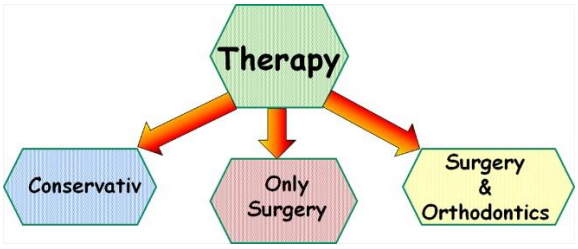

Figure 5: *Treatment options for impaction or displacement include surgical exposure, orthodontic alignment, or extraction, depending on the clinical situation.*

In contrast, if the diagnosis is made at the end or after completion of the tooth eruption phase, and there is either insufficient space in the dental arch or a marked displacement of the canine, orthodontic treatment should commence as soon as possible. This approach allows potential spontaneous vertical eruption, depending on the stage of root development, to be therapeutically utilized.

Relative contraindications for attempting orthodontic alignment include severe displacements or, depending on the individual case, situations such as complete space closure. Ankylosis, if diagnosed, constitutes an absolute contraindication.

Interceptive Treatment – Preventive Strategies

The proper eruption of the maxillary canines is essential for achieving a stable occlusion and a harmonious facial profile. Displaced or impacted canines are among the most common clinical challenges in orthodontics and may lead to both functional impairments and aesthetic concerns. Early diagnosis and timely intervention are therefore of paramount importance.

The goal of interceptive treatment is to influence the eruption pathway at an early stage by eliminating mechanical or anatomical obstructions and establishing favorable conditions for tooth eruption. The primary aim is to promote the natural eruption of the permanent canine and thereby avoid more invasive procedures at a later stage.

A well-established interceptive approach is the extraction of the corresponding deciduous canine. This intervention can promote spontaneous reorientation and eruption of the permanent canine. Prospective studies have shown that, when performed between the ages of 10 and 13, this procedure results in successful eruption in up to 78% of cases.

Prerequisites for treatment success include:

- sufficient space in the dental arch (no significant crowding),
- incomplete root development of the permanent canine (ideally Nolla stage 6–8),
- radiographic proximity of the canine to the alveolar ridge.

Following extraction, particularly in cases with limited space, the use of a space maintainer or orthodontic appliance to preserve or gain space is recommended. This prevents adjacent teeth from tipping into the space and obstructing the eruption pathway.

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If spontaneous eruption does not occur despite interceptive measures or if a significant space deficiency is present, mechanical therapy becomes necessary. This may involve distalization, transverse arch expansion, or surgical exposure followed by orthodontic alignment. Such interventions require careful diagnosis and interdisciplinary treatment planning involving orthodontists and, where appropriate, oral surgeons.

The interceptive extraction of the deciduous canine is an evidence-based and clinically effective measure to prevent canine impaction. Key factors for success include early diagnosis, age-appropriate intervention, and targeted space management. If spontaneous eruption fails, mechanical methods provide a reliable solution for guided tooth alignment. Interceptive treatment thus represents a fundamental component of modern preventive orthodontics. **(Fig 6 A-E)**

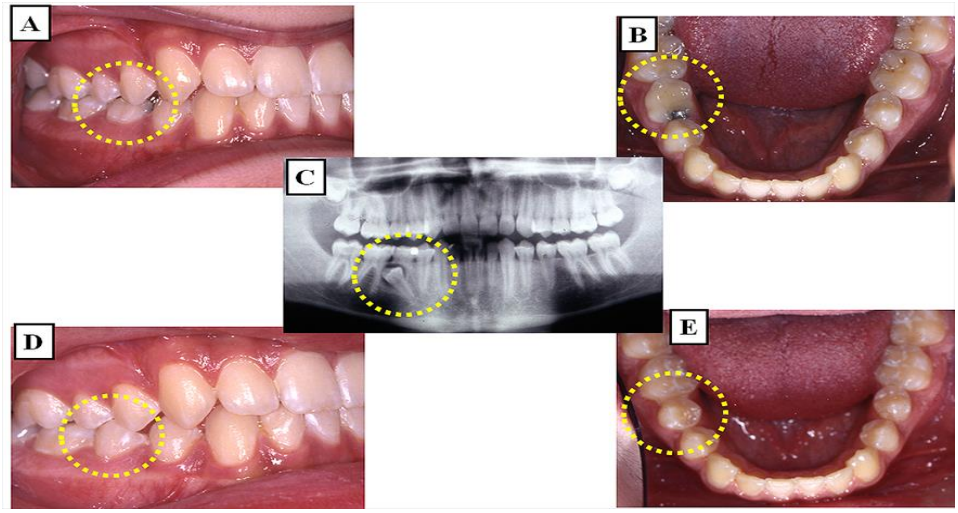

Figure 6 A-E: *Clinical situation of a patient with a retained primary molar 85 and an impacted and displaced tooth 45 (A–C). No orthodontic treatment was required. Following extraction of the primary tooth, sponta neous eruption of the premolar occurred (D, E).*

Orthodontic Appliance Selection

The selection of an appropriate orthodontic appliance is a critical component in the treatment protocol for patients with impacted canines. The objective during this treatment phase is to achieve both functional and aesthetic alignment of the dental arch, while simultaneously creating sufficient space to accommodate the impacted tooth—without adversely affecting the root positions of adjacent teeth.

The appliance used must fulfill several key requirements:

- It should enable controlled three-dimensional tooth movements, including both crown and root control.
- It must allow for leveling of the dental arch as well as correction of rotated teeth.

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- It must be capable of creating or maintaining precise interproximal space, particularly in the region of the impacted canine.

During the initial treatment phase, light, flexible leveling and alignment archwires—typically made of superelastic nickel-titanium alloys—are commonly employed. These wires permit gentle arch coordination while minimizing undesirable side effects such as uncontrolled tipping or root resorption.

Once the arch is properly leveled and space has been prepared, the impacted canine can be guided into position using customized mechanical force systems. Common methods include segmental appliances, auxiliary springs, or elastic traction mechanisms that promote a physiologically guided eruption along the natural eruption path.

In addition, the appliance should ensure effective anchorage control to prevent undesired tooth movements, especially involving adjacent incisors or premolars. In more complex cases, the integration of temporary anchorage devices (TADs) may be necessary to provide stable anchorage points.

The selection and configuration of the appliance must be based on precise diagnostics, ideally utilizing advanced imaging techniques such as cone-beam computed tomography (CBCT). These tools are essential for assessing the exact position of the impacted tooth and the spatial conditions of the dental arch.

[11-17] (Fig 7 A-E)

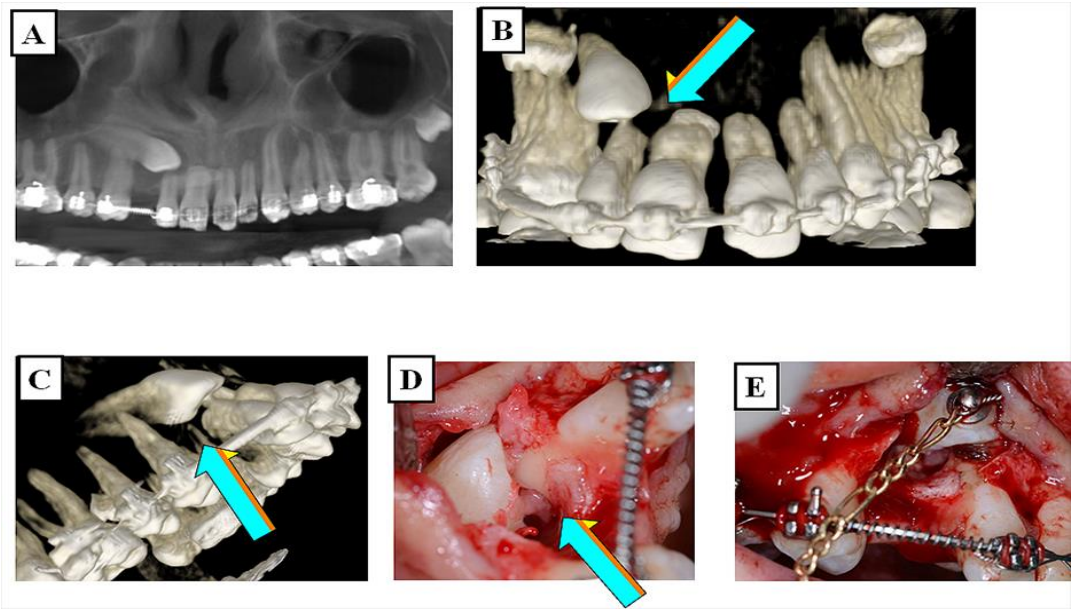

Figure 7 A-E: *CBCT images of a patient with an impacted and displaced canine 13 show its exact position and displacement-induced root resorption of tooth 12 (A–C, blue arrow). Precise localization allowed for targeted surgical exposure and force-directed orthodontic alignment (D, E).*

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Preparation of anchorage unit

Following the completion of the initial leveling and alignment phase—and once no further active movement of the already erupted teeth is required—these teeth are converted into a stable anchorage unit. The aim is to facilitate controlled traction of the impacted tooth while minimizing unintended movements elsewhere in the dental arch.

To achieve this, the previously used flexible alignment archwire is replaced with a heavier, more rigid wire (e.g., a rectangular stainless steel archwire). This creates a rigid splinting of the involved teeth, allowing them to function biomechanically as a unified anchorage block. This approach enhances anchorage stability and prevents undesirable displacement of adjacent teeth during the application of traction forces to the impacted tooth.

Careful anchorage planning is particularly critical when substantial forces are required or when asymmetric eruption paths must be corrected. Depending on the clinical scenario, anchorage can be further reinforced using temporary anchorage devices (TADs) [9-19] **(Fig 8 A-D)**

Space regaining for impacted tooth

Successful alignment of an impacted tooth requires timely and targeted space regaining within the dental arch. Ideally, this process should be completed prior to surgical exposure in order to enable a complication-free and functionally sound alignment.

Space can be created through various methods, including:

- Orthodontic closure of existing anterior spacing,
- Improvement and harmonization of the arch form using light aligning archwires,
- or, in selected cases, extraction of premolars to establish absolute space conditions.

Once space has been regained, it must be maintained in a stable manner to prevent mesial drift or tipping of adjacent teeth into the space. Several mechanical strategies are available for space maintenance, such as:

- Vertically bent stops in the archwire to secure tooth position,
- Passive stainless steel tubing to hold space,
- Open or closed coil springs to maintain active spacing,
- and tissue guards to protect the soft tissue and minimize irritation-related relapse.

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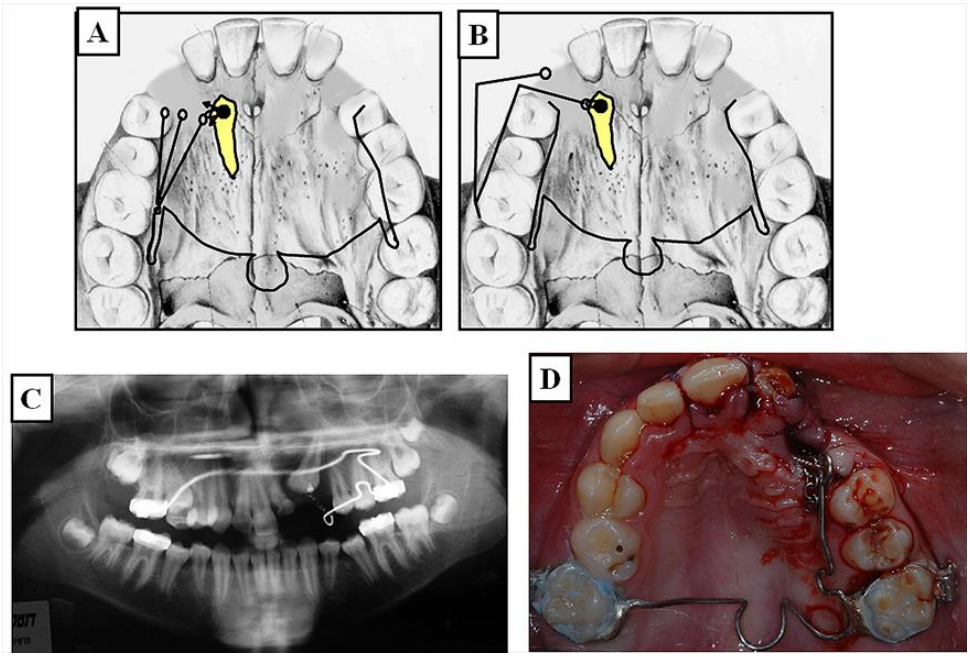

Figure 8 A-D: *For the alignment of displaced canines, a treatment concept is used that minimizes side effects and accelerates tooth positioning: A transpalatal arch with an anteriorly directed extension serves for anchorage and initial positioning (A). It is then modified to function as an anchorage unit during further alignment using a sectional archwire or Ballista spring (B). Radiographic and clinical views of the activated appliance in a patient are shown in (C, D).*

Careful planning of space regaining, in combination with appropriate space maintenance tools, ensures that the impacted tooth can be guided into a biomechanically favorable and soft tissue-friendly position **[11-17] (Fig 9, Fig 10)**

Surgical Exposure of Impacted Canines

The surgical exposure of impacted canines represents a key component within an interdisciplinary treatment concept. It forms the foundation for successful orthodontic alignment and is also critical to ensuring long-term periodontal health and a satisfactory aesthetic outcome.

Surgical intervention without orthodontic treatment

Exposure only

A superficially placed tooth, palpable beneath the bulging gum, is an obvious candidate. This type of tooth may be seen in the maxillary canine area, but also in the mandibular premolar area and the maxillary central incisor area, usually where very early extraction of the deciduous predecessor was performed while the immature permanent tooth bud was still deep in the bone and unready for eruption. **[15-22]**

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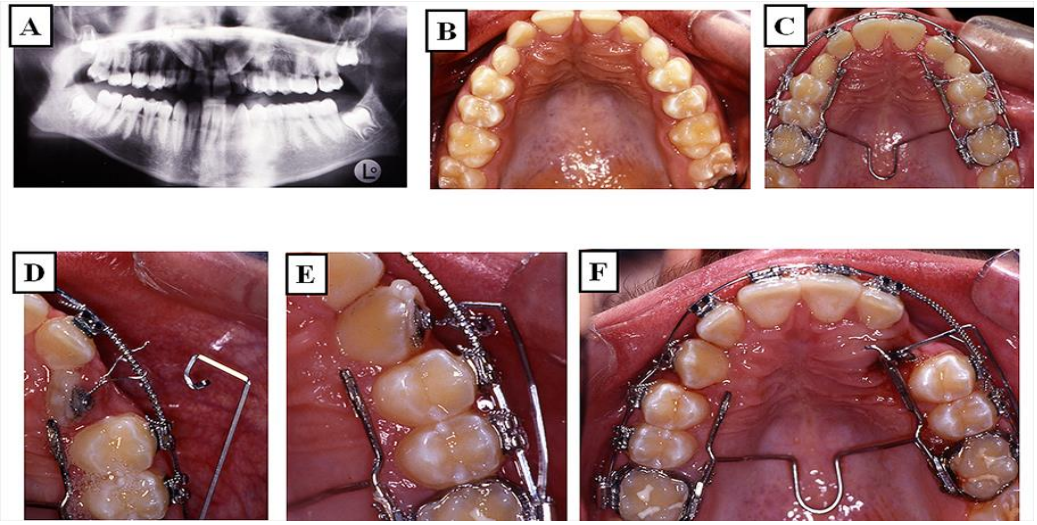

Figure 9 A-F: *Images of a patient with displaced and impacted canines (A, B). A transpalatal arch with an extension was used for anchorage and initial mobilization; space for the displaced canines was created using a spring prior to surgical exposure. For further alignment, a sectional archwire or Ballista spring was used (D, E).*

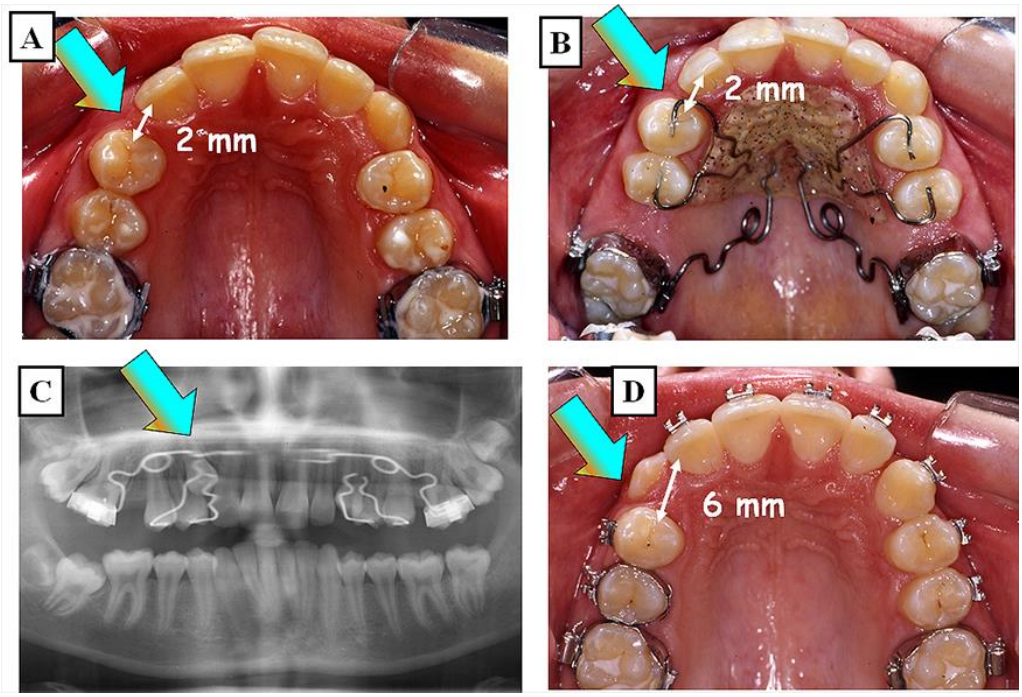

Figure 10 A-D: *Due to lack of space, tooth 13 became displaced (A). Using a pendulum appliance, distalization of the posterior teeth and space opening were achieved (B, C), resulting in the spontaneous eruption of the canine.*

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Healing occurred, the gum closed over and the permanent teeth were unable to penetrate the thickened mucosa. Removing the fibrous mucosal covering or incising and resuturing it to leave the incisal edges exposed will generally lead to a fairly rapid eruption of the soft tissue impacted tooth, particularly in the maxillary incisor area. The more the tooth bulges the soft tissue, the less likely is a reburial of the tooth in healing soft tissue and the faster is the eruption. **[15-23]**

Exposure with pack

A less superficial tooth requires a more radical exposure procedure and may need a pack to prevent the tissues from re-healing over the tooth. While it may be rewarded with spontaneous eruption, this will take longer and with a compromised periodontal result. **[23-27]**

Exposure with pressure pack

Mesial impaction of a mandibular second permanent molar beneath the distal bulbosity of the first permanent molar is analogous to the more common mesial impaction of a third molar beneath the distal of the second. In either case, and in its mildest form, it is a condition that may sometimes respond to surgical intervention and packing only. This involves exposure of the occlusal surface of the tooth and the deliberate wedging of the pack in the area between the two teeth and leaving it there for 2–3 weeks **[11-23]**

Surgical intervention with orthodontic treatment

The selection of the appropriate surgical approach must be tailored to the individual three-dimensional position of the impacted tooth, as well as the depth and angle of impaction.

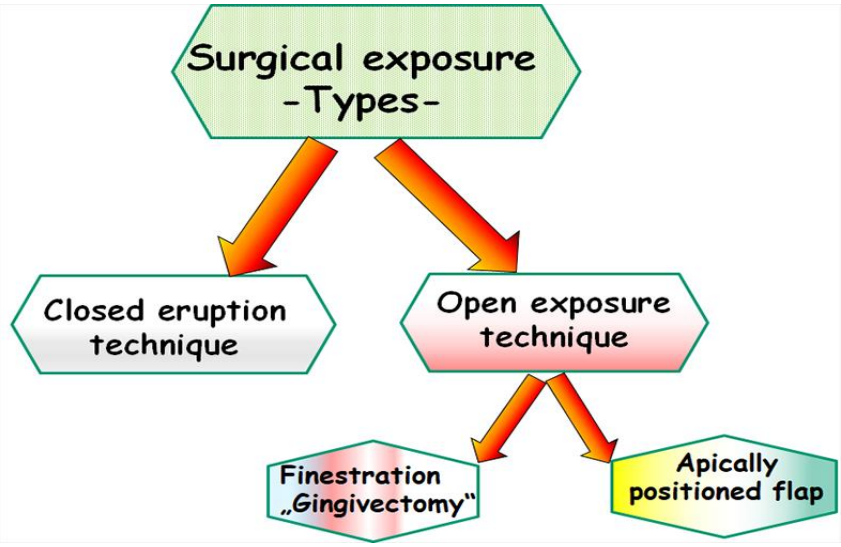

Figure 11: *Surgical techniques for exposure of displaced or impacted teeth — the choice and approach depend on the position, depth, and soft tissue conditions of the affected tooth.*

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Generally, three surgical exposure techniques are distinguished **(Fig 11)**:

1) Closed Exposure (Closed eruption technique): For palatally or deeply impacted canines, the closed technique is often preferred. After surgically exposing the crown, an orthodontic attachment is bonded to the tooth, and the mucosa is then repositioned and sutured over it. Orthodontic traction is subsequently applied to guide the tooth into the dental arch. This method is considered gentle on the periodontal tissues and reduces the risk of gingival recession.**(Fig 12)**

2) Open Exposure (open technique) or Apically positioned flap: This approach is most commonly used for buccally impacted canines. Following removal of the overlying soft tissue, the crown is left exposed to the oral cavity, allowing for spontaneous eruption or immediate orthodontic attachment. The open technique is considered periodontally favorable when performed in superficially positioned teeth with sufficient keratinized gingiva.

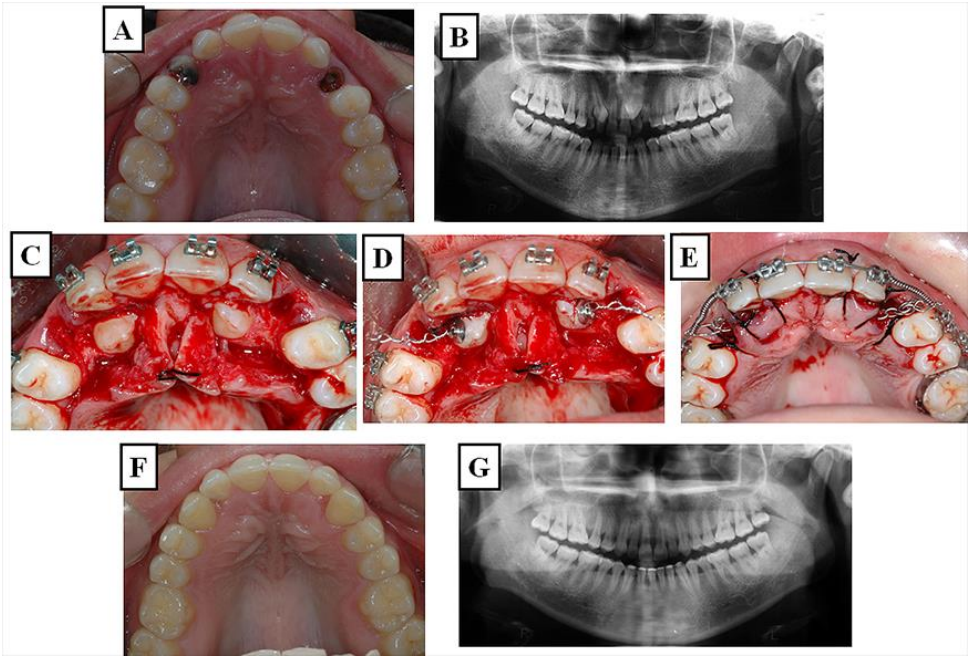

Figure 12 A-G: *Closed surgical exposure of impacted and displaced maxillary canines (A, B). Preparation of a mucoperiosteal flap (C), bonding of an attachment to the displaced teeth (D), repositioning of the flap and primary wound closure using interrupted sutures (E). Clinical (F) and radiographic views (G) at the end of treatment.*

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3) Semi-open Technique, Gingivectomy (Window approach):

A hybrid approach that combines elements of both open and closed techniques may be indicated in cases where anatomical or functional considerations warrant it. In this technique, a small portion of the crown remains exposed while the surrounding soft tissue is partially adapted. **(Fig 13)**

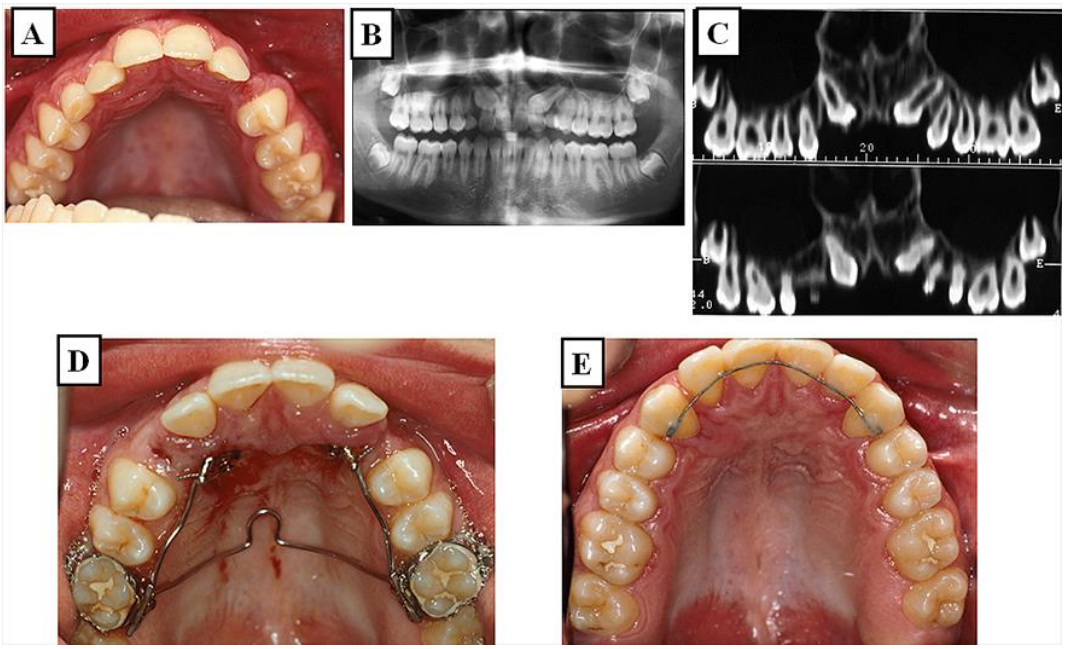

Figure 13 A-E: *Open surgical exposure (fenestration) of impacted and displaced maxillary canines (A, B). Due to their superficial position directly beneath the gingiva, a mucoperiosteal flap was not indicated (C). Following fenestration, a transpalatal arch with an extension was cemented for the alignment of the impacted canines (D). The occlusal view shows the situation after successful orthodontic alignment (E).*

The choice of technique should take into account the intraoral position of the tooth, the nature of the overlying tissue, bone coverage, and the age and cooperation level of the patient. The ultimate objective is to bring the canine into the arch without iatrogenic damage, while preserving or reconstructing an adequate zone of keratinized gingiva.

Close collaboration between the orthodontist and the oral/maxillofacial surgeon is essential during the planning phase. Postoperative wound healing should be carefully monitored to allow for timely integration of the tooth into the orthodontic appliance and to prevent complications such as scar tissue formation, gingival defects, or mucosal dehiscence.

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Surgical intervention of impacted mandibular canine

When the crown of an unerupted mandibular canine is inclined more than 30 degrees toward the median sagittal plane, orthodontic treatment may be required to correct the axial deviation.

To expose a suitable bonding surface on the crown, a mucoperiosteal flap must be carefully retracted apically and laterally. Special care must be taken to preserve the periodontal integrity of the adjacent lateral incisor **[11-27] (Fig 14,)**.

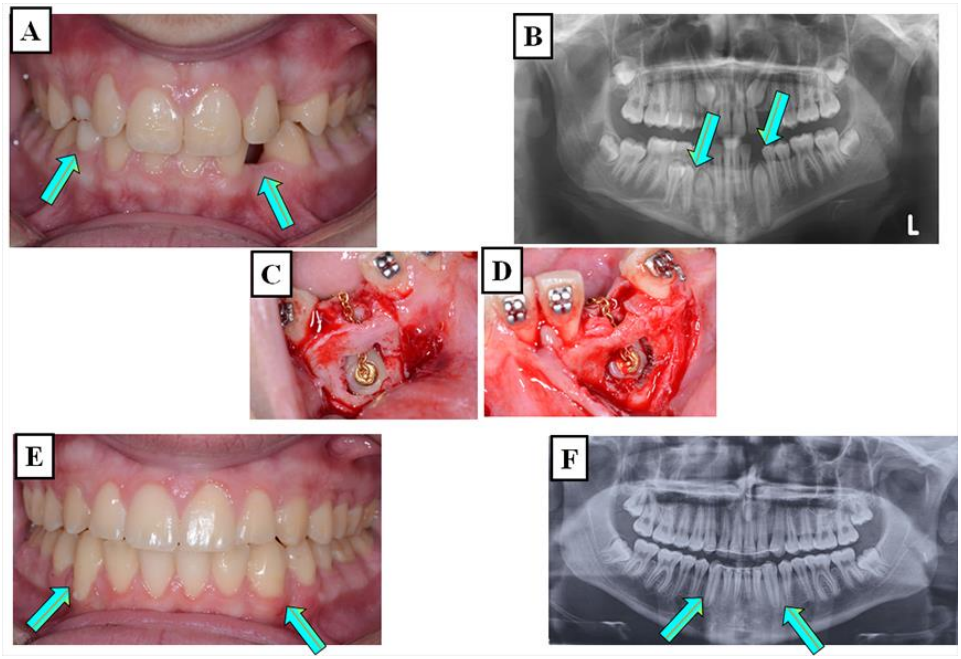

Figure 14 A-F: *Case with multiple displaced canines (13, 23, 33, and 43) (A, B). Surgical exposure of the mandibular canines was performed using the closed technique with the tunneling method and bonding of attachments (C, D). Clinical situation after completion of treatment (E, F).*

Surgical exposure is contraindicated in cases of ankylosis of the impacted canine, as orthodontic movement is no longer feasible **(Fig 15, Fig 16)**. Additional relative contraindications include severe displacement close to vital anatomical structures (e.g., the inferior alveolar nerve) or unfavorable root morphology, which increases the risk of iatrogenic damage to adjacent teeth **(Fig 17, Fig 18)**. A lack of patient cooperation—due to dental phobia, poor oral hygiene, or inadequate compliance—may also preclude surgical and orthodontic intervention .

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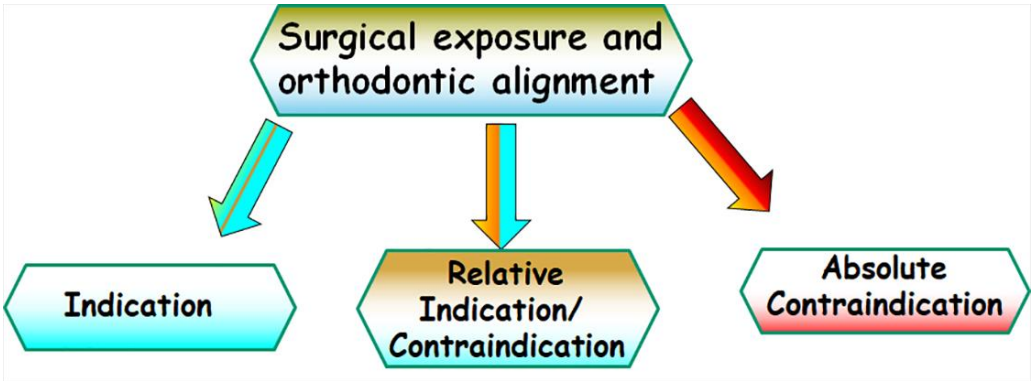

Figure 15: *For the alignment of displaced mandibular canines, three clinical decision categories exist: an indication, a relative contraindication, and an absolute contraindication—depending on position, risk, and treatment prognosis.*

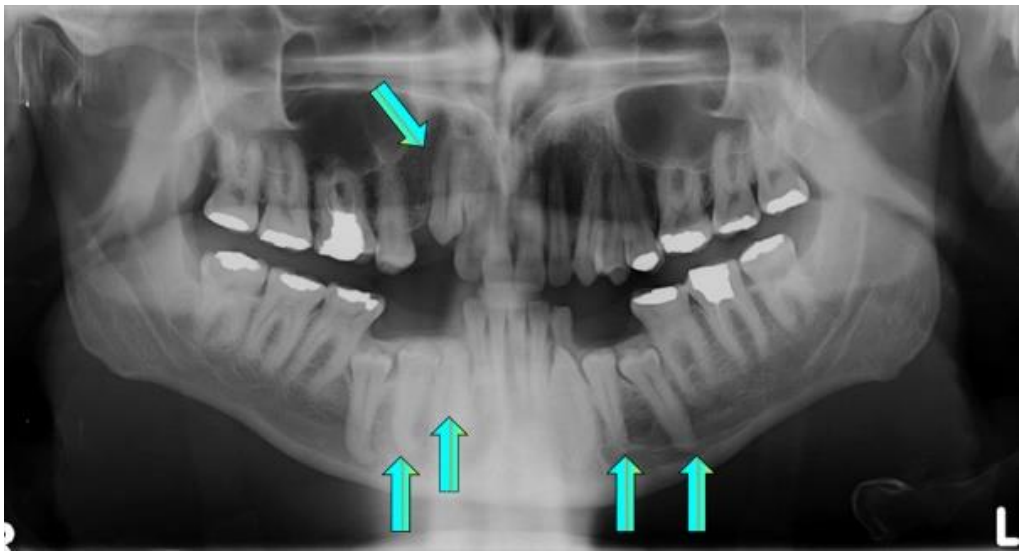

Figure 16: *In cases of multiple dental ankyloses, conventional surgical exposure and orthodontic alignment are not feasible and are considered contraindicated.*

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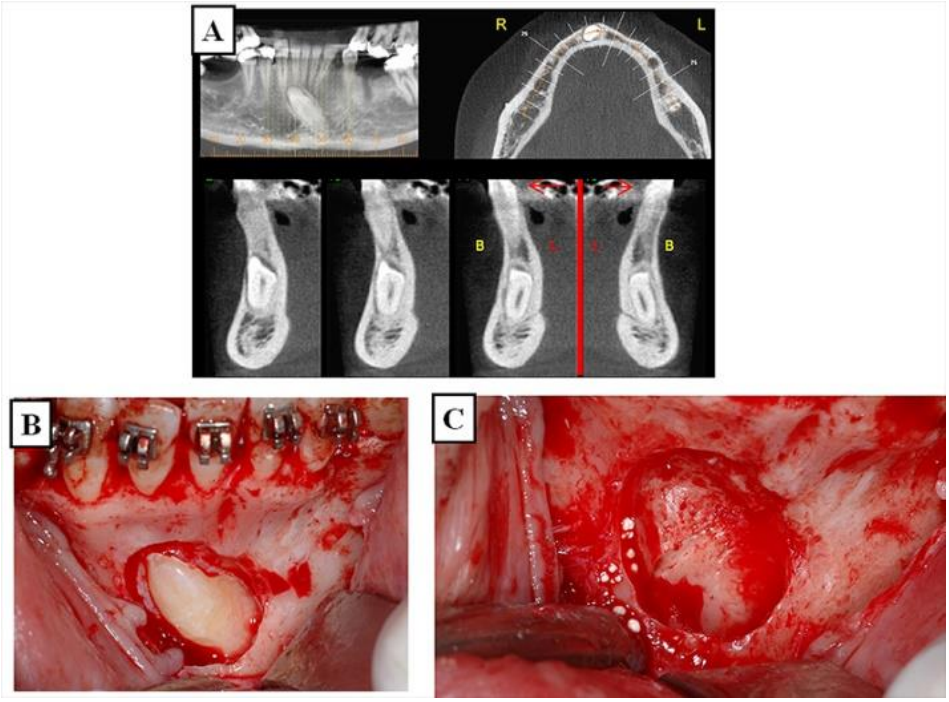

Figure 17*: Displacement of a tooth in a complex position. Due to the high-risk topographic location and the potentially complication-prone alignment, orthodontic positioning is relatively or absolutely contraindicated.*

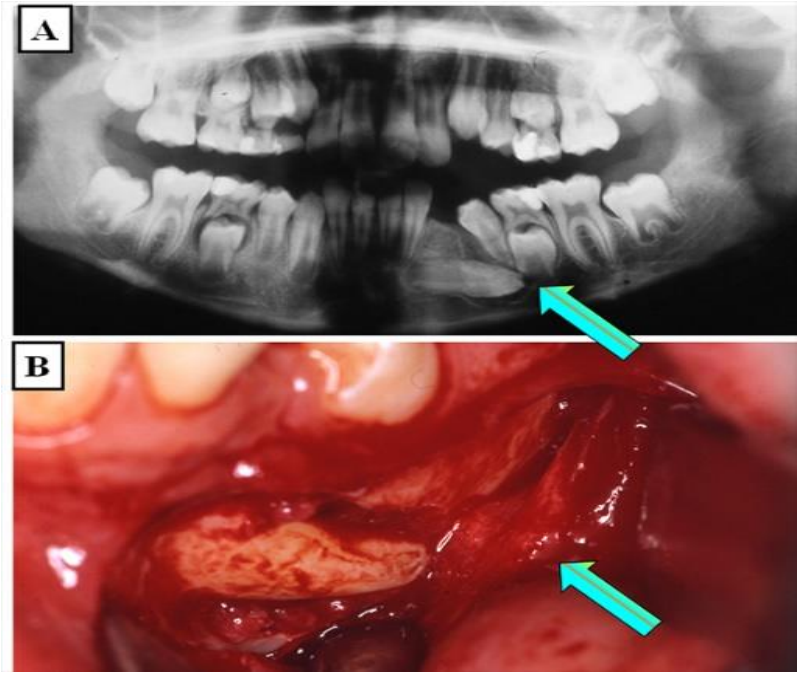

Figure 18 : *Severe displacement with impaction of tooth 33. Due to the elevated risk, orthodontic alignment is absolutely contraindicated. The blue arrows indicate the mental nerve.*

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DISCUSSION:

Impacted canines are the common challenge faced by clinicians in routine practice. Successful and untroubled management of canine impaction depends on proper diagnosis and treatment planning and comprehension of mechanism of impaction, which depends on detailed knowledge of the development and eruption paths and patterns of the teeth. Usually management of impacted tooth requires the collaborative efforts of the orthodontist, periodontist and oral surgeon. **[11-23]**

But early recognition and keen understanding of impaction sometimes is sufficient to correct or check the development of malocclusion by interceptive treatment alone. When dealing with unerupted teeth clinician must carefully plan the flap and bring attached fibrous mucosa in contact with the operated tooth. Generally palatally impacted tooth is surrounded by attached mucosa, and on contrary the vestibular impacted tooth, or the lower lingually impacted tooth may be drawn through the loose gingival mucosa, and the final result could be a good orthodontic alignment with poor periodontal mucosal attachment. **[23-28]** Careful selection of surgical and orthodontic techniques is essential for the successful alignment of impacted canines. Disimpaction of canine enhances esthetics as well as function. Early diagnosis and interception of impacted canines results in a predictable and successful esthetic and functional outcomes when there is proper coordination and collaboration between the patient, the general dentist, and the dental specialist. The incidence of mandibular canines impaction ranges between 0.92 and 5.1 per cent, while that of transmigration ranges from 0.1 to 0.31 per cent.Permanent maxillary canines are the second most frequently impacted teeth; the prevalence of their impaction is 1 general population.Impaction may be related to the biological mechanisms involved in the bone remodelling that is needed for eruption and that is regulated by the dental follicle. **[23-32]** Improved understanding of these regulatory pathways would give insights into the factors responsible for tooth impaction.Transmigration is a commonly occurring phenomenon among impacted mandibular canines. Horizontal angulation and basal vertical location are likely indicators. **[32-36]** Several dental anomalies are associated with mandibular canine impaction and, to a lesser degree, transmigration.When starting comprehensive orthodontic treatment, it is important to first distalize the canine away from the incisor root before pulling in out into the dental arch. Depending on the position of the canine, the optimal type of surgical exposure (closed or open) can be selected. Proper treatment plan to manage the IMC is essential for esthetic and functional patient requirements. Impacted teeth present a great concern in the orthodontic field because of their potential to complicate orthodontic treatments. . **[36-38]**

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 presentation, an overview of the incidence and sequelae, as well as the surgical, periodontal, and orthodontic considerations in the management of impacted canines is presented. **[25,28,29]**

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The management of impacted canines is important in terms of aesthetics and function. Clinicians must formulate treatment plans that are in the best interest of the patient, and they must be knowledgeable about the variety of treatment options. When patients are evaluated and treated properly, clinicians can reduce the frequency of ectopic eruption and subsequent impaction of the maxillary canine. This allows for complete control in efficient correction the impaction and for avoidance of damage to adjacent teeth. Careful selection of surgical and orthodontic techniques is essential for the successful alignment of impacted canine.

The prevalence of maxillary canine impaction is significant and the frequency increases with other genetically associated dental anomalies. **[31,32,36-38]**

The clinician should also suspect that impaction may be present if there is an abnormality in the magnification of the canine on the panoramic radiograph. In addition, an impaction should be suspected if on the panoramic radiograph, the canine overlaps either the lateral or central incisor. **[24-35]**

Multidisciplinary approach for guiding the impacted canine gives predictable results. Careful diagnosis is critical, and it is crucial that every patient should be managed with tailor-made treatment plan with sound scientific backing as there is no 'cook book' approach for all cases. The development of treatment and mechanical plans must be based on the careful analysis of the clinical situation and identification of the correct force system is necessary to obtain the desired tooth movement. **[31-38]**

The management of an impacted canine is a complex procedure requiring a multidisciplinary approach. The clinicians should communicate with each other to provide the patient with an optimal treatment plan based on a scientific rationale.

CONCLUSION:

The management of impacted canines is important in terms of esthetics and function. Clinicians must formulate treatment plans that are in the best interest of the patient and they must be knowledgeable about the variety of treatment options. When patients are evaluated and treated properly, clinicians can reduce the frequency of ectopic eruption and subsequent impaction of the maxillary canine

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