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Al Zahrawi University

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DISPLACED MAXILLARY CANINE IN IRAQI STUDENT

In Partial Fulfillment of the Requirements for the Degree of Bachelor of Dental medicine and Surgery in Dentistry department Of University of Al-zahrawi

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Certification of the Supervisor

I certify that this project entitled " **palatally displaced maxillary canine in iraqi student** " was prepared by the fifth-year students **Zahraa Jassem Mohammed, Rusul jassim Hassan, muntazar hamid jasaab, Hussam Ahmed Kurdi** under my supervision at the College of Dentistry/ Al Zahrawi University in partial fulfilment of the graduation requirements for the Bachelor Degree in Dentistry.

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Date

/2025

Dedication:

we would like to dedicate our humble effort to our supportive parents. Their affection, love, encouragement and prays at day and night made us able to succeed with honor.

To my brothers, sisters,

friends, and colleagues who shared their

words of advice and encouragement.

Those who encourage and support us, all the people in my life who touch our

heart .

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First of all, I thank "Allah" almighty for granting me the will and strength to accomplish this research and I pray that his blessings upon me may continue throughout my life.

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TMJ	Temporomandibular joint
CBCT	Cone beam computerized tomography
SPSS	Statistical Package for the Social Sciences
PDC	palatally displaced canine
BDC	buccally displaced canine
CT	computerised tomography
PA	posteroanterior
RME	rapid maxillary expansion
QH	Quadhelix
RCT	Root canal treatment

Introduction

Maxillary canines are crucial for the smile and facial esthetics. This is attributed to their critical location over the canine eminences which provides support to the upper lip and alar base. Adequate alignment of maxillary canines in addition to proper size and shape play an important role in smile beauty, correct smile line, and appropriate proportion of the upper anterior teeth. Moreover, maxillary canines have a great functional impact since they provide disocclusion of posterior teeth during excursive movements and they provide support to the overall dentition **(Cruz, 2019).**

Canines are universally referred to as the "cornerstone" of the dental arches, and the maxillary canine has the longest root and has good bony support. Aesthetically, they help in normal facial expressions at the "corners" of the mouth. Functionally, the shape and position of the canines play a major role in intercuspal positioning by "canine guidance" **(Ash et al., 2007)** .

Displaced maxillary canines pose significant challenges in orthodontics. Most often, canines are palatally displaced (61%) and the prevalence varies from 1 to 3% **(Bishara,1992)** depending on racial/ethnic background **(kramer,1970–Hou,2010)** gender **(Lövgren,2019 ; peck,1994)** and presence of alveolar clefts **(Jamilian,2015**).

It has been stated and taught for many years that the maxillary permanent canine by virtue of its long path from initial development to its final position at the occlusal level The shape and position of the canines contribute to the guidance of the teeth into the intercuspal position by "canine guidance" **(Nelson and Ash, 2015)**. Canines play a key role in facial aesthetics, development of the dental arch and occlusion **(Russell, 2000).**

Many aetiologies for canine displacement have been studied. The guidance theory describes the normal eruption pattern as the downward movement of the canine which is gradually uprighted and guided along the distal aspect of the lateral incisor roots **(becker,2013)**. Displacement may result from a disruption of this pattern. Another possible aetiology for canine displacement is reduced arch length **(Fernández,1998 - Montes-Díaz,2022).**

Aims of the study

The aim of this study was to clinically evaluate the prevalence of palatally displaced canines among students of Al Zahrawi University College Of Dentistry in both genders.

Chapter One
Review Of Literature

1.1 Definition of Malposition

Any tooth which is not in its normal position should be called malposed. Slight malpositions (irregularities) of erupted teeth belong to the field of the orthodontist, malposed unerupted teeth to both the orthodontist and oral surgeon, if their malposition is to be corrected **(Blum, 1923).**

Malposition teeth if left untreated lead to complications in the developing dentition with may be detrimental to either to the dental functions or the dental aesthetics **(Noar J.,2014).**

Common problems encountered are issues related to loss of space due to migration of adjacent teeth into the available space **(Yassen S. M.,2011)** ; traumatic bite on opposing teeth that lead to gum recession and mobility of teeth **(Consoli G.,2013)**; and attrition of enamel surface of the opposing teeth in contact **(Prakash P.,2011).**

Complications such deviation of the jaw and temporomandibular joint problems are common if premature contact on occluding teeth found **(Carlos E. J.,2019).**

Other issues include difficulty in maintaining oral hygiene such as brushing and flossing around the misaligned teeth that give rise to caries and gingivae problems **(Kolawole K. A.,2019).**

1.2 Development of dentition

Malocclusion is a reflection of disturbances that might have occurred during the normal process of occlusal development.

Functional disturbances of the masticatory system may have their beginning during the development of occlusion, a period when position of the tongue, swallowing habits, chewing patterns, etc. are established. Thus, it is imperative to understand the development of dental occlusion in order to recognize and intervene in case of

any abnormal development and also to treat an already existing malocclusion **(Phulari, 2017).**

It is also important to note that certain occlusal irregularities, observed during the developing stages of occlusion are transient and thus do not require treatment. For instance, midline diastema and flaring of upper anteriors observed during ugly duckling stage at mixed entition period get self-corrected once the permanent canines erupt fully.

Humans have two sets of dentition namely, deciduous and permanent, which contain 20 and 32 teeth respectively. The formation and eruption of these teeth follow a definite pattern and fairly consistent timetable **(Phulari, 2017).**

1.3 Classification of etiological factor in malocclusion

A number of classifications of etiologic factors of malocclusion have been put forward:

• White and Gardiner's Classification **(Sivaraj, 2013)**

A. Dental base abnormalities:

1. Anteroposterior malrelationship.
2. Vertical malrelationship.
3. Lateral malrelationship.
4. Disproportion of size between teeth and basal bone.
5. Congenital abnormalities.

B. Pre eruption abnormalities:

1. Abnormalities in position of developing tooth germ.
2. Missing teeth.
3. Supernumerary teeth and teeth in abnormal form.

4. Prolonged retention of deciduous tooth.

5. Large labial frenum.

6. Traumatic injury.

C. Post eruption abnormalities:

1. Muscular

a. Active muscle force—swallowing.

b. Rest position of musculature.

c. Sucking habits.

d. Abnormalities in path of closure.

2. Premature loss of deciduous teeth.

3. Extraction of permanent teeth.

• Graber's Classification **(Vijayalakshmi, 2020)**

Graber classifies causes of malocclusion as general and local factors.

General Factors: (Vijayalakshmi, 2020)

1. Hereditary.

2. Congenital.

3. Environmental.

a. Prenatal (Trauma, maternal diet, German maternal metabolism).

b. Postnatal (Birth injury, cerebral palsy, TMJ injury).

4. Predisposing metabolic climate and disease.

a. Endocrine imbalance.

b. Metabolic disturbances.

c. Infectious diseases.

5. Dietary problems (Nutritional deficiency).

6. Abnormal pressure habits and functional aberrations:

a. Abnormal suckling.

b. Thumb and finger sucking.

c. Tongue thrust and tongue sucking.

d. Lip and nail biting.

e. Speech defects.

f. Abnormal swallowing habits.

g. Respiratory abnormalities.

h. Tonsils and adenoids.

i. Psychogenic tics and bruxism.

7. Posture.

8. Trauma and accidents.

Local Factors: (Vijayalakshmi, 2020)

1. Anomalies of number:

a. Supernumerary teeth.

b. Missing teeth.

2. Anomalies of tooth size.

3. Anomalies of tooth shape.

4. Abnormal labial frenum; mucosal barriers.

5. Premature loss.

6. Prolonged retention.

7. Delayed eruption of permanent teeth.

8. Abnormal eruptive path.

9. Ankylosis.

10.Dental caries.

1.3.1 Angle's classification and canine classification of malocclusions

Angle's classification was based upon the premise that the first permanent molars erupted into a constant position within the facial skeleton, which could be used to assess the anteroposterior relationship of the arches **(Angle, 1890).**

Angle described three groups:

• Class I or neutrocclusion — the mesiobuccal cusp of the upper first Molar occludes with the mesiobuccal groove of the lower first molar.

Figure 1: Angle Class I occlusion **(Thilander et al,2018).**

• Class II or distocclusion — the mesiobuccal cusp of the lower first molar occludes distal to the Class I position. This is also known as a postnormal relationship.

Figure 2: Angle Class II malocclusion **(Thilander et al, 2018).**

• Class III or mesiocclusion — the mesiobuccal cusp of the lower first molar occludes mesial to the Class I position. This is also known as a prenormal relationship.

Figure 3: Angle Class III malocclusion **(Thilander et al, 2018).**

1.3.2 Canine classifications

The canine relationship also provides a useful anteroposterior occlusal classification **(Cobourne and DiBiase, 2016).**

• Class I—the maxillary permanent canine should occlude directly in the embrasure between mandibular canine and first premolar.

• Class II—the maxillary permanent canine occludes in front of the embrasure between mandibular canine and first premolar.

• Class III—the maxillary permanent canine occludes behind the embrasure between mandibular canine and first premolar.

1.4 Sequence of eruption

There is wide variability in the sequence of arrival of teeth in the mouth.

Maxilla {6-1-2-4-3-5-7} or {6-1-2-4-5-3-7} (most common), while in mandible {6-1- 2-4-5-3-7} or {6-1-2-3-4-5-7} (most common).

The sequence of eruption according to the age as following : **(Gurkeerat, 2007)**

_ At 6 years of age

Considered as first stage of eruption, eruption of mandibular central incisor and permanent first molar, mandibular molar eruption precedes maxillary molar.

_ At 7 years of age

Eruption of maxillary central and mandibular lateral incisor, root formation of maxillary lateral incisor well advanced, crown completion of canines and premolars.

_ At 8 years of age

Eruption of maxillary lateral incisor, delay of 2-3 years before any further tooth eruption (remission period).

_ At 9 years of age

One-third root formation of mandibular canine and first premolar is complete, root development of mandibular second premolar begins.

_ At 10 years of age

One-half root formation of mandibular canine and first premolar is complete, significant root development of maxillary and mandibular second premolar as well as maxillary canine, root completion of mandibular incisors and near completion of maxillary laterals, mandibular canine erupts between 9 and 10 years.

_ At 11 years of age

Eruption of mandibular canine, mandibular first premolar and maxillary first premolar, maxillary first premolar erupts ahead of canine and second premolar.

_ At 12 years old

Remaining succedaneous teeth erupt, second permanent molars nearing eruption, early beginnings of third molar.

_ At 13, 14, 15 of age

Completion of roots of permanent teeth, third molars apparent on the radiograph

Change in eruption sequence is a reliable sign of disturbance in normal development of the dentition.

Dentists face many challenges in treating malposition teeth. In young and growing patients, issues such as patient's treatment compliance, parental expectations, and selection of an appropriate appliance can be a problem.

Dentists often leave the malposition teeth with no treatment until a later stage for orthodontics correction. However, orthodontic treatment at a later stage is often prolonged and complex because of severe space loss and migration of adjacent teeth.

Opposing teeth may become mobile or loose because of gum recession by the time dentist start orthodontic treatment. In view of the delayed detrimental effects to the dentition, children in mixed dentition need orthodontic screening to identify issues related to malocclusion **(February 2020).**

1.5 Importance of the Maxillary canine teeth: (Taylor, 1998).

1. They play an important role in creating good facial and smile esthetics.
2. They are positioned at the corners of the dental arch, forming the canine eminence for support of the alar base and the upper lip.
3. When the maxillary canines are properly aligned and have good shape and size, pleasing anterior dental proportions and correct smile lines are achieved.
4. Functionally, they support the dentition, contributing to disarticulation during lateral movements in certain persons.

1.6 ETIOLOGY

Primary etiological causes of maxillary canine displacement include space deficiency, disturbances in tooth eruption sequence, trauma, retention of primary

canine, premature root closure, rotation of tooth buds, as well as localized pathological lesions (cysts, odontomas) **(Bishara SE,1992).**

The long developmental path of the maxillary canine was described by Moyers *et al.*, **(Moyers RE,1976)** as: "The maxillary cuspid follows a more difficult and tortuous path of eruption than any other tooth.

At the age of 3 it is high in the maxilla, with its crown directed mesially and somewhat lingually. It moves towards the occlusal plane, gradually uprighting itself until it seems to strike the distal aspect of the root of the lateral incisor. It then seems to be deflected to a more vertical position; however, it often erupts into the oral cavity with a marked mesial inclination".

1.7 theories of PDC

Two main theories have been

proposed to explain the occurrence of palatally displaced maxillary canines: the "guidance theory" and the "genetic theory".

According to the guidance theory.

in its simplest form, the canine lacks the guide during the eruption pathway because of extra space in the apical part of the maxilla, owing to hypoplastic or missing lateral incisor.

This theory supports that palatally displaced canines are frequently found in dentitions with peg- shaped or missing laterals **(Brin I,1986 - Miller BH,1963 - Zilberman Y,1990)** and spaced and late developed dentitions **(Shapira J,2000- Becker A,2000)**.

Even if these anomalies are genetically determined, the guidance theory states that the palatal canine displacement has not a similar genetic association but occurs as a result of these local environmental disturbances **(Becker A,1995)**.

randomized controlled study of 19 individuals selected among consecutively treated 12.000 patients, investigated the hypothesis that palatal displacement of canines was under genetic influence.

Within the same individual, each side acted as control for the other side. Even though the peg shaped or missing lateral incisors have been shown to be associated with palatal displacement of canines, the frequency of impaction was unequal in each patient with a missing lateral incisor on one side and a peg-shaped or reduced lateral incisor on the other.

The connection between palatal canine displacement and normal size developing lateral incisor was studied by Becker et al **(Becker A,2002).**

Genetic Theory:

The genetic theory assigns the eruption anomaly of the upper permanent canine as a result of a developmental disturbance of the dental lamina.

This theory indicates multiple evidential categories for the genetic origin of palatally impacted canines, such as familial and bilateral occurrence, sex differences, as well as an increased occurrence of other significant reciprocal dental associations such as ectopic eruption of first molars, infraocclusion of primary molars, aplasia of premolars and one third molar **(Peck S,1996-Peck S,2002).**

They supported that the palatally displaced canine belonged to the spectrum of dental abnormalities related to hypodontia. Peck et al., **(Peck S,2002)** examined the specificity of tooth-agenesis sites associated with the occurrence of 58 palatally displaced canines.

Palatally displaced canines associated significantly ($p<0.01$) with third molar agenesis. This type of dental anomalies belong to the so-called posterior orofacial

field; a condition of increased susceptibility to developmental defects in the distal elements of a dental series.

Even though palatally impacted teeth can cause migration of the neighbouring teeth, loss of arch length, cystic lesions and infection **(Bishara SE,1992).**

the most important sequel of abnormal eruption path of the canine within the dentoalveolar process is root resorption of the nearby lateral incisors, jeopardizing their longevity. Unfortunately, resorption of the incisor roots is almost impossible to diagnose clinically because of lack of symptoms

1.8 Diagnosis

The permanent canine tooth in the upper (maxillary) jaw sometimes grows into the roof of the mouth and does not erupt into the dental arch at the appropriate age. This is called a palatally displaced canine or PDC. The reported prevalence of PDC in the population varies between 1% and 3% **(Ericson 1987; Thilander 1973),** and it is usually discovered during a clinical dental examination and then confirmed using dental radiographs.

Clinical features of a PDC include the canine not being palpable in the buccal sulcus by the age of 10 to 11 years, an asymmetry being present in palpation between the left and right side of the upper jaw, and the lateral incisor being late to erupt or showing a significant buccal proclination **(Husain 2016).**

Dental radiographs may then be used to identify the exact position of the unerupted canine, usually by taking two radiographs at varying angles to the tooth and utilising the principle of parallax to localise it **(Husain 2016).**

Sometimes an unerupted canine is positioned to the outside or buccal to the dental arch (buccally displaced canine or BDC). It was thought that the majority of unerupted canines are displaced palatally (85%); however, one computerised

tomography (CT) study suggested that 50% were palatally displaced, with the remainder either being positioned buccally or in the line of the arch **(Ericson 2000).**

Unerupted permanent canines can lead to root resorption of the adjacent teeth. Root resorption (a pathological or physiological process that results in the loss of cementum, dentine or pulp) is common, particularly in females with enlarged dental follicles **(Chaushu 2015).**

1.8.1 PREDICTIVE VARIABLES IN MIXED DENTITION

I). Clinical Evaluation

The most critical point in the prevention of possible maxillary canine impaction is the ability to recognize the tooth displacement early and to predict the subsequent failure of eruption.

The average age when a maxillary canine should erupt is 13 years in boys and 12 years and 3 months in girls **(Bishara SE,1992;Moyers RE,1976).**

So, the ability to diagnose canine displacement in the early mixed dentition (average age of 8 years) and to prevent impaction of the canine would be extremely useful for the clinician.

It has been postulated that some kind of genetically controlled interrelationship may exist for some of these coincidental dental anomalies, as evidenced by their frequency of association.

The best time to begin assessing potential impaction is during the early mixed dentition period, because the early diagnosis of one dental anomaly may indicate an increased risk for later appearance of others **(Baccetti,1998 ; Peck S,2002).**

Recognition of tooth disturbances in early mixed dentition such as peg shape or missing lateral incisors, enamel hypoplasia, aplasia of second premolars, and infraocclusion of primary molars could be predictors of possible canine impaction **(Langberg BJ,2000 ; Shalish M,2010 ; Peck S,2002).**

The mesiodistal crown dimensions of the maxillary and mandibular incisors have been reported also to be significantly smaller in patients with palatal canine displacement, having a valuable prognostic factor in mixed dentition period **(Olive RJ,2002 ; Peck S,1994).**

2)Maxillary Width of Palatal Displaced Canines:

One of the most common malocclusions in the primary (12%) and mixed dentition (7.2%) period is a maxillary transverse deficiency **(Hanson MI,1970).**

Mc Connell et al., **(McConnell TL,1996)** implicated a transverse maxillary deficiency in the anterior portion of the dental arch as a local cause for palatal canine displacement.

Inter-molar and inter-canine widths were recorded in 57 patients with 81 impacted maxillary canines and in 103 patients with normally erupted canines that served as a control group.

Their results demonstrated statistically significant differences ($p<0.05$) in the maxillary width between the two groups, particularly in the anterior portion of the maxilla. However, the authors did not differentiate the buccal canine ectopia from palatal canine impaction, which is considered to be a completely different entity **(Jacoby H, 1983).**

3)Radiographic Evaluation and Prevention of Impaction

The prognosis of displaced canines in mixed dentition period can be assessed accurately only when the exact position of the tooth is known.

Three variables visible on panoramic radiographs have been proposed:

I) angle measured between the long axis of the impacted canine and the midline.
II) distance between the canine cusp tip and the occlusal plane (from the first molar to the incisal edge of the central incisor) and
III) the sector where the cusp of the impacted canine is located **(Ericson S,1988).** According to the authors, the overlapping of the canine and lateral incisor can be considered as a sign of early canine displacement after the incisor has completed its root development.

Warford et al., **(Warford JH,2003)** investigated the sector location and the angulations from panoramic radiographs and showed that impacted canines will overlap the adjacent lateral incisor in 82% of cases.
The PA radiograph has been suggested as another option to detect early canine displacement **(Sambataro S,2005).**

At the age of 8, the maxillary canines should have medial inclination with crowns below the lateral border of the nasal cavity and the roots lateral to the border of the nasal cavity. Some parameters such as intercanine width, size of the follicle, symmetry and width of the nasal cavity might be associated with increased probability of upper canine impaction.
It was suggested that PA technique is a useful tool to identify the spatial position of the canine in the early mixed dentition period. When preformed properly, the frontal headfilm presents the anterior area of the face with a minimal amount of distortion. However, because of the extra radiation exposure, it is recommended in

those patients presenting with other tooth anomalies that associated with a higher prevalence of canine impaction **(Ricketts RM,1972).**

Today, clinicians are beginning to appreciate the advantages that the third dimension gives to clinical diagnosis and treatment planning.

Although the cone beam computed tomography principle has been in use for the last twenty years, only recently have affordable systems become commercially available. Walker et al., **(Walker L,2005).**

1.9 Treatment

The management of PDC can be lengthy and time - consuming.

1- Leaving a PDC in situ might be considered to avoid complicated treatment with surgery and fixed braces. This is a reasonable option if the primary canine has a good-sized crown and root; however, even in these favourable circumstances, the primary canine will eventually be lost and the timing of this loss is unpredictable. Loss may occur early on in teenage years or as late as the sixth or seventh decade of life. The outcome is often an unsightly gap, leading to the replacement of the canine with a denture, dental bridge, or implant. Therefore, it is generally recommended to

2- align PDCs in young people if the displacement is not too severe and treatment with fixed braces is suitable. Alignment often involves a surgical procedure under general anesthetic to uncover the buried tooth with either an open or closed exposure procedure **(Parkin 2017),** followed by over two years of fixed brace treatment to move the canine into the correct position **(Iramaneerat 1998).**

3- Other treatment options include surgical removal of the PDC

4- rarely, surgical transplantation of the PDC into the correct position within the dental arch.

In the past, the mainstay of these interventions was extraction of the primary canine in children aged 10 to 13 years old with normal space conditions. The main evidence offered to support this practice arose from a study by Ericson and Kurol **(Ericson 1988).**

Alternative interceptive interventions to encourage the eruption of PDCs have been proposed and investigated in a number of studies, including some RCTs. Most of these interventions involved some form of space creation with either

A)transverse expansion using rapid maxillary expansion (RME), a quadhelix (QH)

B)transpalatal arch **(Baccetti 2009 ; Baccetti 2011).**

c)anteroposterior expansion using headgear **(Silvola 2009).**

d)fixed orthodontic appliance **(Olive 2002 ; Olive 2005).**

Whereas most orthodontists would currently suggest interception for a PDC between the ages 9 and 13 years, **(Olive 2002)** reported some improvement in the position of unerupted PDCs when creating space with fixed appliances in 15-year-olds, so we suggest 14 years as an upper age for intervention.

Several time points are relevant in terms of measuring the success of an intervention. At four to six months, clinicians would generally be considering a follow-up radiograph to detect signs of improvement in the position of the unerupted canine. If the canine has not erupted after one year, most clinicians would consider it appropriate to explore further treatment options including surgical exposure. These timings are based on the work of Ericson and Kurol **(Ericson 1988).**

The mean length of treatment with fixed orthodontic appliances is 20 months **(Tsichlaki 2016)**.

Prolonged wearing of orthodontic appliances can have adverse effects, including poor gingival health, demineralisation and root resorption **(Brown 2016)**.

How the intervention might work?

It has been suggested that delayed loss of the primary canine might cause the unerupted permanent canine to be displaced, hence the idea of extracting the primary canine as an early intervention **(Lappin 1951).** Others have suggested that young people with a narrower than average upper jaw are more likely to have a PDC, hence the idea of creating more space for the unerupted tooth **(Schindel 2007).**

Why it is important to do this interceptive?

If an interceptive treatment leads to successful eruption of the PDC, this will prevent the need for a further more-invasive procedure, commonly performed under general anaesthetic, to uncover or expose the PDC canine and possibly prolonged treatment with orthodontic fixed braces. Fixed braces can lead to damage of the crowns of the teeth if not kept clean, and shortening of the roots of the adjacent teeth, as the canine is brought into alignment.

If the PDC is severely displaced then braces may be required for more than three years, which is costly both to the healthcare system and to the child in terms of time away from school.

Since the proposed interceptive interventions might be a young person's first experience of dental treatment, it is important that the effectiveness of the interventions in promoting the eruption of a PDC is investigated.

If early treatment is shown to work, then this will help clinicians justify intervening to prevent more invasive surgical treatment to uncover the buried tooth later. In addition, it is important to investigate whether there are any differences in the success rates or adverse effects of different interceptive interventions that could

inform clinical practice. A Cochrane Review on this topic was first published in 2009 and updated in 2012 **(Parkin 2009 ; Parkin 2012).**

Chapter Two

Materials And Method

This cross-sectional study was carried out on 300 students of Al Zahrawi University, from the prevalence of PDC (Palatally displaced canine) among them.

Criteria for the sample selection.

Before sampling, the following criteria were used to constitute the eligibility of sample' individuals to the dental examination carried out by the researcher.

1. Any gross facial asymmetry was excluded.
2. No history of systemic disease or regular drug used for chronic disease that affects the growth of the body.
3- their age range 18-26 years.
4- No history of orthodontic treatment.

*Any student don't have the criteria mentioned above is excluded.

Material:

The following instruments were used during dental examination of sample individuals and considered in this research work:
The instruments used in examination

1.Disposable sterilized dental mirror
2.Disposable sterilized dental probe
3.Disposable gloves
4.Disposable sterilized masks
5.Portable torch-light
6.Case sheet to register the information obtained.

Figure 4 : torch-light

Figure 5: Disposable dental mirror

Figure 6: Disposable gloves

Method :

The cross-sectional study on 300 students aged between 18 and 26 in city of Karbala . They were examined from both genders and females.

The students of university were examined with the use of disposable dental mirrors, disposable dental probes disposable tweezers, gloves, and masks Each student was seated at a height suitable for examination.

The PDV was determined using visual and tactile investigations; since no radiographs were taken. Canines considered as malposed if they are located palatally out of occlusal line.

In the case that the light is not sufficient enough, a portable torch-light is used to Enable the examiner to continue his examination.

An examination was designed to meet the aims of this study mentioned previously, The examination done on 300 student 142 was female and 158 male.there is 23 cases of displaced teeth in females while 20 cases in males.

Figure 7: maxillary right palatally displaced canine

Figure 8: maxillary left palatally displaced canine

Figure 9: maxillary left palatally displaced canine

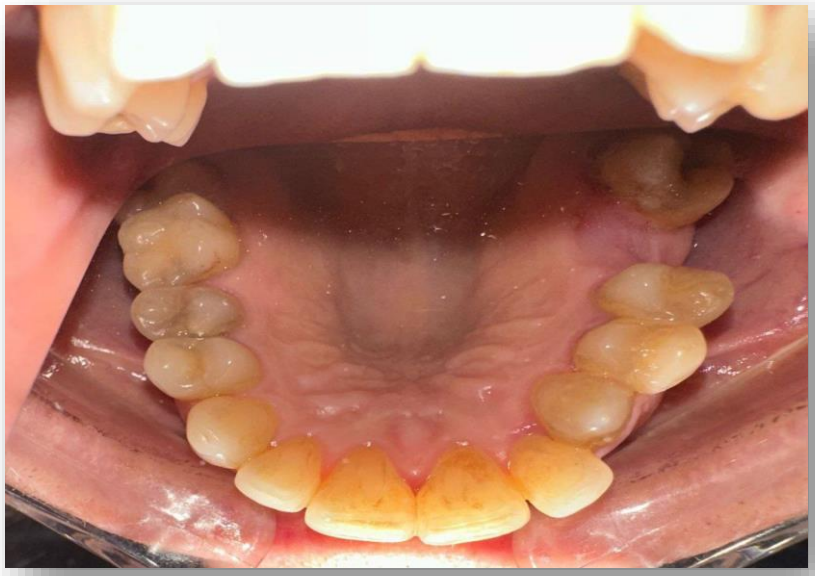

Figure 10: maxillary right palatally displaced canine

Figure 11: maxillary left palatally displaced canine

Chapter Three

Results

Sample		Palate			Buccal			Total
Female (N=142,47.33%)		R	L	Total	R	L	Total	
	No	3	3	6	6	11	17	23
	%	2.1	2.1	4.2	4.2	7.7	11.9	16.1
Male (N=158, 52.67%)		1	1	2	8	10	18	20
		0.6	0.6	1.2	5	6.3	11.3	12.5

Table 1: Distribution of teeth by gender, position and sides.

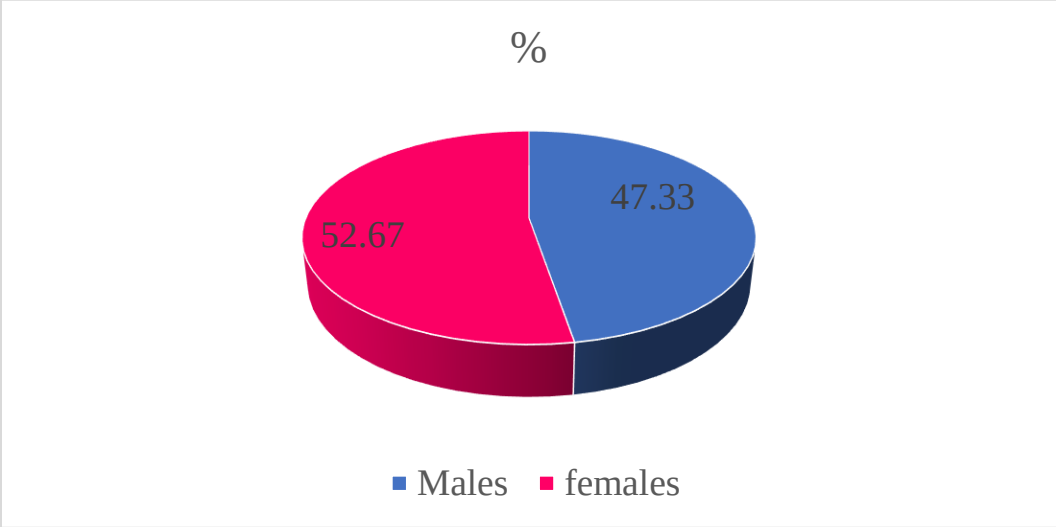

Figure 7: Distribution of subjects by gender

Findings above show that 300 subjects participated in this study, 142 females (47.33%) and 158 males (52.67%)., there is 23 cases of displaced teeth in females while 20 cases in males.

When comparing between sides (right and left), in females and males in palatally position, there is equal distribution of right and left (2.1% in females and 0.6% in males) while in buccally position, in both gender, right is lower than left (R=4.2%V Left =7.7% in females) in males, (R=5% V left=6.3%)

When comparing between position, in both gender and sides, number of buccally teeth is higher than palatally teeth, (in females, buccally=11.9% v palatally=4.2%, in males, buccally=11.3% V palatally=1.2%)

When comparing between gender, in both sides and position, mostly number of teeth is higher females than males except in right side and in the totally of buccally displaced teeth , number of teeth in males are higher than females

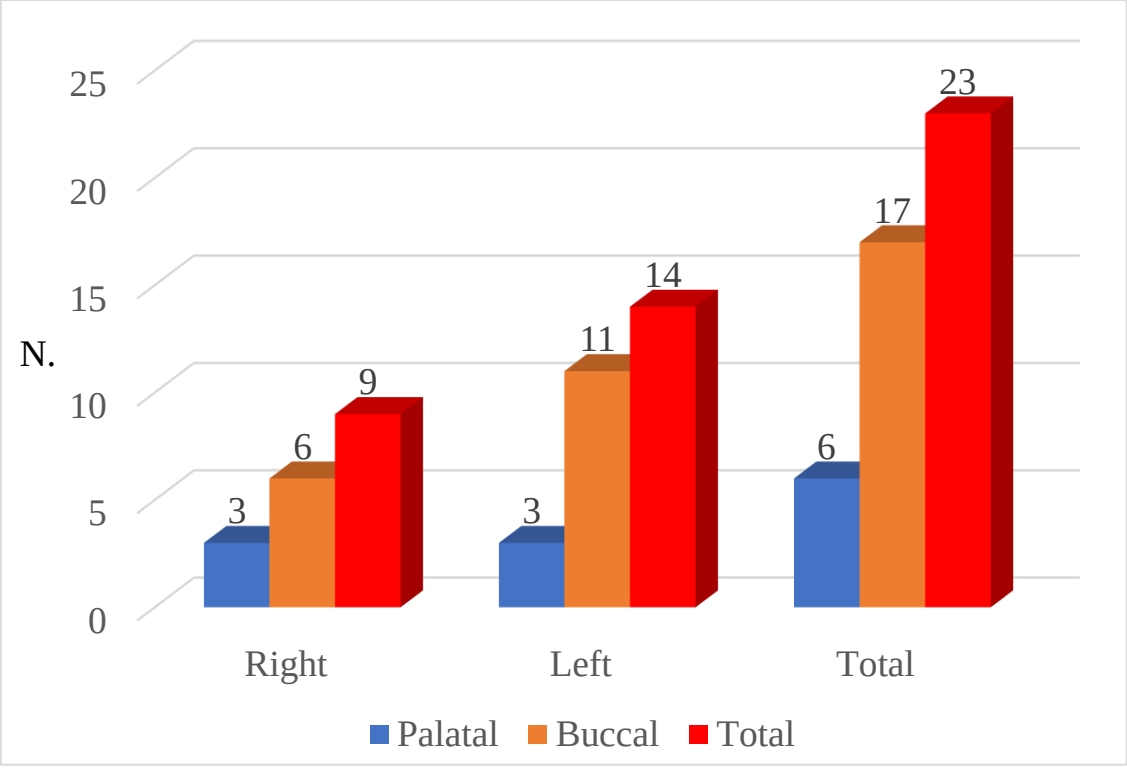

Figure 8: Distribution of displaced teeth in females

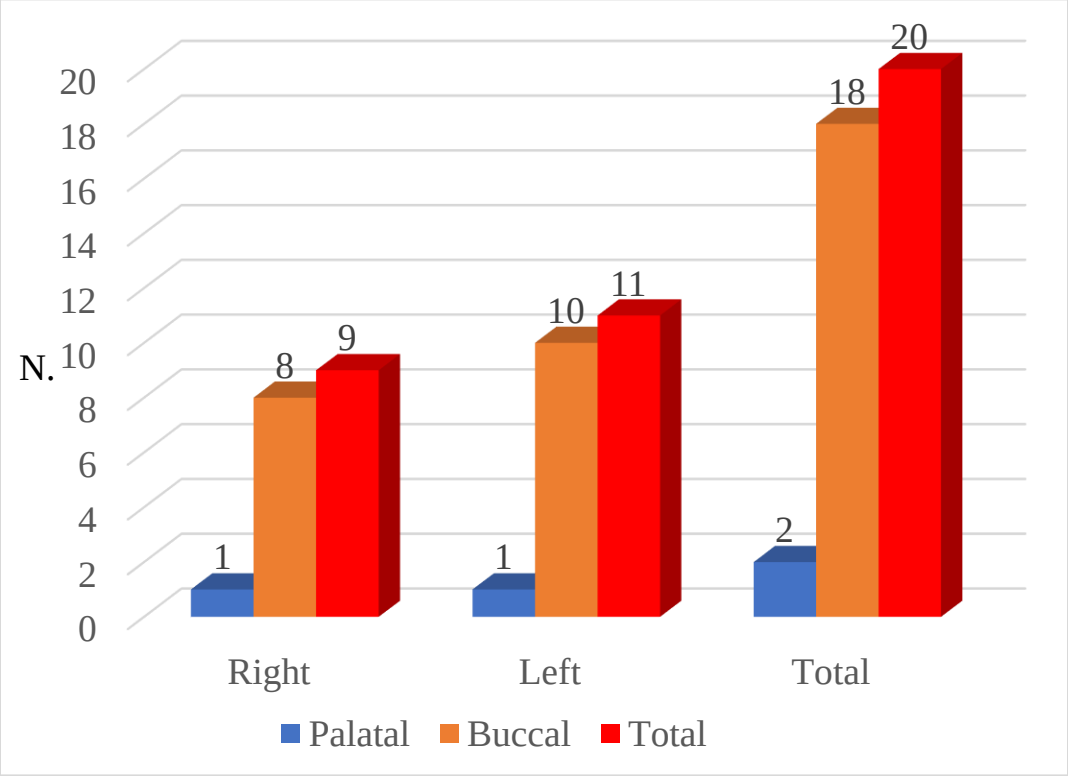

Figure 9: Distribution of displaced teeth in males

Data description, analysis and presentation were performed using Statistical Package for social Science (SPSS version -22, Chicago, Illinois, USA), cluster and Pie chart bar, frequency and percentage.

Chapter Four

Discussion

Discussion

4.1 Regarding gender difference

Unexpectedly, the prevalence malposed canines was higher in females than in males, which coincided with (Al-Sudani, 2018; Al-Jubouri, 2020; Al-Dabbagh, 2019)

Also because by the number of females in the total sample more than the number of males.

4.2 Regarding position difference

On the other hand, it was found that canines malpositioned higher baccally than palatally.

Because the palatally malpositioned canines tend to be impacted rather than erupted, this is recommended in a study by Baidasetal , 2022, which concludes that the severe of the palataly impacted canine is greater than that of buccal impaction

Chapter Five

Conclusion And Suggestions

5.1 Conclusion :

A palatally displaced maxillary canine (PDC) is a common developmental dental anomaly among different age groups

The early diagnosis and comprehensive management of PDC within 3 months of the unerupted permanent canine needs to be emphasized among medical and dental students. Treatment should combine the prompt referrals of unerupted permanent canines from general dental practitioners to orthodontic specialists, with consistent monitoring for early detection of the tooth's position, and comprehensive evaluation of its morphology and occlusal function. Since the unerupted tooth presents, a patients' quality of life is mainly affected by their dental appearance. Therefore patient concern, rather than the severity of malocclusion is considered by family and patients as factors related to an orthodontic treatment .Recognition of tooth disturbances in early mixed dentition which are genetically associated with canine impaction can aid the clinicians in the early diagnosis of this clinical situation. If the displacement of the canines is detected early, the clinicians should then focus on the means of preventing a possible impaction. Extraction of deciduous canines in conjunction with the use of cervical pull headgear, and rapid maxillary expansion have been reported to be effective procedures in the interceptive treatment of maxillary canine impaction. There is an imperative need for more randomized controlled trials with adequate sample sizes to decide which treatment produces the most successful outcome.

In our study we found

1- The prevalence of malposed canines in Iraqi students of Al Zahrawi University College was (23cases females while 20 case male).

2- The prevalence of malposed canine in the current study was found higher in

Females than males

3- when we comparing both sides,there is equal distribution of rights and left side in both genders

5.2 Suggestions:

1) investigation of the genetic factors that are hypothesized to influence this developmental anomaly in large clinical samples using the appropriate genotyping techniques.

2) establishment of enhanced diagnostic criteria related to canine impactions through the use of CBCT.

3) Increase the sample number to
include all Iraqi colleges.

4) Increase the range of the age of selected sample.

5) The physical, social, and
psychological effects of PDC need to be investigated further to understand the importance of PDC on people's life.

6) the effect on malocclusion on the smile and face can be investigated

7) Station of students with there malocclusion and the effect on their confidence can be investigated.

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يشير مصطلح "الناب المنطمر" إلى ناب (ناب) لم يبزغ إلى موضعه الطبيعي في القوس السني خلال الوقت المتوقع. وترتبط هذه الحالة عادةً بالأنياب العلوية، وهي ثاني أكثر الأسنان انطمارًا بعد الأضراس الثالثة (ضرس العقل).

التعريف:

الناب المنطمر هو سن يبقى منغرسًا في عظم الفك أو اللثة ولا يبزغ في الفم بسبب حاجز مادي، أو مسار بزوغ غير طبيعي، أو ضيق في المساحة.

الأسباب:

ضيق المساحة (الازدحام):

عدم وجود مساحة كافية في القوس السني لبزوغ الناب.

العوامل الوراثية:

تاريخ عائلي للإصابة بالأنياب المنطمرة.

احتباس الناب اللبني لفترات طويلة أو فقدانه المبكر:

إذا لم يسقط السن اللبني في الوقت المناسب أو سقط مبكرًا جدًا، فقد يؤثر ذلك على بزوغ الناب الدائم.

مسار بزوغ غير طبيعي:

ينحرف الناب عن مساره الرأسي الطبيعي.

وجود أسنان زائدة:

قد يعيق مسار بزوغ الأسنان.

الأكياس أو الأورام السنية:

يمكن أن تعيق هذه الأورام بزوغ الأسنان.

الأنواع:

الناب المنطمر شفويًا:

السن ملتصق بجهة الشفة من الفك.

غالبًا بسبب الازدحام أو عدم كفاية المساحة.

الناب المنطمر حنكيًا:

السن ملتصق بسقف الفم.

قد يكون السبب عوامل وراثية أكثر من كونه ازدحامًا.

الأعراض السريرية:

غياب الناب في القوس السني بعد وقت بزوغ الأسنان المتوقع (عادةً في سن ١١-١٣ عامًا).

احتباس الناب الأساسي لفترة طويلة.

انتفاخ أو تورم في الحنك أو الغشاء المخاطي الشفوي.

عدم تناسق القوس السني.

هجرة الأسنان المجاورة، مما يُسبب تباعدًا أو ازدحامًا.

تأخر بزوغ الأسنان المجاورة.

التشخيص:

الفحص السريري

التصوير الشعاعي:

أشعة سينية بانورامية.(OPG)

أشعة سينية محيطية وإطباقية.

تصوير مقطعي محوسب (CBCT) لتحديد الموقع ثلاثي الأبعاد في حال وجود مشكلة معقدة.

المضاعفات في حال عدم العلاج:

امتصاص جذور الأسنان المجاورة (خاصةً القواطع الجانبية).

تكوّن كيس (كيس سنّي).

سوء اصطفاف الأسنان.

مشاكل جمالية.

صعوبة في العلاج التقويمي لاحقًا.

خيارات العلاج:

العلاج الوقائي (الكشف المبكر):

خلع الناب اللبني لتشجيع بزوغ الناب الدائم بشكل صحيح.

خلق فراغ باستخدام أجهزة تقويم الأسنان.

الكشف الجراحي وتقويم الأسنان:

كشف السن المطمور جراحيًا.

تثبيت دعامة تقويم الأسنان وتوجيهها إلى مكانها باستخدام أجهزة تقويم الأسنان.

الخلع:

إذا كان السن منزاحًا بشدة أو ملتصقًا بالعظم (ملتصقًا بالعظم)، فقد يكون الخلع ضروريًا.

قد يلي ذلك استبدال السن بتركيبة اصطناعية (زراعة أو جسر).

مثال على حالة سريرية:

فتاة تبلغ من العمر 13 عامًا تعاني من ناب علوي غير بارز وناب لبني محتفظ به. تُظهر الأشعة السينية البانورامية نابًا علويًا أيمنًا مطمورًا في الحنك، متداخلًا مع جذر القاطع الجانبي. يوصي أخصائي تقويم الأسنان بخلع الناب اللبني بشكل احترازي، ثم الكشف الجراحي، يليه شد تقويمي للناب الدائم.

ملخص الكلمات المفتاحية:

الناب المطمور: عدم بزوغ السن.

شائع: أنياب علوية.

الأسباب: ازدحام، وراثي، احتباس الأسنان اللبنية.

الأنواع: انحشار الشفة مقابل انحشار الحنك.

التشخيص: الأشعة السينية، التصوير المقطعي المحوسب المخروطية.

العلاج: وقائي، جراحي، تقويمي.

المضاعفات: امتصاص الجذور، الأكياس، تجميل الأسنان.