

Canine malposition in Iraqi dental students

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ABSTRACT

Background: This study aims to assess the prevalence of malposed canines among students of College of Dentistry/ University of Baghdad and evaluate the relation between canine malposition and occlusal features.

Material and method: The prevalence of buccally malposed canines was estimated by intra-oral visual examination of 250 young adult subjects (106 males and 144 females), their ages were between 19-24 years.

Results: The prevalence of the mandibular malposed canine (12%) was higher than the maxillary buccally malposed canine (10%). Generally, malposed canines were found higher in females than in males and mostly seen in class I Angle's classification and buccally more than lingually.

Conclusion: A relationship exists between canine malposition and other occlusal features.

Keywords: tooth malposition, occlusal features, Angle classification (**Received: 25/8/2019; Accepted: 8/10/2019**)

INTRODUCTION

Most of clinicians agree that permanent canines are important for both esthetic and functional points of view and therefore, should be preserved whenever possible.⁽¹⁾

However Dewell (1949)⁽²⁾ mentioned that no tooth is more interesting from a developmental point of view than the upper cuspid, of all teeth it has the longest period of development, the deepest area of development, and the most devious course to travel from its point of origin to full occlusion which makes it susceptible much longer to environmental influences, whether favorable or unfavorable. It is rarely congenitally missing and it is the final factor in securing contacting relations between all the teeth. This means it has to be prepared by wedging action, part of space it requires in the dental arch. Hunter (1981)⁽³⁾ stated that "crowding of the permanent teeth and insufficient space may exacerbate a primary displacement on the facial or palatal side of the arch in addition it may displace the canine".

On the other hand, Tulley and Cryer (1969)⁽⁴⁾ mentioned that the unerupted and displaced canine is quite a common problem, while Foster (1975)⁽⁵⁾ stated that the permanent upper canine is probably the tooth which is most commonly developed in a wrong position.

Aims of the study

1. Assessment of the prevalence of mal-posed canine among students of college of dentistry in Baghdad University in both arches and gender.
2. Evaluation of the relation between canine malposition and occlusal features (Angle classification).

MATERIAL AND METHOD

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 orthodontic treatment.
3. No history of systemic disease or regular drug used for chronic disease that affects the growth of the body.
4. Cases of cleft lip and palate were excluded.

Materials

The following materials were used during dental examination of the sample individuals and considered in this research work.

1. Mouth mirror for clinical investigation.
2. Medical gloves.
3. Portable torch-light.
4. Case sheet to register the information obtained.
5. Ordinary chair bench for examination.

Method

The sample was selected from the University of Baghdad - College of dentistry students, all were subjected to clinical dental examination. Each student was seated on an armed chair whose height is suitable for examination. In the case that the light is not sufficient enough, a portable torch-light is used to enable the examiner continue his examination. An examination was designed to meet the aims of this study mentioned previously. Each piece of information on the examination form was numerically coded to enable statistical techniques to analyze the data collected from the sample.

After the collection of data, it was arranged in tables then statistical analysis was done to reach the final results.

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RESULTS AND DISCUSSION

The prevalence of canine malposition in both arches and gender

The total prevalence of malposed canine in both arches and gender was 11%; however, concerning arch difference, the distribution of malposed canines in the lower arch was higher (12%) than in the upper arch (10%) while regarding gender difference, the distribution of malposed canines was higher in male (11.3) than in females (10.7) per arch (as shown in table 1 & figure1).

Table 1: Distribution of malposed canines in both arches and gender

Gender	Sample No.	Age (Yrs.)	Upper malposed Canine	Lower malposed Canine	Total / arch
Male	106	19-24	10 (9.4%)	14 (13.2%)	24(11.3%)
Female	144	19-24	15 (10.4%)	16 (11.1%)	31(10.7)
Total	250	19-24	25 (10%)	30 (12%)	55(11%)

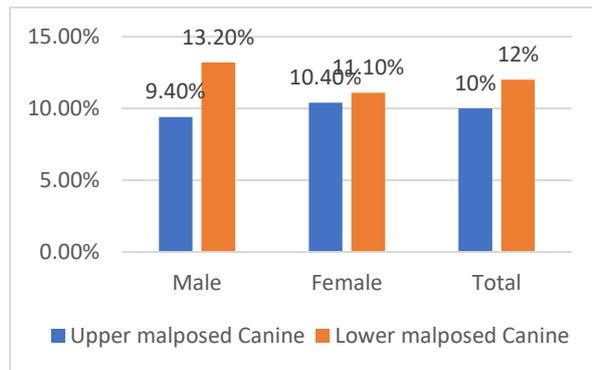


Figure 1: Distribution of malposed canines in both arches and gender

Unexpectedly, the prevalence of malposed canine was higher in the lower arch than in the upper arch for both sexes (Table 1 and Fig. 1). This may be due to higher tendency for crowding in the lower than the upper arch which is coincided with (Abdulla, 1996; Batayina, 1997; Al-Huwaizi et al. 2002a, Aldabagh et al. 2003)⁽⁶⁻⁹⁾ as crowding of the teeth is considered as one of the common etiological factors that cause malpositions of the canines, on the other hand the result of the current study was found to be in contrast to the finding of Al-Huwaizi et al. (2002b)⁽¹⁰⁾ who found that malposed canines were more prevalent in the upper arch than the lower arch and this contradictory finding may be because of their younger age sample (13 years).

On the other hand it was found that canine malposition was higher in males than females which came to be in contrast to the finding of Aldabagh et al. (2003)⁽⁹⁾ and Aldabagh (2011)⁽¹¹⁾; this is may be due to the difference of the sample selection criteria since they did the study in

Yemenis population while the last researcher did his research in Kurdish population.

The position of malposed canines

Concerning the position of malposition (buccal or lingual) the distribution of malposed canine was higher in buccal direction (83.6%) than in lingual direction (16.3%), (as shown in table 2 & figure 2).

Table 2: Distribution of canine malposition according to the position

Gender	Malposed canine No.	Buccally malposed Canine	Lingually malposed Canine
Male	24	20 (83.3%)	4 (16.6%)
Female	31	26 (83.8%)	5 (16.1%)
Total	55	46 (83.6%)	9 (16.3%)

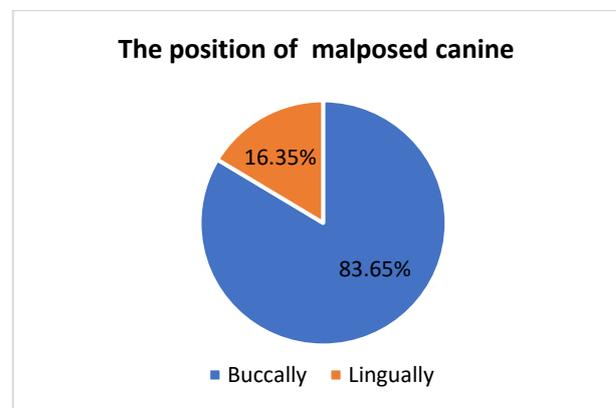


Figure 2: Distribution of canine malposition according to the position

The result of this study is in agreement with most of other studies which found higher prevalence in canine malposition in buccal than lingual direction specially in the upper arch, since the mucoperiosteum present in the palatal side is thicker and denser than in buccal side. This mostly leads to the impaction of canines palatally rather than their malposition.⁽¹²⁾

The distribution of malposed canine according classes of malocclusion

Concerning the distribution of malposed canine according to the classes of malocclusion, malposed canines were mostly found higher in class I malocclusions than in the other classes in this study, (as shown in table 3 & figure3).

Table 3: Distribution of malposed canine in different classes of malocclusions

classes of malocclusion	No.
CI I	54 (98.1%)
CI II div. 1	1 (1.8%)
CI II div. 2	0 (0.0%)
CI III	0 (0.0%)

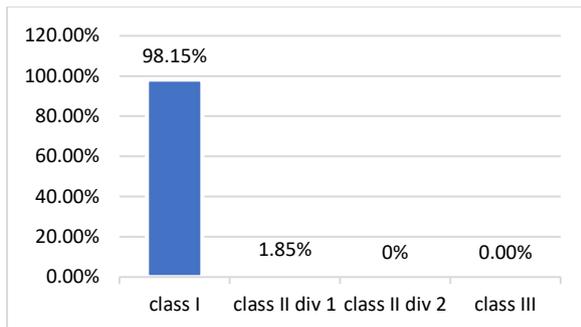


Figure 3: Distribution of malposed canine in different classes of malocclusions

The direction of malposed canines

Concerning the direction (right & left) of malposed canine, the distribution of malposed right canine was slightly higher (10.2%) than the left (9.6%), (as shown in table 4).

Table 4: Distribution of malposed canines according to the direction

Gender	Sample No.	Arch No.	Right	Left
Male	106	212	23 (10.8%)	22 (10.35%)
Female	144	288	28 (9.7%)	26 (9%)
Total	250	500	51 (10.2%)	48 (9.6%)

Clinical consideration

The high prevalence of malposed mandibular canines in Iraqi population indicates the importance of studying this malocclusion, therefore if there is any variation in the position of mandibular canine which is considered as important as maxillary canine may lead to

abnormal canine relation and henceforth unstable occlusion.

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الخلاصة

تم دراسة نسبة حصول بزوغ الناب خارج القوس الاسناني بطريقة الفحص المباشر لعينة تتألف من 250 شخص تتراوح اعمارهم بين 19-24 سنة (106 ذكر و 144 انثى) وقد تولت الدراسة للنتائج التالية : نسبة بروز الناب خارج القوس الاسناني في الفك الاسفل (12%) اعلى من الفك الاعلى (10%) وفي الاناث اكثر من الذكور وفي الاطباق من النوع الاول اكثر من الباقين والى خارج القوس الاسناني اكثر من داخله.