

PERSPECTIVES ON PREVALENCE OF CANINE ECTOPY IN ROMANIAN ORTHODONTIC PATIENTS

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Abstract

Ectopic buccally maxillary canines occur frequently in the orthodontic practice in the United States of America while, in Romania, the prevalence is lower, namely of 10.52%, out of which 77.5% in females. Almost all cases were buccal canine ectopy: 95%. Skeletal class I was met in 45% of the investigated subjects, while molar class I had a percentage of 50%. Deep bite is present in 50% of the cases and neutral vertical anterior relationship – in 40%. As to the possible correlations with other orthodontic anomalies, 90% of the patients included in this study had no other dental anomaly.

Keywords: *canine ectopy, skeletal class, dental anomaly.*

1. INTRODUCTION

Canines are among the most important teeth for dental occlusion but also for aesthetic reasons, therefore a thorough study on all aspects of canine ectopy is needed. Orthodontists and general dentists should be able to diagnose these anomalies in early stages, so that the treatment could be the most effective. There has been a long time since a prevalence study on canine ectopia was made in Europe, and even longer in Romania, therefore, such a study should be resumed. As known, the ectopic canine is an affection where, because of lacking growth in the jaw, or maybe just in part of it, the primary canine finds a way of eruption that intercepts its loss on time, generating a consequent malposition of the permanent canine [1,2].

In general, the prevalence of different orthodontic anomalies changes quite a lot with the geographic area and decades, as shown in the following [3].

The aim of this study is to show the prevalence of canine ectopia in the Romanian population of today, and to find any correlation between this diagnostic and sex, skeletal pattern, occlusion, palate, or other dental anomalies [3-5].

It is also important to compare our findings with other studies from other countries all over the world.

2. MATERIALS AND METHODS

This is a retrospective study conducted in a private orthodontic office in Bucharest. A total number of 380 orthodontic records, including: facial pictures, dental pictures, orthopantomograms and telerradiographs, were studied. The records were collected between 2013-2021.

The selection criterion was that any patient, of any age or sex, should present at least one ectopic (upper or lower) canine. The 40 patients who met this criterion were registered, and the following data was listed in a table: age, sex, type of ectopy (buccal or palatal), skeletal class, occlusal transverse relation, vertical anterior relation, palate form, other associated dental anomalies.

For the statistical processing of data, the Microsoft Excel programs from Microsoft Office 2015, Google Docs and Google Drive were used.

All patients included in the study signed a form by which they agreed with the use of their pictures, radiographs, and other investigations for scientific research purposes.

3. RESULTS

Counting down the patients presenting at least one ectopic canine, 40 cases out of 380 investigated were found, meaning a percentage of 10.52% - a little bit lower than 6 years ago - 12.4% [6]. Surprisingly, half of them were under 18 years, while the other half were 19 or older, a

result showing that this condition is equally found in both children and adults.

As most of the orthodontic patients were females, it was expected to find more women affected by this disease: 31 respectively - 77.5%. The literature does not provide information on whether this dental anomaly is found more frequently in one sex or the other, still our result is to be considered.

As for the type of ectopy, almost all were vestibular - 38 out of 40, which means 95% (Fig. 1).



Fig. 1. Type of ectopy diagram

Skeletal class I was found in 18 cases, meaning 45%, class II - in 35%, and 20% - in class III (Fig. 2). This situation was somehow expected, as the main cause of ectopy is the lack of space, most frequently caused by disturbance in the development of the upper jaw (met both in class II and class III patients).



Fig.2. Skeletal class distribution for canine ectopy

The occlusal sagittal molar relationship is very precise in the present study, namely: 50% class I, because the disturbances for most ectopic canine cases are situated in the anterior parts of the jaws (crowding, narrowing of the upper jaw, etc.). Class II relationship is found in 27.5% of the cases and class III in 22.5%, as shown in Figure 3.

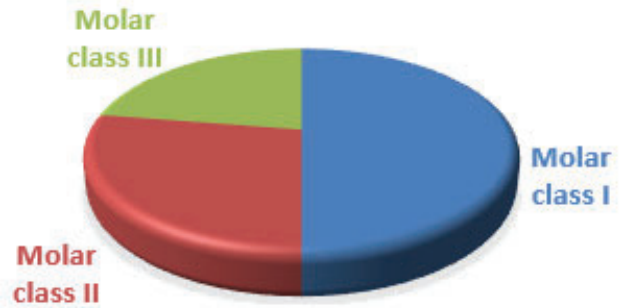


Fig. 3. Occlusal sagittal molar relationship in canine ectopy

The transverse molar and premolar relationship is rather diverse: cross bite for 47.5%, neutral - 47.5%, 2.5% - lingual relationship and 2.5% - incomplete crossbite (Fig. 4).



Fig. 4. Transverse molar relationship distribution among cases of canine ectopy

The anterior vertical relationship is diverse, most of the subjects showing a deep bite, in different grades: 1/2, 1/1, 3/4 - together reaching a percentage of 50%; neutral relationship, 1/3 is met in 40% of the cases. The complete image of the vertical relationship is illustrated in Figure 5.

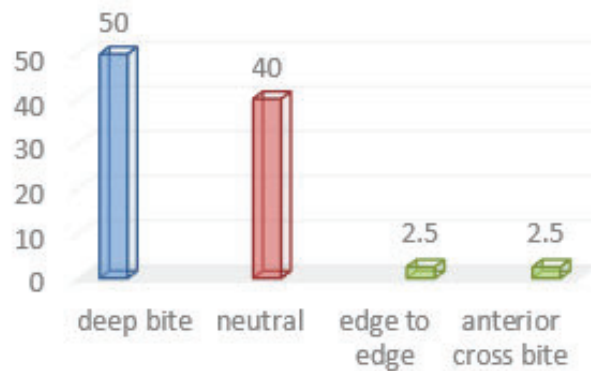


Fig. 5. Vertical anterior relationship distribution among cases of canine ectopy

The palatal plate is neutral in 24 cases – 60%, and deep in 40% of the cases included in this study, as shown in Figure 6.

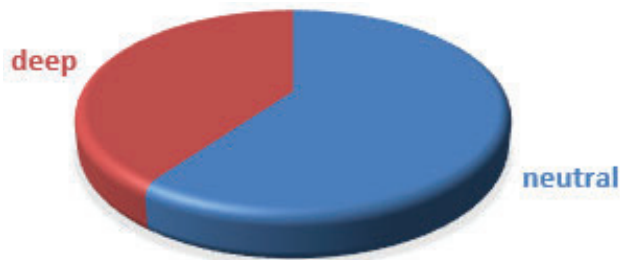


Fig.6. Palatal plate form distribution among cases of canine ectopy

The present study also tried to establish possible connections between other dental anomalies and ectopy, so that we looked for other anomalies in the subjects included. A low number of patients with other anomalies were found, like nanic lateral incisor – 5% or impacted teeth – 5%. 90% of the patients included in the study had no other dental anomaly. This finding agrees with other studies on this theme, that found correlations between the impacted teeth and nanic or agenesis of the lateral incisor, but no correlations with canine ectopy (7-10) – Figure 7.

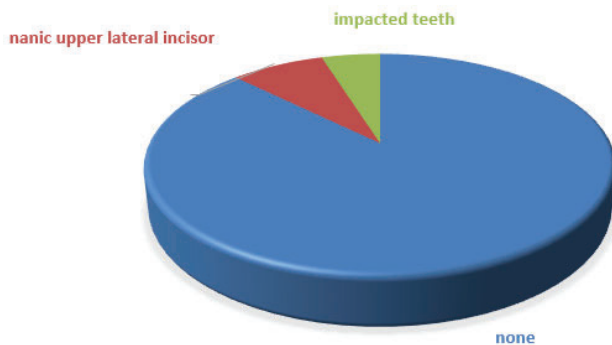


Fig. 7. Other dental anomalies distribution among cases of canine ectopy

4. DISCUSSION

Ectopic buccally maxillary canines are one of the most frequently met situations in the orthodontic practice in the United States of America while, in Romania, the prevalence is lower. The incidence of permanent upper canine impaction or ectopic eruption in the general

population is approximately 1-2%, according to Fleming [11,12]. Palatal erupted canines occur twice as frequently as buccally [11,12], but still buccally displaced canines are regularly seen in US clinics.

In our country, the prevalence of canine ectopy found in our study, of 10.52%, is a little bit lower than 16 years ago, in 2005, when its value was 12.4% [6].

As to the maximum incidence of canine ectopy on age groups, it occur in subjects of 16 or older, in a percentage of 90%: 36 patients out of 40. This could mean that age addressability for orthodontic treatments has been growing, however this situation poses a serious question mark on the early orthodontic prevention and pedodontics surveillance. In 2005, in Romania, the maximum incidence was met in the age group of 12-14 years [6].

Canine ectopy mainly occurs on a deficiency of growth (mostly) in the upper jaw [13,14], so we did expect to find a narrowed upper arch, therefore a total crossbite percentage (including edge-to-edge cases – incomplete crossbite) was found is 50% of subjects. Accordingly, the plate was narrow for 40% of the subjects, still there is need for more precise investigations in this field, like model measurements.

The deep bite found in 50% of the subjects could be also correlated to class II tendency, even if the percentage for skeletal class II was only 35% while the molar class II was found in 27.5% of cases. A deep bite means that the axes of the incisors are oriented towards the plate, generating a larger lack of space in the anterior area. It would be interesting to find out the percentage of the possible cases of ectopic canines and anterior overjet with spaces between incisors.

Further studies need to be done in this field, on average populations, to find out the prevalence of canine ectopy in different cities of our country.

5. CONCLUSIONS

Even if the prevalence of canine ectopy is very low in the average population, the number of clinical aspects observed during the treatment is enormous. It is perhaps among the most unaesthetic orthodontic anomaly, so that treatment addressability should be very high.

The clinical aspects are key points toward an accurate treatment, therefore, the need of always knowing what this dental anomaly can be associated with.

The prevalence of canine ectopy found in the present study, of 10.52%, needs further investigations on a larger sample of patients from different parts of the country, in order to be as accurate as possible.

The highest incidence of canine ectopy on age groups was found in subjects of 16 years or older - in a percentage of 90%.

No significant correlations were established between class II or class I malocclusions, not even palate width or the presence of an ectopic canine.

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