

Original Research

Prevalence of mandibular canine impaction

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ABSTRACT:

Background: To evaluate the prevalence of impaction of mandibular canine. **Materials & methods:** A total of 30 subjects were enrolled. All the included OPG images were screened for the presence of impacted teeth. Out of the total, 16 were male and 14 were female. The data collected were descriptively analyzed to establish the frequency of impacted canines. The data were statistically analyzed using SPSS software. **Results:** A total of 30 subjects were enrolled. According to gender prevalence, there were 53.4% rate in males and 46.6% in females. There is no gender difference in canine impaction. On comparing maxillary canines with mandibular canines, the most commonly found impacted teeth were maxillary canines. **Conclusion:** The prevalence of mandibular canine impaction is less.

Keywords: impaction, canine, mandibular teeth.

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INTRODUCTION

Impacted teeth are defined as teeth that remain completely or incompletely embedded in the jawbone or mucosa for more than 2 years following physiological eruption time.¹

Although there are wide variations in impacted teeth among individuals, third molars remain the most prevalent impacted teeth followed by maxillary canines.² Multiple factors are considered responsible for higher impaction prevalence of canines; for instance, maxillary canines have comparatively longer roots and path of eruption, develop deep into the jaw, and erupt following neighboring teeth. In contrast, mandibular canine impactions are significantly less frequent compared to maxillary canines.³

The impaction of tooth have been studied by many authors and various terminologies have been given in the literature to define impaction including delayed eruption, primary retention, submerged teeth, impacted teeth etc.⁴ According to Abron et al, impaction can be defined as a deceleration of the normal eruption process of the tooth and according to Lindauer et al, it can be defined as a impaction if it

was not erupted after completion of the root development or if the eruption of the contralateral tooth was there for at least 6 months with completion of root formation.⁵

In terms of timely diagnosis, it is often difficult to determine whether the missing canine is truly impacted or delayed eruption, especially in young patients. Hence, the detailed assessment of impact tooth for its location, angulation, and orientation is important for orthodontic treatment planning. For this purpose, a variety of radiographic assessment tools have been used to evaluate the impacted canines.⁶ Although cone-beam computed tomography has benefits of evaluating tissue dimensions more precisely and has been used for applications in general dentistry as well as orthodontics, high radiation dose is the major concern. In comparison, the panoramic radiograph (orthopantomogram [OPG]) uses remarkably lower radiation dose and provides comprehensive information regarding whole dentition, jaws, and the surrounding structures, which is frequently used for initial assessment.^{7,8} Hence, this

study was conducted to study and evaluate the prevalence of impaction of mandibular canine.

MATERIALS & METHODS

A total of 30 subjects were enrolled. All the included OPG images were screened for the presence of impacted teeth. Out of the total, 16 were male and 14 were female. This investigation included at least one or more impacted permanent canines that are not likely to erupt in the future such as those causing resorption in the root of the lateral incisor, inverted canines, and displaced canines. The data collected were descriptively analyzed to establish the frequency of impacted canines. The data were statistically analyzed using SPSS software.

RESULTS

A total of 30 subjects were enrolled. According to gender prevalence, there were 53.4% rate in males and 46.6% in females. There is no gender difference in canine impaction. On comparing maxillary canines with mandibular canines, the most commonly found impacted teeth were maxillary canines. The prevalence rate for maxillary canine was 70% and for mandibular canine was 30%.

Table 1: Prevalence of impacted canines according to gender.

Impacted canine	Male	Female	P - value
Total (30)	16 (53.4%)	14 (46.6%)	0.7

Table 2: Prevalence of impacted canines

Teeth	Maxilla		Mandible	
	Right	Left	Right	Left
Canines (30)	9	12	3	6

DISCUSSION

The potential of the maxillary canine for impactions and eruption guidance facilitated by lateral incisor are controlled by genetics. Therefore, the developmental stage of a tooth has a key role in guiding the ultimate position of canines and malocclusions.⁹ Although unilateral ectopic eruptions of canine are not very uncommon, the bilateral occurrence of maxillary canines is usual.¹⁰ In our study, a total of 30 subjects were enrolled. According to gender prevalence, there were 53.4% rate in males and 46.6% in females. There is no gender difference in canine impaction.

A retrospective cohort study by Sanu OO et al, studied 1250 panoramic radiographs taken of patients who presented to the Orthodontic Unit of Lagos University Teaching Hospital, Lagos, Nigeria between January, 2001 and September, 2008. The clinical data and panoramic radiographs were reviewed and observations on the status of missing permanent mandibular canine, symptoms as well as treatment methods employed were made. The incidence of mandibular canine impaction was found to be 1.36% in the studied demand population. A total of 17

patients (10 females and 7 males) had impacted mandibular canines. They showed 5 (27.8%) impacted canines were extracted, seven canines (38.9%) were attached to bonded brackets after surgical exposure and traction was applied while six (33.3%) impacted mandibular canines were left in place for periodic observation.¹¹

Another study by Yavuz MS et al, a retrospective cohort study of 5022 panoramic radiographs taken of patients who presented to the Oral and Maxillofacial Surgery Service of the Faculty of Dentistry at Ataturk University in Erzurum, Turkey between January, 1998 and March, 2006. The panoramic radiographs and clinical data were reviewed. Observations were made on the status of missing permanent mandibular canines; retained deciduous canines; side and number of mandibular canines; sex and age of patients; and any other associated pathology or symptoms as well as treatment methods employed. The incidence of mandibular canine impaction is 1.29% in the 5022 individuals of this Turkish subpopulation. A total of 65 patients had impacted mandibular canines with 33 being females and 32 males. They studied 41 impacted mandibular canines were extracted. Twenty-three canines were attached to bonded buttons for orthodontic eruption purposes. After surgical exposure, one impacted canine was transplanted and the others were left in place for observation.¹² In our study, on comparing maxillary canines with mandibular canines, the most commonly found impacted teeth were maxillary canines. The prevalence rate for maxillary canine was 70% and for mandibular canine was 30%.

Rohrer A where they have found the ratio of maxillary and mandibular impacted canine 20:1 ratio (2.06% and (0.1%),¹³ Grover and Lorton¹⁴ reported 0.22%, Chu et al¹⁵ reported 0.07% among 7486 patients. In other studies by Aydin et al. among Turkish population, the incidence reported was higher than the present study 0.44% which was studied among 4500 patients.¹⁶ Another study by Jain S et al, a total of 1593 patients OPG's were thoroughly evaluated and the prevalence of different canine anomalies like impacted maxillary and mandibular canine, transmigration, transposition, agenesis and ectopic canine eruptions were evaluated. The canine angulation, vertical position in relation to occlusal surface of adjacent tooth's and the overlapping of adjacent teeth's crown by impacted canine was evaluated by tracings. Out of 1593 subjects, 22 patients had impacted canines. The prevalence of canine impaction was 1.38%, with maxillary canine impaction of 0.93%, mandibular canine impaction of 0.37%, canine agenesis 0.06%, transmigration 0.12%, canine transposition 0.18% and the ectopic canine was 5.5%.¹⁷

CONCLUSION

The prevalence of mandibular canine impaction is less.

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