

# Pattern of Canine Impaction in Relation to Lateral Incisors: A Retrospective Study.

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Received: January 2019

Accepted: January 2019

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## ABSTRACT

**Background:** Objective: The aim of this study was to evaluate the pattern of maxillary permanent canine impaction in relation to lateral incisors. **Methods:** This retrospective study was conducted on a sample of population that had been treated in the Dentistry Department. The study consisted of clinical and radiographic examination of 56 patients coming to the department for treatment. The patients having age between 15-18 years were included in the study. Data was analysed using SPSS version 22. A p-value of <0.05 was accepted as statistically significant. **Results:** Females had more impaction of maxillary canine than males. Palatal canine impaction were the most common in males while buccal canine impaction were more common in females. **Conclusion:** Maxillary palatal impaction was more common than buccal impaction and maxillary palatal and buccal impaction occurred more often in female subjects.

**Keywords:** Canine impaction, buccal, palatal, Lateral incisor.

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## INTRODUCTION

Maxillary canines are important teeth in terms of aesthetics and function. Eruption of a maxillary canine occurs at an age ranging from 9.3 to 13.1 years,<sup>[1]</sup> and the likelihood of maxillary impaction ranges between 1% and 3%.<sup>[2]</sup> Maxillary canines are the most commonly impacted teeth, second only to third molars.<sup>[3]</sup> Maxillary canine impaction occurs in approximately 2% of the population and is twice as common in females as it is in males. The incidence of canine impaction in the maxilla is more than twice that in the mandible. Of all patients who have impacted maxillary canines, 8% have bilateral impactions.<sup>[4]</sup> Approximately one-third of impacted maxillary canines are located labially and two-thirds are located palatally.<sup>[5,6]</sup> The most common causes for canine impactions are usually localized and are the result of any one, or combination of the following factors: (1) tooth size/ arch length discrepancies, (2) prolonged retention or early loss of the deciduous canine, (3) abnormal position of the tooth bud, (4) presence of an alveolar cleft, (5) ankylosis, (6) cystic or neoplastic formation, (7) dilaceration of the root, (8) iatrogenic origin, and (9) idiopathic condition with no apparent cause.<sup>4</sup> The abnormal morphology of the maxillary permanent lateral incisors is also responsible for displacement

of the adjacent canines.<sup>[7,8]</sup> Shafer et al. suggested the following sequelae for canine impaction:

1. Labial or lingual malpositioning of the impacted tooth,
2. Migration of the neighboring teeth and loss of arch length,
3. Internal resorption,
4. Dentigerous cyst formation,
5. External root resorption of the impacted tooth, as well as the neighboring teeth,
6. Infection particularly with partial eruption, and
7. Referred pain and combinations of the above sequelae.<sup>[9]</sup>

It is estimated that in 0.71% of children in the 10–13 year age group, permanent incisors have resorbed because of the ectopic eruption of maxillary canines.<sup>[1]</sup>

The aim of this study was to evaluate the pattern of permanent maxillary canine impaction in relation to lateral incisors.

## MATERIALS & METHODS

This retrospective study was conducted on a sample of population that had been treated in the Dentistry Department. The study consisted of clinical and radiographic examination of 56 patients coming to the department for treatment. The patients having age between 15-18 years were included in the study. Patients with a history of trauma, craniofacial deformity associated with tooth aplasia or displacement, or previous orthodontic treatment

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were excluded from the present study. Data was analysed using SPSS version 22. A p-value of <0.05 was accepted as statistically significant.

## RESULTS

In our study, out of 56 patients examined females had more impaction of maxillary canine than males. [Table 1] Palatal canine impaction were the most common in males while buccal canine impaction were more common in females.

**Table 1: Pattern of Distribution of Maxillary Canine Impaction According To Gender**

Gender	N (%)	p- value
Female	32(57.14)	0.001
Male	24(42.85)	
Total	56(100)	

**Table 2: Patterns Of Maxillary Canine Impaction**

Gender	Buccal	Palatal	Buccopalatal
Female	12(21.42)	18(32.14)	2(3.57)
Male	15(26.78)	6(10.71)	3(5.35)
Total	27(48.21)	24(42.85)	5(7.35)
p-value	0.449	0.032	0.165

## DISCUSSION

The maxillary canines have the longest development period and the longest route from the point of formation to their final location in full occlusion. During their development, the crowns of the permanent canines are in close proximity to the roots of the lateral incisors.<sup>[10]</sup> Absence of the maxillary lateral incisor and variations in the root size of the tooth have been implicated as important etiologic factors of canine impaction.<sup>[4]</sup> According to Ericson and Kuroi, the absence of the “canine bulge” at earlier ages should not be considered as indicative of canine impaction. In their evaluation of 505 schoolchildren between 10 and 12 years of age, they found that 29% of the children had nonpalpable canines at 10 years, but only 5% had it at 11 years, whereas at later ages only 3% had nonpalpable canines.<sup>[1]</sup>

This retrospective study evaluated the pattern of maxillary permanent canine impaction in relation to lateral incisors.

A study conducted by Kifayatullah J et al to determine the prevalence of impacted maxillary canine in 500 patients. Out of 500 patients examined 20(4%) had maxillary canine impaction. The mean age was 19.05±3.15 years. Age was ranged from 15 to 25 years. Female to male ratio was 1.85:1. Females had more impaction of maxillary canine than males (p=0.000). Palatal were the most common in males while buccal were in females. Left side was commonly involved in impaction in both genders.

Veli I et al conducted a study to document the prevalence of maxillary permanent canine impaction in relation to anomalous adjacent lateral incisors in a Turkish population. Results of this study shows the

overall prevalence of peg-shaped maxillary permanent lateral incisors was found to be 18.3%. Impaction of the maxillary canine was 5.18 times more common in females than males, and palatal canine impaction was almost 1.27 times more common than the buccal impaction.,

Result of our study shows out of 56 patients examined females had more impaction of maxillary canine than males. Palatal canine impaction were the most common in males while buccal canine impaction were more common in females.

## CONCLUSION

The management of impacted canines is important in terms of esthetics and function. This study concluded that maxillary palatal impaction was more common than buccal impaction and maxillary palatal and buccal impaction occurred more often in female subjects.

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**How to cite this article:** Kumar H, Thakur MK. Pattern of Canine Impaction in Relation to Lateral Incisors: A Retrospective Study. *Ann. Int. Med. Den. Res.* 2019; 5(2):DE10-DE11.

**Source of Support:** Nil, **Conflict of Interest:** None declared