

Prevalence of Impacted Maxillary Canines among Kashmiri Population (North India): A Retrospective Study

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ABSTRACT

Background: The study was carried out to estimate the prevalence of impacted maxillary canines using panoramic radiographs among kashmiri population in north india. **Methods:** A sample of 600 panoramic radiographs were retrospectively examined for the presence of impacted maxillary canines. The radiographs were obtained from the records of a private dental clinic from the year 2014 to 2018. **Results:** The prevalence of impacted canines among the examined radiographs (n = 600) was found to be 4.7%. There was a significant association between Unilateral impaction and bilateral impaction accounted for 4% and 0.6% respectively. The results reveal significantly higher unilateral canine impaction compared to bilateral impaction (P = 0.001). Fourteen cases out of 24 cases were on right side and 10 cases out of 24 were on left side. No significant (P > 0.05) difference in the prevalence of right or left canine impaction was found. Palatal and labial impactions also does not show any significance in the study. **Conclusion:** The prevalence of impacted maxillary canines (4.7%) in this study was within the range reported among other populations.

Keywords: Impacted Teeth, Maxillary Canines, Retrospective, Prevalenc, Panoramic radiographs.

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INTRODUCTION

Impaction of teeth is one of the common dental abnormalities. Third molars are the most commonly impacted teeth, followed by permanent canines.^[1] The exact etiology of teeth impaction is unknown. Several etiological factors for canine impactions have been proposed as localized, systemic, or genetic factors. The most common localized factor is arch length-tooth size discrepancy. Relatively recent studies into the frequency with which maxillary canine impaction occurs in the general population have indicated prevalence from 0.27% in a Japanese population to as much as 2.4% among Italians,^[2,3] with the condition affecting female patients 2.3 to 3 times more frequently than males.^[4-7]

Aim of the study

The aim of the present study was to determine the prevalence of impacted maxillary canine in a sample of patient attending the various Orthodontic Clinics at Srinagar in Kashmir northern India.

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MATERIALS & METHODS

A retrospective, descriptive, cross-sectional study of 600 digital panoramic radiographs was conducted. The radiographs were obtained from the records of a private dental clinics from the year 2014 to 2018. These radiographs were taken by the same operator with the same machine (NewTom GiANO). The x-rays were examined to confirm any evidence of impacted maxillary canines. The inclusion criteria involved radiographs of patients who were in the range 12 to 30 years of age as by this time all the permanent teeth would be erupted. The exclusion criteria included the presence of the following conditions; a history of orthodontic treatment, permanent maxillary canine extraction, hereditary disease or syndromes, cleft of lip and palate and radiographs of poor quality. The radiographs were examined two times to remove any biased error. Data were processed and analyzed using SPSS statistics, the chi square test was used to reveal any differences in the distribution of impacted canines when stratified by gender, location (left or right), and being unilateral or bilateral. A p-value of <0.05 was considered statistically significant.

RESULTS

A total of 600 panoramic radiographs were subjected for canine evaluation, among them 350(58%) were

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female and 250(42%) were male [Table 1]. The age ranges from 13 to 30 years with a mean age 17.54 years. A total number of impacted maxillary canines were found 28 (4.7%) of which were 10 (4%) in males out of 250 cases and 18 (5.1%) in females out of 350 cases as shown in [Figure 1]. The prevalence of impacted canines in males was 4% and in females was 5.1%. Chi-square test reveals non-significant association between gender and canine impaction ($P = 0.513$) as shown in [Table 1].

Table 1: gender prevalence of canine impaction

Gender	Canine impaction		Number of subjects	P-value
	Impaction	No impaction		
Female	18 (5.1%)	332 (94.9%)	350 (58%)	0.513
Male	10 (4.0%)	240 (96.0%)	250 (42%)	
Total	28 (4.7%)	572 (95.3%)	600 (100%)	

Table 2: Prevalence of unilateral and bilateral canine impaction

Variable	Canine impaction		Total	P-value
	Impaction	No impaction		
Unilateral	24	576	600	<0.001
Bilateral	4	596	600	

Table 3: Prevalence of left and right impacted canines.

Variables	Number of Impactions Prevalence %	P-value
Left	14 (2.3%)	0.409
Right	10 (1.7%)	
Total	24 (4%)	

Non-parametric chi-square test reveals No significant ($P > 0.05$) difference in the prevalence of right or left canine impaction

Table 4: Prevalence of palatal and labial canine impaction.

Variables	Number of Impactions Prevalence %	P-value
Palatal	18(3%)	0.126
Labial	10 (1.7%)	
Total	28 (2.3%)	

Non-parametric chi-square test reveals No significant ($P > 0.05$) difference in the prevalence of palatal or labial canine impaction.

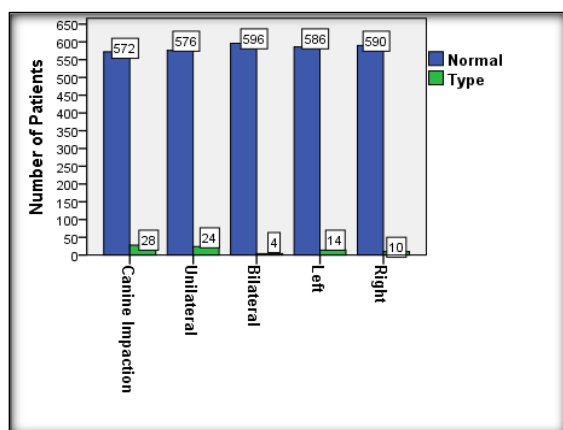


Figure 1: Distribution of canine impaction

Unilateral impaction was seen higher in both male and female patients than bilateral impaction with

24(4%) out of 600 cases of impaction (09 (1.5%) in males and 15 (2.5%) in females and in bilateral only 04 (0.6%) cases were found out of 600 cases 03 in females and 01 in male as shown in [Figure 1]. The Pearson chi-square association between unilateral and bilateral impaction was found highly significant with $p < 0.001$, shown in [Table 2]. Non-parametric chi-square test reveals no significant ($P = 0.409$) difference in the prevalence of right or left canine impaction as shown in [Table 3]. The labial and palatal canine impaction also does not show any association and ($P = 0.126$) stands non-significant as shown in [Table 4].

DISCUSSION

The present study assessed the prevalence of impacted maxillary canines without considering impaction of other teeth.^[8-10] The prevalence of maxillary canine impaction in our study was 4.7% which falls within the range 1.2% to 8.4% reported by other studies. The higher range of prevalence was because of including only orthodontic patients who had come to the clinic for comprehensive orthodontic treatment. Sandeepa et al.^[11] studied the panoramic radiographs of 1050 patients in an Indian population and reported 31 patients (2.95%) with at least one impacted maxillary canine. Alif et al.^[12] investigated 580 panoramic radiographs of Bangladeshi patients and found that impacted maxillary canines were present in only 7 (1.2%) radiographs. A prevalence of 1.36% was reported by Mustafa,^[13] who conducted a retrospective investigation on 3800 panoramic x-rays of patients who had attended for treatment at the faculty of Dentistry at King Khalid University in Saudi Arabia.

In this study, the prevalence of unilateral impaction was statistically significantly higher (4%) than bilateral impaction (0.6%) with a p-value of 0.001. This is in agreement with a study conducted by Ali Gashi et al.^[14] which showed that p-value was significant for unilateral and bilateral impaction. Though the left maxillary canine impaction was higher (2.3%) than right side impaction (1.7%) but the chi-square test reveals no significance which is consistent with studies conducted by Ali Gashi et al.^[14] Palatal impaction is also higher than the labial impaction which is also non-significant.

CONCLUSION

Prevalence of maxillary canine impaction in Kashmir province is within the range of impacted canine in other populations as well. However, the impaction occurred more unilaterally than bilaterally. However, male/female association was not found significant in this study which may be because of sample size. Therefore, large sample size may be needed for further studies.

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