

Original ARTICLE

Assessment of incidence of impacted canines in Kashmiri population: An observational study

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ABSTRACT

Background: Eruption of teeth is a complex process, therefore early, delayed or even failure of teeth eruption may occur. The timely intervention will prevent the consequent aesthetic, functional, and pathological complications arising from impacted canines. Hence; the present study was undertaken for assessing the incidence of impacted canines in Kashmiri population. **Materials & methods:** Data records of a total of 1500 patients were analysed in the present study. The study group comprised of analysis of radiographs and clinical records of all those patients who reported for dental treatment to the Department of Oral & Maxillofacial Surgery, Govt. Dental College & Hospital, Srinagar and in which radiographic records were available for assessment. Clinical findings were recorded from in separate data sheets. Radiographs were used for assessment of prevalence and pattern of impacted canines. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. **Results:** The overall prevalence of impacted canine was found to be 9.53 percent (143 patients). In 76.92 percent of the patients, impacted canines were unilateral while in 23.08 percent of the patients, they were bilateral. Palatal impaction of canine was more common, found to be present in 64.34 percent of the cases. **Conclusion:** There is higher predilection of palatal impacted canines. Adequate knowledge prevalence and pattern of canine impaction is essential before treating the patients for impacted canines.

Key words: Canine, Impacted, Kashmiri

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INTRODUCTION

Eruption of teeth is a complex process, therefore early, delayed or even failure of teeth eruption may occur. Once the scheduled time of teeth eruption has passed, these teeth are considered as impacted teeth. Impaction of teeth is one of the common dental abnormalities. Third molars are the most commonly impacted teeth, followed by permanent canines. The exact aetiology of teeth impaction is unknown. Several etiological factors for canine impactions have been proposed: localized, systemic, or genetic factors. The most common localized factor is arch length-tooth size discrepancy.¹⁻³

The canine guidance disengages posterior teeth in the mandibular lateral excursive movement, thereby eliminating the lateral forces from posterior teeth and preventing fracture or excessive wear. The dental literature suggests the canine protected occlusion to reduce the chances of temporomandibular disorders and muscular dysfunction. The early diagnosis and initiation of appropriate surgical and orthodontic treatment are extremely helpful for an

eruption and guiding the tooth to its proper location. The timely intervention will prevent the consequent aesthetic, functional, and pathological complications arising from impacted canines. Both clinical and radiological methods are employed to investigate and locate the impacted canines.⁴⁻⁶ Hence; the present study was undertaken for assessing the incidence of impacted canines in Kashmiri population.

MATERIALS & METHODS

The present study was conducted in the Department of Oral & Maxillofacial Surgery, Govt. Dental College & Hospital, Srinagar with the aim of assessing the incidence of impacted canines in Kashmiri population. The study period was from between Dec 2017 to Nov 2019. Data records of a total of 1500 patients were analysed in the present study. The study group comprised of analysis of radiographs and clinical records of all those patients who reported for dental treatment to the Department of Oral & Maxillofacial Surgery, Govt. Dental College & Hospital, Srinagar

and in which radiographic records were available for assessment. Clinical findings were recorded from in separate data sheets and assessment was done for identification of impacted canine and its following parameters:

- Type of dentition of impacted canine,
- Type of impaction,
- Type of arch involved,
- Unilateral or bilateral and
- Demographic data

Radiographs were used for assessment of prevalence and pattern of impacted canines. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. Chi- square test was used for evaluation of level of significance.

RESULTS

In the present study, the overall prevalence of impacted canine was found to be 9.53 percent (143 patients). Among these 143 patients, 59 were males while the remaining 84 were females. 41.26 percent of the patients belonged to the age group of less than 20 years. 30.07 percent of the patients belonged to the age group of 20 to 30 years. In 76.92 percent of the patients, impacted canines were unilateral while in 23.08 percent of the patients, they were bilateral. Palatal impaction of canine was more common, found to be present in 64.34 percent of the cases.

Table 1: Prevalence of impacted canine

Parameter	Number of patients	Percentage of patients
Impacted canine	143	9.53

Table 2: Demographic profile of patients with impacted canine

Parameter		Number of patients with impacted canine	Percentage of patients with impacted canine
Age group	Less than 20	59	41.26
	20 to 30	43	30.07
	More than 30	41	28.67
Gender	Males	59	41.26
	Females	84	58.74

Table 3: Pattern of canine impaction

Parameter		Number of patients with impacted canine	Percentage of patients with impacted canine	p-value
Jaw	Maxilla	86	60.14	0.01*
	Mandible	57	39.86	
Laterality	Unilateral	110	76.92	0.02*
	Bilateral	33	23.08	
Position	Palatal	92	64.34	0.00*
	Buccal	51	35.66	

*: Significant

DISCUSSION

After the third molar, the permanent maxillary canine is the most frequently impacted tooth, with a reported prevalence reported of 1 to 3%, more frequently in the female. This condition is due to an extended development period of the tooth and to individual variations in the tortuous path of eruption patterns and timing, caused by hard or soft tissue obstruction, before reaching the full occlusion in the oral cavity. Till date, multiple studies have investigated the factors involved in maxillary canine impaction. In general, maxillary canine impaction shows a female predilection;

it occurs 2–3 times more often in females than in males.⁶⁻⁹ Moreover, it has been reported that maxillary canine impaction occurs at an incidence 3–6 times higher on the palatal side compared with the buccal side. However, contrary reports show that maxillary canine impaction occurs 2–3 times higher on the buccal side compared with the palatal side in East Asians. These reports suggest that the side of impaction varies depending on the ethnic population.⁸⁻¹⁰

In the present study, the overall prevalence of impacted canine was found to be 9.53 percent (143 patients). Among these 143 patients, 59 were males while the remaining 84 were females. 41.26 percent of the patients belonged to the age group of less than 20 years. Our results were in concordance with the results obtained by previous authors who also reported similar findings in their respective studies. In a previous study conducted by Anastasia et al, prevalence of impacted canine was found to be 8.8 percent. The prevalence of impacted canines in previous studies have been reported to be 1.74%, 2.5% and 3.5% respectively.¹¹⁻¹⁴ Haralur SB et al estimated the incidence of maxillary canine impaction, its location, and mean impaction angle to the occlusal plane. A total of 8517 patient's radiographs were retrospectively evaluated. Total of 291 patients had the impacted maxillary cuspid. The additional radiograph was available with 44 patient records to further analyze the location of impaction. Among 44 patients, 17(38.64%) were males and 27(61.36%) female subjects. The seven (15.9%) of the cuspids were labially impacted, whereas 37(84.1%) were palatally impacted. The mean impaction angles for labial and palatal impactions were 57.65 and 65.4 degrees, respectively. The majority of canine impaction were palatally placed in comparison to labial impaction. The mean impaction angle of labial impaction is lesser than that of palatal impactions.¹⁵

In the present study, in 76.92 percent of the patients, impacted canines were unilateral while in 23.08 percent of the patients, they were bilateral. Palatal impaction of canine was more common, found to be present in 64.34 percent of the cases. Our results were in concordance with the results obtained by previous authors who also reported similar findings. In a previous study conducted by Sandeepa NC, authors showed predilection for maxillary canine (77.5%) and is very much in accordance to our results.¹⁶ Maxillary canines develop lateral to the priform fossa and have a longer and difficult path of eruption than any other tooth through they reach their final position in occlusion. Coulter and Richardson stated that in three planes of space, maxillary canines travel almost 22 mm from their position at the age of 5 years to their position at 15 years. At the age of 3 maxillary canine is high in the maxilla, with its crown directed mesially and lingually. At the age of 8 it angulates medially with its crown lying distal and slightly buccal to the lateral incisor.¹⁷

Alejos-Montante K et al compared the prevalence of impaction of permanent maxillary canine (PMC) in a Mexican pediatric sample (7 to 13 years old), through the use of the Ericson & Kurol (EK/L) and the Power & Short (PS) measurement analyses performed on panoramic radiographs. This investigation was a cross-sectional study performed on 515 panoramic radiographs, which were evaluated to assess the intraosseous position of right and left PMC. No statistical difference could be detected between both prevalence rates. It was found a significant predilection of the condition to the female sex. Through the EK/L method a PMC prevalence of 5.64% was obtained, while the PS Method the prevalence was 8.83%.¹⁸

Impaction of maxillary canines is considered as a common clinical anomaly encountered in children, which management requires an interdisciplinary approach. Management of this anomaly is associated with prolonged treatment time and increased inherent costs. Interceptve treatment consisting in the primary canine extraction combined with creation of space in the arch, for example, with maxillary expansion, is usually the first choice in order to guide the canine into a normal position. If these options fail, the surgical exposure and orthodontic appliances are indicated to bring the canine into the dental arch.²⁻⁴

CONCLUSION

From the above results, the authors concluded that there is higher predilection of palatal impacted canines. Adequate knowledge prevalence and pattern of canine impaction is essential before treating the patients for impacted canines.

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