

Incidence of Impacted Canine Using Orthopantomogram

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Abstract:

Aim

The aim of the present study is to evaluate the incidence of impacted canine using an orthopantomogram.

Materials and methods

406 digital panoramic radiographs were retrospectively evaluated for the presence of impacted canines from the year 2014 to 2016. The radiographs were obtained from the archives of the radiology department of Saveetha Dental College Chennai.

Results

The incidence of impacted canines were found to be 4.19%. Female predilection was present in the present study (58.82%). Maxillary canines (82.35%) were impacted more than the mandibular canines (17.65%).

Conclusion

The incidence of the present study was found to be 4.19%. Knowledge about incidence of canine impaction is crucial before treating the patients for impacted canines as canines play a vital role in aesthetics and function.

Key words – canine, maxilla, mandible, incidence

INTRODUCTION

Tooth impaction is a pathological situation in which a tooth cannot or will not erupt into its normal functioning position (10). The permanent canines are the foundation and pillar of an aesthetic smile and functional occlusion. Canines are the most important teeth in the dental arches. One merely needs to look at the contribution of the maxillary permanent canine to the upper face to sense its importance; it stands at the corner of the dental arch forming the canine eminence for support of the alar base and upper lip. Functionally; it supports the dentition contributing to its disarticulation in lateral movements in certain individuals, its root length and particularly its volume, makes it one of the most outstanding abutments for prosthetic replacement of other maxillary teeth if and when the need should be present. Impacted teeth, especially canines present many problems such as they can compromise tooth movement, aesthetics and functional outcomes (11).

The common causes of canine impaction listed by Aqeel Ibrahim Lazim (1),

1. Tooth size arch length discrepancy
2. Abnormal position of tooth bud
3. Ankylosis
4. Delayed shedding or early loss of deciduous canine
5. Cyst and tumours
6. Dilaceration
7. Iatrogenic
8. Idiopathic

Canine impaction in the mandible is regarded as a much rare phenomenon. Mandibular canine impaction is less frequent and the prevalence is 20 times lower than that for maxillary canines (12). Canines play a vital role in aesthetics and function hence radiographic evaluation and understanding of impacted canines are important in order to formulate an effective treatment. The current study is performed to find out the incidence of impacted canines using orthopantomogram.

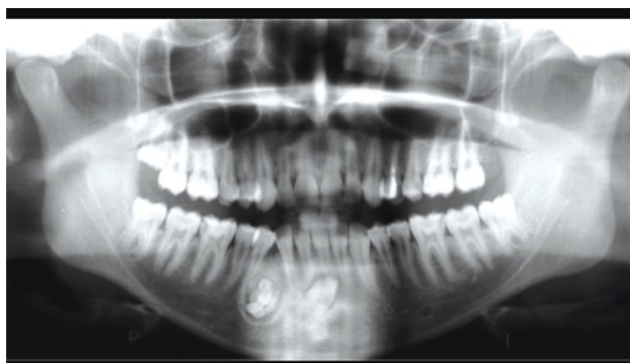
MATERIALS AND METHODS

A total of 406 OPGs were collected. The study is retrospective and digital OPGs of patients from the year 2014 till 2016 are obtained from the archives of the radiology department of Saveetha Dental College Chennai. Patients involved are 22 years of age and above. Radiographs with impacted canines are included in the study and those radiographs which has impacted canine associated with other disorders or anomalies are excluded.

RESULTS

A total of 406 OPGs were collected. In this study minimum age -12 ,maximum age -54 and the mean age -39 were included. 262(64.53%) males and 144(34.47%) females were included. Impacted canine was found in 17(4.19%) patients among 406 patients. Among the 17 patients having impacted canine 7(41.18%) were males and 10(58.82%) were females which is indicative of a female predilection. 14(82.35%) patients had maxillary canine impaction and 3(17.65%) had mandibular canine impaction which shows predilection for maxilla. Among the 17(64.7%) impacted canines 11 were unilateral impactions and 6(35.29%) were bilateral impactions.





DISCUSSION

The incidence of impacted canines were found to be ranging from 1.29% to 8.8% from literature review. The present study consisted of 406 OPGs among which only 17(4.19%) patients were found to have canine impaction. Variations in the incidences were found with different studies Anastasia et al (8) found the incidence to be 8.8%, Ali Murat et al (6) found it to be 1.74 %, Jason Cooke found it to be 2.5% (5), U.Aydin et al found it to be 3.58% (4) and A. Alqerban et al found it to be 1% to 3% (2).

The present study found that there was a female predilection for canine impaction which was in accordance with studies done by Anastasia et al, Muhammet Selim et al, Ali Murat Aktan et al. Majority of the impacted canines were unilateral (64.7%) in nature.

The present study also reveals that maxillary canine is more commonly impacted than the mandibular canines and among the 17 patients no patient had impaction of both maxillary and mandibular canines. Ali Murat Aktan et al also reported with a predilection of 1.74% for maxillary canine. Study done by Sandeepa NC et al (3) also shows predilection for maxillary canine which was found to be 77.5%.

Incidence of canine impaction varies with population studied as reported by Anastasia et al (8) who studied in North Greek population and found the incidence to be 8.8%. Muhammet Selim et al (7) reported an incidence of 1.29% and Ali Murat et al (6) reported the incidence to be 1.74% which is very close to Muhammet et al (7) and both the studies were performed in Turkish population. Study done by Sandeepa NC et al (3) found it to be 2.66% among the South Indian population. The present study was also performed in South Indian population and the incidence was found to be 4.19%. There is a considerable variation between both studies the reason might be the sample size and inclusion of other impacted teeth as well.

CONCLUSION

The incidence of the present study was found to be 4.19%. The maxillary canines were more commonly impacted than the mandibular counterparts. Knowledge about incidence of canine impaction along with parameters such as gender predilection, jaw predilection is crucial before treating the patients for impacted canines as canines play a vital role in aesthetics and function.

Panoramic radiography could be a useful imaging modality in detecting impacted canines. But the drawback of panoramic radiography is the uni planar visualisation of the image. Advancement in imaging has led to the introduction of CBCT which allows us to visualise the image in all three dimensions. Hence impacted canines are visualised better in CBCT but the fact that the 3D imaging uses more radiation than panoramic radiography should also be considered. Calculation of risks versus benefits is mandatory before subjecting the patient to radiation. From a diagnostic perspective panoramic radiography would suffice in detecting the impacted canines.

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| | Male N | % | Female N | % | Total |
|-------------------------------|-----------|-------|-------------|-------|-------|
| Total sample size | 262 | 64.53 | 144 | 34.47 | 406 |
| Total canine impaction | 7 | 41.18 | 10 | 58.82 | 17 |

| | Maxilla N | % | Mandible N | % | Total |
|------------------------------------|--------------|-------|---------------|-------|-------|
| Canine impaction in the jaw | 14 | 82.35 | 3 | 17.65 | 17 |