

Prevalence of Accessory Canals in Primary Maxillary Molars: A Radiographic Analysis

Chithralekha B¹, Dr. Mahesh Ramakrishnan²

¹Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences (SIMATS) Saveetha University, Chennai - 600077

Email Id: 151701055.sdc[at]saveetha.com

Telephone number: +91 8921784004

²Professor, Department of Pediatric Dentistry, Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences (SIMATS), Saveetha University, 162 Poonamallee High Road, Chennai- 600077, Tamil Nadu, India

Email Id: mahesh[at]saveetha.com

Telephone number: 9840322728

Running title: Prevalence of accessory canals in primary maxillary molars. a radiographic analysis

Abstract: *Introduction:* Root canal morphology of molars are complex. Unnoticed accessory canals can lead to the failure of the treatment while trying to save the teeth endodontically. Hence to deliver a successful treatment the clinician should be able to identify the accessory canals that can be present in primary molars. *Aim:* To evaluate the presence or absence of accessory canals in the primary molar teeth. *Materials and Methods:* In the study a total of 100 patients were selected. An excel data sheet was prepared based on the obtained information. The data was then coded and transferred to spss software and statistical analysis was done. *Results:* The association between the prevalence of accessory canals and the type of tooth were found to be statistically significant, in all the associations done the p value was found to be 0.000 (<0.05). *Conclusion:* Within the limitations of the study we found that the presence of accessory canal is not negligible when it comes to primary molars, and prevalence of it was found to be the highest in mandibular second molar.

Keywords: Primary molars, Endodontic treatment, accessory canals

1. Introduction

Endodontic treatment in pulpally infected teeth helps to avoid extraction and maintain the function, esthetics [1]. Since the canal morphology shows considerable variations, a precise knowledge on the anatomy is required for successful therapeutic management [2–4].

Accessory root canals, presence of extra roots, pulp stones and abnormal curvatures plays an important role in the success of endodontic therapy. [5], [6]. In many situations there can be one or more accessory canals in the primary teeth especially primary molars which can act as a hindrance in complete pulp extirpation and incomplete biomechanical preparation [7]. These irritants can act as a potential agent for reinfection [8–11].

To aid the clinician to understand the canal morphology various invitro and invivo studies done using caring technique, sectioning of tooth for his to pathological analysis , radiographic method etc.

2. Materials and Methods

The study was conducted in a University setting in a private Dental Hospital located in Tamilnadu, India. Similar ethnicity due to localized population of sample is one of the biases in the study design.

Retrospective cross-sectional study in a University sitting and the data were collected within a time period of June 2020 to December 2021. Ethical approval for the study was obtained by the University ethical committee. A total of 100 patients were selected.

3. Result

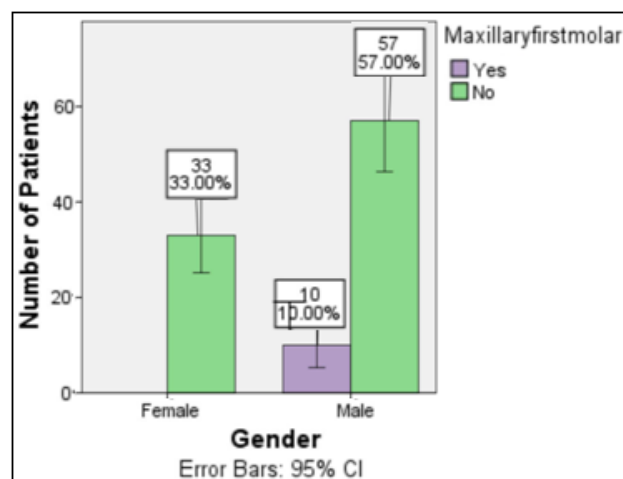


Figure 1: It represents the association between gender and presence of accessory canal in maxillary first molar. X axis represents the gender, Y axis the number of patients. The green colour represents that accessory canals were absent and violet represents the presence of accessory canal. The association was found to be statistically significant with a p value of 0.000.

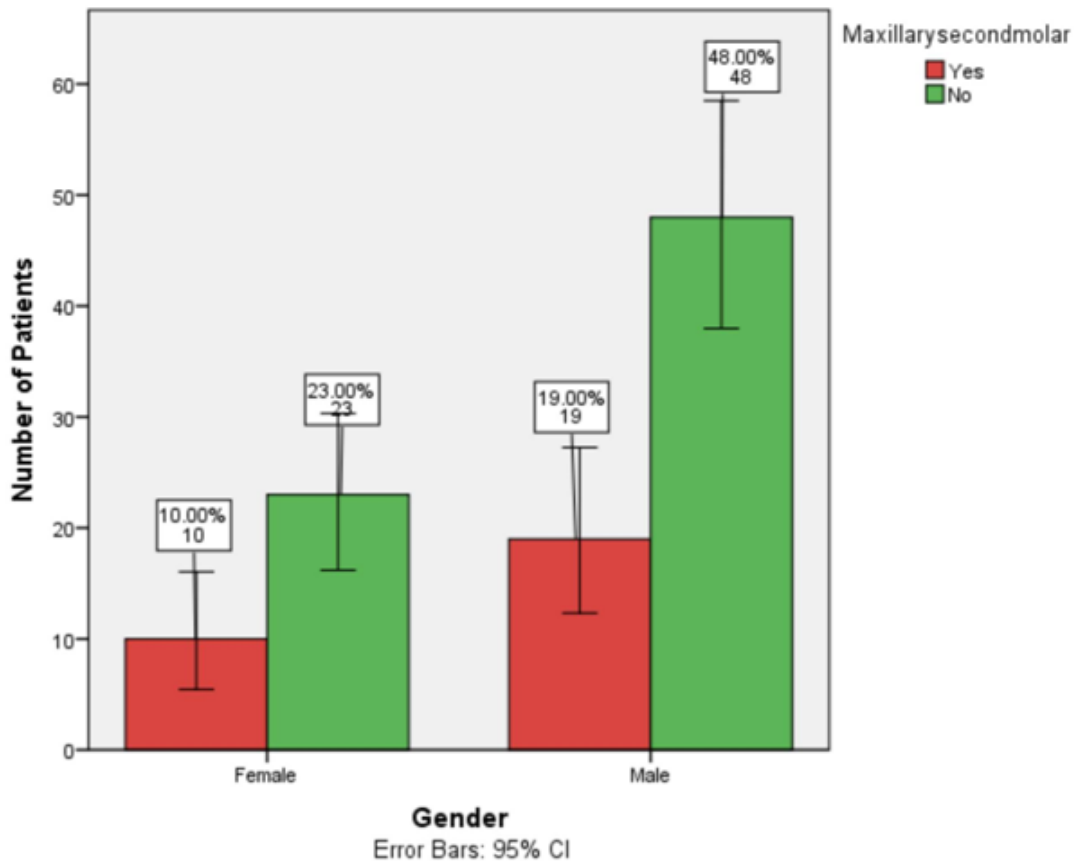


Figure 2: The graph represents the association between gender and presence of accessory canal in maxillary second molar. X axis represents the gender, Y axis the number of patients. The green colour represents that accessory canals were absent and red represents the presence of accessory canal.

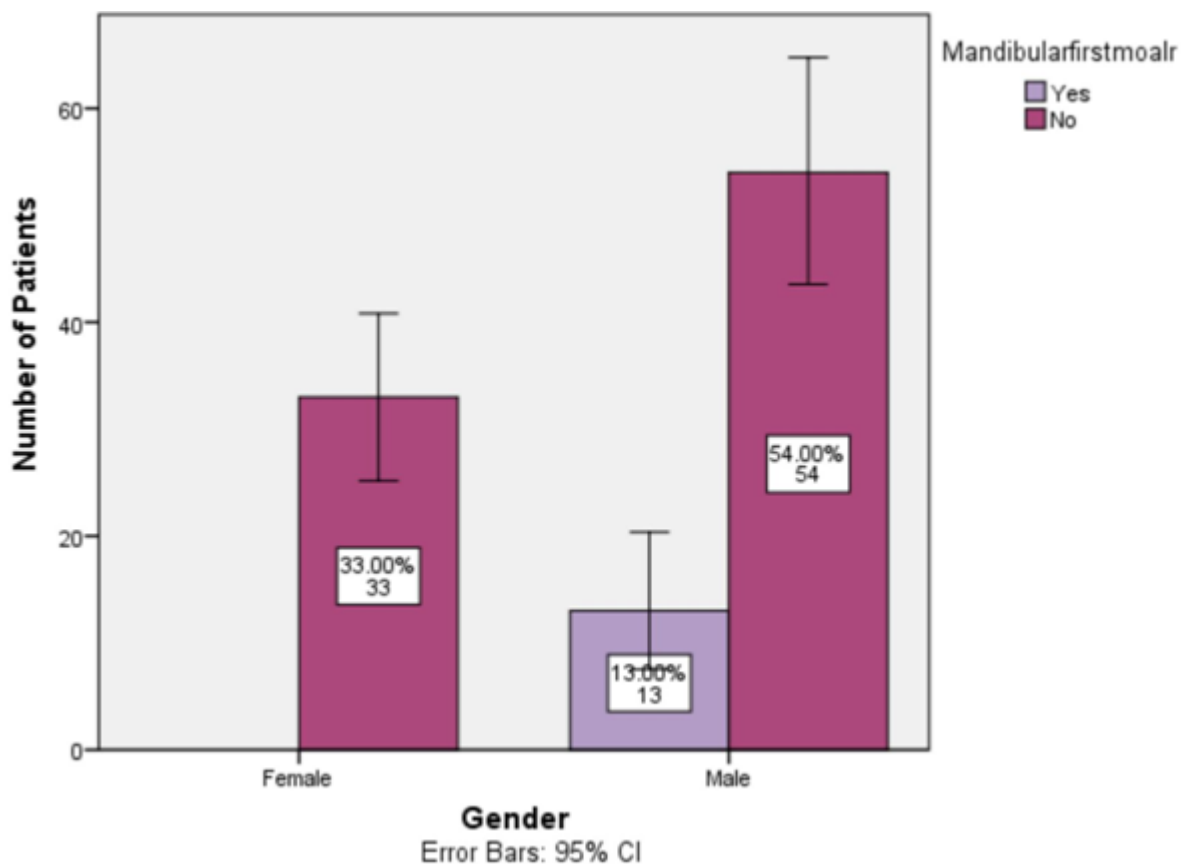


Figure 3 The graph represents the association between gender and presence of accessory canal in mandibular first molar. X axis the gender, Y axis the number of patients. The pink colour represents that accessory canals were absent and violet represents the presence of accessory canal.

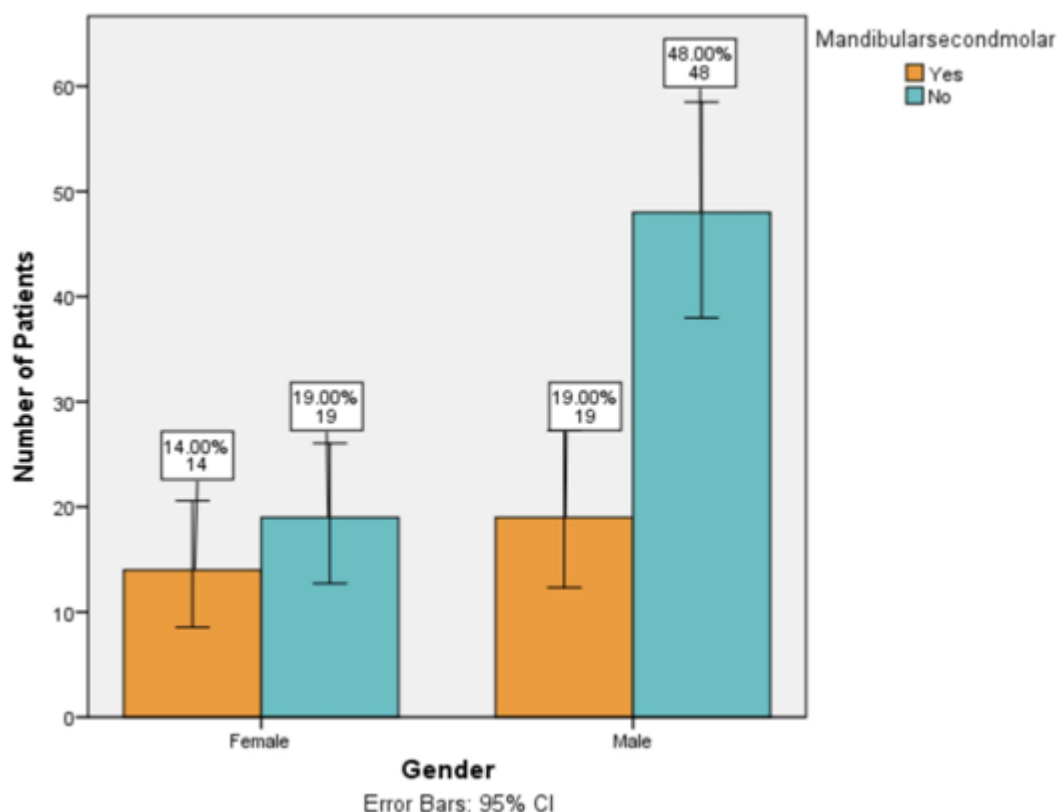


Figure 4: The graph represents the association between gender and presence of accessory canal in mandibular second molar. X axis represents the gender, Y axis the number of patients. The blue colour represents that accessory canals were absent and yellow represents the presence of accessory canal.

4. Discussion

The most common reason for failure in endodontics is due to poor case selection and incomplete understanding of the anatomy. Accessory canal which is a result of incomplete fusion of epithelial cells can act as hindrance to complete biomedical preparation.

Accessory canals transmit infection from pulp to periodontium. [12] The prevalence of accessory canals show significant variations when compared to ethnicity of the population, since the present study consists of one local population the results can't be extrapolated to the other areas. The clinician should possess a thorough knowledge of the canal anatomy and its variations which can aid in better cleaning and shaping. Newer diagnostic aids such as CBCT can aid the clinician in most complicated cases. [13] The judicious use of this technique owing to the high radiation exposure is to be considered before the investigations.

Our research and knowledge have resulted in high-quality publications from our team [14–27]

5. Conclusion

Presence of accessory canal is not negligible when it comes to primary molars, and prevalence of it was found to be the highest in mandibular second molar.

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