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Prevalence of Microdontia, Talon Cusp and Double Teeth in Children of Jaipur District: An Observational Study

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Abstract: ***Aim: The purpose of this study was to determine how common developmental dental abnormalities were in children in Rajasthan, India's Jaipur area. Materials and Methods: Five thousand youngsters between the ages of six and fourteen were the subjects of a cross-sectional study. Statistical analysis: SPSS software (version 25.0) was utilized. Results: The prevalence of microdontia was 42 cases, the most common (0.84%), followed by talon cusp 13 (0.26%) and double teeth 9 (0.18%) was observed. Conclusions: The results highlight the value of early identification and treatment in pediatric dentistry.***

Keywords: microdontia, talon cusp, double teeth, dental anomalies, paediatric anomalies

1. Introduction

The irregularities of teeth can be inherited or developed, and can originate either before or after birth. These anomalies can affect either primary or permanent teeth. They may be limited to individual teeth or may be widespread, affecting all teeth, and could also be associated with a systemic disorder or syndrome. Multiple anomalies can manifest in one individual and their simultaneous presence indicates the necessity of examining them as a collective rather than as separate issues.

Disruptions occurring during different phases of tooth development can significantly change the number, dimensions, shape, and structure of teeth. Insufficient initiation or physiological blockage, along with disruption of the dental lamina, can lead to tooth agenesis or the absence of teeth. Overactivity of the dental lamina may lead to the formation of supernumerary teeth. Disturbances in morpho-differentiation can influence the shape or size, resulting in abnormalities like microdontia, peg teeth, fusion, and talon cusps. Factors such as evolution, heredity, environment, and genetics have been associated with the development of these anomalies.

The current research emphasized the occurrence of dental abnormalities among 5000 schoolchildren in the Jaipur district, focusing on identifying the appropriate management for these anomalies in a timely manner.

2. Materials and Methods

The research was conducted with 5000 students attending school in the Jaipur District of Rajasthan, India, over a six-month duration. A selection of five schools from the city was made randomly, and the sample population was chosen using a cluster sampling method. Approval was secured from the Ethical Committee before the survey took place. Permission was granted by the Heads of the Institutes within the District. Informed oral consent was gathered from each participant prior to their examination.

Methodology

A clinical examination was conducted to assess the occurrence of dental anomalies including supernumerary teeth, germination, fusion, macrodontia, microdontia, hypodontia, impaction, talon cusp, peg-shaped lateral incisors, and taurodontism. Each subject was positioned in a chair under natural lighting for evaluation (Type III). The recording clerk was seated close to the examiner to facilitate easy documentation of the instructions.

Data analysis

For data analysis, SPSS version 16.0, a statistical program, was utilized. The chi-squared test was used to compare values. Statistical significance was defined as a p value of 0.05 or less.

3. Results

Among the 5000 children examined, microdontia was the most common anomaly (42 cases, 0.84%), followed by talon cusp 13 (0.26%) and double teeth 9 (0.18%). No statistically significant difference was observed in the prevalence of dental anomalies between boys and girls ($p > 0.05$).

4. Discussion

The present study recorded a total of 13 cases of talon cusp with a prevalence of 0.26%. The reported prevalence

of talon cusp varies considerably between 0.06% to 7.7%. Chawla et al recorded a very high prevalence of 7.7% in north Indian children.[1] Study by Dankner et al recorded 0.1%, a closer prevalence rate to that of our study. [1, 2]

For the talon's cusp the literature shows a striking predilection for the maxilla over the mandible in the range of 94% to 100%. [1, 2, 3, 4]

A total of 42 cases of microdontia were recorded in our study, accounting for a prevalence percentage of 0.84%. While Backman et al[5] has recorded a similar percentage of 0.8, most of other studies have recorded a lower percentage rate than this.[6, 7, 8, 9, 10] Studies by Al-Emran[11] & Ghaznaswi et al[12] recorded comparatively a higher prevalence of 4% to 5%.
In the study, maxillary lateral incisor was involved in 93.9% (40 cases) and central incisor in 6.7% (3 cases). Lateral incisor was the most common microdont recorded by other studies as well. [12, 13] Atac et al recorded 0.07% of microdontia in lower lateral incisor. [13]

Microdontia observed in our study was associated with clinical issues like spacing and occlusal abnormalities. The prevalence of double teeth in the cases studied was 0.18%, a total of 9 cases were recorded. Most of the other studies have recorded a prevalent percentage that is similar to our study. [5, 13] Previous studies recorded 0.3% prevalence, however no gender, arch or quadrant difference was found.[14] A high percentage of 4.10 has been recorded by Yonezu et al.[9]

5. Conclusion

The frequency of developmental dental abnormalities in youngsters in the Jaipur district is usefully revealed by this study. The results highlight how crucial comprehensive clinical and radiographic exams are to the early identification and treatment of these abnormalities in paediatric dentistry.

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