



INSIGHTS INTO THE PREVALENCE AND DISTRIBUTION OF RETAINED DECIDUOUS TEETH; A CROSS SECTIONAL STUDY IN THE CITY OF HYDERABAD.

Dr. Sri Akshitha Jogu

BDS, Dental Consultant, OroGlee Solutions Private Limited

Dr. Kamakshi Kalla

MBBS, MD, Director, OroGlee Solutions Private Limited

ABSTRACT

**Background:** In the journey of dental development, the transition from deciduous teeth to permanent dentition marks a significant milestone in a child's growth. However, in some cases, this natural progression encounters a hurdle: retained deciduous teeth. Retained deciduous teeth, often overlooked, yet impactful, presents a spectrum of challenges in dental health management. **Aim:** The aim of this article is to ascertain the distribution and frequency of retained deciduous teeth in the population of Hyderabad. This study gives a detailed description of retained deciduous teeth, the processes that regulate their persistence, the complications that they present, and the treatment options available to treat them. **Material and methods:** This study was conducted by OroGlee Solutions Private Limited in Hyderabad. A total of 3048 subjects aged 16-50 years were examined. Oral examination was done using intraoral camera. **Results:** The prevalence of Retained Deciduous Teeth in Adults in the population of Hyderabad is 2.55%. **Conclusion:** Retained deciduous teeth present unique challenges in pediatric dentistry, requiring a tailored approach to diagnosis and treatment. By understanding the causes, implications, and treatment options for retained deciduous teeth, parents, caregivers, and dental professionals can work together to promote optimal oral health and ensure the proper alignment and development of permanent teeth.

**KEYWORDS :** Retained deciduous teeth, Prevalence, intraoral camera, Hyderabad.

INTRODUCTION:

The majority of unusual dental anomalies start to appear in children. Dental anomalies are characterized based on their abnormalities in number, form, color, size, structure, texture, eruption and exfoliation. Among these, retained primary teeth are one of the most common anomalies encountered by the dentist in regular practice. Deciduous tooth exfoliation is a natural and predictable physiological process. When the permanent tooth erupts before the primary tooth has fully exfoliated, the condition known as over-retained primary teeth occurs.<sup>[1]</sup>

Prolonged retention of primary teeth is not an uncommon finding. Some of the possible causes for this condition are:

- 1) Absence of permanent teeth congenitally.
- 2) Dense sclerotic bone surrounding the crown of a permanent tooth.
- 3) Inability to properly resorb the roots of primary tooth.
- 4) Deviation in tooth eruption brought on by underlying medical conditions like rickets and some endocrine disorders like hypothyroidism and growth hormone deficiency.<sup>[1]</sup>

The rate of root resorption and the timing of the exfoliation of deciduous teeth are influenced by genetic and environmental variables, hormonal changes in the mother during pregnancy, diet, and some local factors.<sup>[2]</sup>

Clinical issues brought on by retained primary teeth include dental caries, mesial tilting, and distal drifting, which can result in the loss of appropriate arch integrity as well as periodontal bone loss around the nearby permanent teeth. These issues may sometimes become severe, which may necessitate surgical intervention or orthodontic therapy.<sup>[3]</sup>

To avoid these potential clinical issues, it is crucial to evaluate and treat any disturbances during eruption that may occur during the transition from the primary to the permanent dentition at the earliest.<sup>[4]</sup>

The aim of this study is to evaluate the prevalence of retained primary teeth among the population of Hyderabad. The result of this study highlights the need for education and awareness among the population, parents and the practitioners about the

occurrence, prevalence and impact of such a condition.

MATERIAL AND METHODS:

A cross-sectional survey was conducted by OroGlee Solutions Private Limited among the employees of corporate offices and students of schools in the city of Hyderabad.

A survey questionnaire was prepared to acquire personal details such as age, gender, relevant dental and medical history and habits. Oral examination was done using an intraoral camera connected to a laptop to record videos of all aspects of teeth. Informed oral consent of the corporate employees was obtained before the examination. Approval from respective school administration was taken for their students.

Inclusion Criteria:

Participants from the age group of 16 to 50 years were included in the study.

Exclusion Criteria:

Subjects below the age of 16 and above the age of 50 were excluded from the study.

RESULTS:

A total of 3,048 participants in the age between 16 to 50 years were screened. The prevalence of retained primary tooth in these participants is 78 which accounts for 2.55%.

Out of 3,048 participants, 2,324 participants were males and 724 participants were females. Out of the 2,324 male participants, 68 had retained deciduous tooth which accounts for 2.9%. Out of 724 female participants, 10 had retained primary tooth accounting for 1.3%. (Table-1)

Table 1 showing the percentage distribution of retained deciduous teeth in the population of Hyderabad.

Category	Total Participants	Participants with Retained deciduous teeth	Percentage of participants with retained deciduous teeth
Males	2,324	68	2.9%
Females	724	10	1.3%
Total	3,048	78	2.55%

**DISCUSSION:**

Tooth eruption is the movement of a developing tooth from its intrasosseous site in the jaw to its functional position within the mouth cavity.<sup>[5]</sup>

In some circumstances, a primary tooth remains in its place after the regular exfoliation period, which results in extended life of that tooth. This condition is called as persistence or retained deciduous tooth. According to studies, a retained deciduous tooth with a healthy crown, strong roots, and alveolar bone support can function in an adult for many years. Hence, the majority of the deciduous teeth can still serve a purpose in an adult.<sup>[6]</sup>

**Causes:**

1. Congenital absence of successor teeth in individuals with persistent primary teeth
2. Impaction of successor teeth
3. Translation or transmigration of successor teeth
4. Existence of pathology, such as cysts, tumors, and odontoma under the primary tooth that results in the impaction of successor teeth
5. Microdontia of permanent dentition, partially or totally.<sup>[6]</sup>

Several investigations have suggested that the probable causes of over retention of primary teeth may also include rampant caries, the presence of a calcifying odontogenic cyst, intraluminal adenomatoid odontogenic tumor, monostotic fibrous dysplasia, and chronic malnutrition.<sup>[1]</sup>

In general, the primary tooth roots eventually resorb as the successors emerge. Root resorption rates vary widely amongst individuals and decrease with age. The normal interdependence between permanent tooth eruption and primary tooth resorption is well explained by Haavikko.<sup>[6]</sup>

But according to Rune and Sarnas, resorption of the primary tooth root can also occur when the underlying permanent tooth is missing. Several studies have been carried out to evaluate root resorption in individuals with succeeding agenesis.<sup>[6]</sup>

**Complications:**

Individuals with persistent primary teeth have a congenital lack of successor teeth, successor teeth impaction, successor tooth translation or transmigration, pathology such as cysts, tumors, and odontoma under the primary tooth that causes impaction of successor teeth, microdontia of permanent teeth, either partial or complete. Similarly, persistent teeth may result in clinical issues such as ankylosis, periodontitis, and severe caries.<sup>[6]</sup>

Ankylosis is the fusion of the cementum to the alveolar bone, which prevents typical adaptive changes when facial development moves the adjacent occlusal plane coronally. If this continues, the main tooth could seem to be "submerging," and eventually it might even totally "submerge."<sup>[7]</sup>

When the primary teeth are submerged or considerably out of occlusion due to ankylosis of the primary molars, the condition is called 'Infra-occlusion'. With the loss of arch integrity, it frequently happens that the neighboring permanent teeth start to tip, which hampers the alignment of normal dentition. Ankylosis of primary teeth is often accompanied by ectopic eruption or impaction of premolars. This results in a localized or generalized decrease of the necessary arch length, which eventually causes malocclusion and crowding of the teeth.<sup>[3]</sup>

The radiographic image must be carefully examined to detect submerged primary teeth complications, i.e. ankylosis, or other associated problems, such as primary molar caries, resorption, crowding, periodontal problems and bone resorption, tipping of the distal or mesial permanent tooth,

and super-eruption of the opposing permanent tooth.<sup>[3]</sup>

**Treatment options:**

1. Extraction
2. Fillings
3. Root canal treatment
4. Periodontal treatment
5. Prosthetic restoration

If the root and coronal structure of the tooth are healthy, the tooth is functionally and aesthetically acceptable, and there is no compelling orthodontic requirement for extraction, the primary tooth may be kept intact.

Where the root and crown structure are sound but infra-occlusion has occurred or cosmetic enhancement is needed, the deciduous tooth may be kept and altered using direct composite or indirect restorations such as composite, porcelain, or gold onlays.

When there is crowding and an extraction is required to correct the arch orthodontically, the primary teeth are generally removed.

If the arch is properly aligned but the primary teeth have a bad prognosis owing to root resorption, caries, periodontal or periapical disease, or inadequate aesthetics, extraction and prosthetic replacement may be required.<sup>[6]</sup>

In our study, a total of 3,048 participants between 16 to 50 years of age were screened. Out of 3,048 participants, 2,324 participants were males and 724 participants were females. 68 of the male participants have retained deciduous teeth which accounts for 2.9%. Whereas only 10 female participants have retained primary tooth with 1.3% prevalence. The total occurrence of retained deciduous tooth in a population of 3,048 in Hyderabad is 78. So, the prevalence of retained primary tooth accounts for 2.55%.

According to the study conducted by Lestari et al., the prevalence of over retained primary teeth among 6–12-year-old children in the city of Bangkalan (Indonesia), was 20.85%. Their study found that, among all the over-retained primary teeth, the second lower primary incisor (66.23%) had the highest prevalence. They also found that 67.55% of the over-retained primary teeth were contributing to malocclusion.<sup>[8]</sup>

However, study conducted by Taran et al. on retained primary tooth prevalence and its distribution in children and adolescents between the age of 9 to 15 years in Turkey, showed the prevalence of retained deciduous teeth to be 4.5%. This study found that the primary maxillary canines were the most common type of persistent deciduous teeth, followed by the primary mandibular second molars, and lateral incisors on both sides.<sup>[4]</sup>

According to another study, by Hashim et al., the prevalence of retained primary teeth among orthodontic patients in various private dental clinics in the age between 7 to 35 years at Basrah City, Iraq, was 3.7%.<sup>[9]</sup>

A study conducted in the age range of participants with 14–56 years of males and 14–55 years of females by Aktan et al., the mandibular second primary molar was the most typically persistent kind of tooth in cross-sectional research, followed by the maxillary deciduous canine. Mandibular primary canines had the highest longevity, followed by maxillary canines.<sup>[6]</sup>

**CONCLUSION:**

Understanding the significance of retained deciduous teeth is crucial for individuals, parents and dental professionals.

These retained primary teeth, if left unaddressed, can lead to various complications, including misalignment of permanent teeth, bite issues, and potential dental crowding.

Early detection and intervention are key in preventing long-term dental problems. Parents should be vigilant in monitoring their children's dental development and seek professional advice if any concerns arise. Dental professionals play a vital role in educating parents about the potential consequences of retained deciduous teeth and recommending appropriate treatment options.

Proactive dental care and awareness about the implications of retained deciduous teeth contribute to the overall well-being and oral health of children, setting the foundation for a lifetime of confident smiles and optimal dental function.

#### REFERENCES:

1. Jahani, M. F., & Hosseinifar, R. (2015). Case Report: Simultaneous presence of primary and permanent teeth.
2. Haralabakis, N. B., Yiagtzis, S. C., & Toutountzakis, N. M. (1994). Premature or delayed exfoliation of deciduous teeth and root resorption and formation. *The Angle Orthodontist*, 64(2), 151-157.
3. Iraqi, G., Helal, N., Arafa, A., & Helal, F. (2019). Retained primary molars and related reasons in Umm Al-Qura University, Makkah: a retrospective study. *The Open Dentistry Journal*, 13(1).
4. Taran, P.K., & Ölmez, A. (2019). Prevalence, distribution, and condition of persistent primary teeth in children and adolescents. *International Journal of Pedodontics Rehabilitation*, 4(2), 50.
5. Gautam, N., Masih, U., & Chougankar, A. Retained Deciduous Teeth in Indore, Madhya Pradesh: A Retrospective Study. *IJFMR-International Journal for Multidisciplinary Research*, 5(3).
6. Aktan, A. M., Kara, İ., Şener, İ., Bereket, C., Çelik, S., Kırtay, M., Çiftçi, M. E., & Anıcı, N. (2012). An evaluation of factors associated with persistent primary teeth. *The European Journal of Orthodontics*, 34(2), 208-212.
7. Robinson, S., & Chan, M. W. (2009). New teeth from old: treatment options for retained primary teeth. *British dental journal*, 207(7), 315-320.
8. Lestari ZD, Wibowo TB, Pradopo S. The Prevalence of Over retained Primary Teeth and Malocclusion in 6-12 Years Old Children. *Indonesian Pediatric Dentistry Journal*. 2010; 2(1):9
9. Hashim, R. S., Mohammed, D. R., & Refaat, M. M. (2020). Prevalence of Retained Primary Teeth without Permanent Successors among Orthodontic Patients in Basrah City/Iraq. *Systematic Reviews in Pharmacy*, 11(10), 94-99.