



Prevalence of Dental Caries, Cyst and Cleft Palate in Children and Their Treatment with Endodontic Treatment, Surgical Procedures and Obturator Prosthesis, Respectively.

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KEYWORDS

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ABSTRACT:

Background: This study was conducted to assess the prevalence of dental caries, cyst and cleft palate in children and their treatment with endodontic treatment, surgical procedures and obturator prosthesis, respectively.

Material and methods: This study comprised of 90 children. The subjects belonged to the age group of 1-5 years. The mean age of the children was 3.1 years. The subjects underwent clinical examination and were planned for treatment accordingly. The procedure was explained to the parents of the children and were asked for consent on the behalf of their child. Those subjects whose parents were ready to give consent had been included while those whose parents did not give consent had been excluded. It was discovered that 30 subjects had dental caries, 30 subjects had cyst in the oral cavity and 30 subjects had cleft palate. Appropriate endodontic treatment was planned for those with dental caries. Surgical procedures to get rid off the cyst had been planned for the children who had cyst in their oral cavity and for the ones with cleft palate, obturator was designed. These subjects had been divided into 3 groups of 30 each based on their condition. Statistical analysis had been conducted using SPSS software.

Results: In this study, there were 90 subjects who were divided into 3 groups of 30 each. Group 1 comprised of subjects who had dental caries. In the second group, children had cyst in their oral cavity and in the last group, cleft palate children were present. In this study, there were 90 children out of which 53 were male and 37 were female. Out of 30 children with dental caries, 16 subjects had enamel caries which was treated using pit and fissure sealants, 12 subjects with dental caries were treated with filling of base and composite and 2 subjects with root caries had been treated with root canal treatment followed by a stainless-steel crown. Out of 30 children, 1 child had dermoid cyst that was surgically excised, 3



children had dentigerous cyst which was treated by enucleation and 26 subjects had asymptomatic eruption cyst which required no treatment. Remaining 30 subjects had cleft palate which was treated by giving obturator and also with speech therapy.

Conclusion: Endodontic treatment for dental caries comprised of pit and fissure sealants for enamel caries, composite filling for dentinal caries and root canal treatment for cervical and root caries. The eruption cysts required no treatment because they were asymptomatic, dentigerous cysts had been enucleated and the dermoid cyst was removed surgically. The subjects with cleft palate were treated using obturator. There was high prevalence of eruption cyst in children aging between 1-5 years. The most common caries was dentinal caries and the least common caries among children was root caries.

Introduction

Early childhood caries (ECC) is a type of dental caries in the teeth of infants and children that is represented as one of the most prevalent dental problems in this period which can lead to pain, infection, interference with eating, increased risk of new dental caries in primary and permanent teeth, and, ultimately, worse effects on the eruption of permanent teeth.^{1,2} These manifestations can range from demineralization to loss of tooth structure or complete destruction of the crown, a process of dynamic and active decay characterized by various periods of destruction and repair.³

According to the American Academy of Dentistry, early childhood caries (ECC) is defined as “the presence of 1 or more decayed (non-cavitated or cavitated lesions), missing (due to caries), or filled tooth surfaces in any primary tooth” in children.¹ Overall, 50% of children have one or more decayed primary teeth by the end of toddler age, but the importance of these teeth should not be overlooked, because, as has been said, healthy teeth in childhood have an important role in the eruption of healthy permanent teeth, healthy nutrition, and one’s aesthetic appearance.^{2,3}

Dentigerous cysts (DC) are a type of inflammatory odontogenic cyst associated with an included or impacted tooth according to the 2017 WHO classification.⁴ They represent about 20% of all odontogenic cysts, exhibit a male predominance, and have the highest incidence in the second to fourth decades of life.⁵ DC are most often associated with mandibular third molars (75% of cases), followed by maxillary canines, maxillary third molars, and mandibular second premolars.⁶

These are the most severe of congenital anomalies which affect the mouth and related structures. The roof is shaped from the palate and flooring from the constructions at the floor of the mouth. Laterally, it's bounded from the cheeks.⁷ A cleft is a congenital abnormal space or gap in the upper lip, alveolus, or palate. The colloquial term for this condition is harelip. The use of this term should be discouraged due to its demeaning connotation of inferiority. The more appropriate terms are cleft lip, cleft palate or cleft lip and palate.⁸

The failure of fusion of the palatal shelves of the maxillary processes, resulting in a cleft of the hard and/or soft palates is called cleft palate.⁹ Clefts arises during the fourth developmental stage. Exactly where they appear is determined by locations at which fusion of various facial processes failed to occur, this in turn is influenced by the time in embryologic life when some interference with development occurred.¹⁰

This study was conducted to assess the prevalence of dental caries, cyst and cleft palate in children and their treatment with endodontic treatment, surgical procedures and obturator prosthesis, respectively.

Material and methods

This study comprised of 90 children. The subjects belonged to the age group of 1-5 years. The mean age of the children was 3.1 years. The subjects underwent clinical examination and were planned for treatment accordingly. The procedure was explained to the parents of the children and were asked for consent on the behalf of their child. Those subjects whose parents were ready to give consent had been included while those whose



parents did not give consent had been excluded. It was discovered that 30 subjects had dental caries, 30 subjects had cyst in the oral cavity and 30 subjects had cleft palate. Appropriate endodontic treatment was planned for those with dental caries. Surgical procedures to get rid off the cyst had been planned for the children who had cyst in their oral cavity and for the ones with cleft palate, obturator was designed. These subjects had been divided into 3 groups of 30 each based on their condition. Statistical analysis had been conducted using SPSS software.

Results

Table 1: Group-wise distribution of subjects

Group	Number of children
Group 1 (Dental caries)	30
Group 2 (Cyst)	30
Group 3 (Cleft palate)	30
Total	90

In this study, there were 90 subjects who were divided into 3 groups of 30 each. Group 1 comprised of subjects who had dental caries. In the second group, children had cyst in their oral cavity and in the last group, cleft palate children were present.

Table 2: Gender-wise distribution of subjects

Gender	Number of children
Male	53
Female	37
Total	90

In this study, there were 90 children out of which 53 were male and 37 were female.

Table 3: Treatment of dental caries

Type of dental caries	Treatment	Number of subjects
Enamel caries	Pit and fissure sealants	16
Dental caries	Filling with base and composite	12
Root caries	Root canal treatment	02

	followed by stainless steel crown	
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Out of 30 children with dental caries, 16 subjects had enamel caries which was treated using pit and fissure sealants, 12 subjects with dental caries were treated with filling of base and composite and 2 subjects with root caries had been treated with root canal treatment followed by a stainless-steel crown.

Table 4: Treatment of cyst

Type of cyst	Number of subjects	Treatment
Dermoid cyst	01	Surgical excision
Dentigerous cyst	03	Enucleation
Eruption cyst (Asymptomatic)	26	No treatment required

Out of 30 children, 1 child had dermoid cyst that was surgically excised, 3 children had dentigerous cyst which was treated by enucleation and 26 subjects had asymptomatic eruption cyst which required no treatment.

Remaining 30 subjects had cleft palate which was treated by giving obturator and also with speech therapy.

Discussion

Oral diseases still pose a significant health burden affecting over 3.5 billion people worldwide. Dental caries is a major contributor to the global burden of oral diseases. Particularly, over half a billion children worldwide experience untreated caries in deciduous teeth which could significantly impact their quality of life.^{11,12} Dental caries is the most prevalent preventable disease that is multi-factorial, with diet and oral hygiene playing an important role in its prevention.¹³ In children, oral conditions and behaviors are determined by multi-level factors that operate at the child-, family-, and community-level.¹⁴

DC are benign lesions that encompass the crown of an unerupted tooth and can grow a very large size. Various therapeutics exist and are used with a therapeutic approach based on the patient's age, localization of the



cyst, and the tooth implicated. Conservative techniques, such as marsupialization or cystic decompression, are particularly indicated in children with immature permanent teeth contained within the DC.¹⁵ Marsupialization was first described by Partsch in 1892¹⁶ who performed a large surgical window kept open by suturing the cystic membrane to surrounding soft tissues of the oral cavity, so as to promote drainage of the cyst. Otherwise, decompression takes up the principles initiated by Partsch, but drainage is achieved through a smaller mucous window held open by an adjoining device that communicates the cystic contents with the oral cavity.

Clefts of lip and palate can occur isolated or together in various combination and/or along with other congenital deformities particularly congenital heart diseases. They are also associated features in over 300 recognized syndromes.¹⁷ In the developed world, most scientists believe that clefts occur due to a combination of genetic and environmental factors (e.g., maternal illness, drugs, malnutrition). In developed countries, CL/P is typically identified before birth by ultrasonography. Early detection allows time for parental education about the potential causes of the CL/P and procedures that the child may need after birth. Consequently, due to the widespread access to medical care in developed countries, although beliefs unsupported by science (e.g., superstitious beliefs) do exist, scientific causal beliefs are the most commonly endorsed.¹⁸

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children had dentigerous cyst which was treated by enucleation and 26 subjects had asymptomatic eruption cyst which required no treatment. Remaining 30 subjects had cleft palate which was treated by giving obturator and also with speech therapy.

Li N et al (2014)¹⁹ investigated the incidence and prevalence of developmental odontogenic cysts in children and adolescents and compare the features of the two most common types, dentigerous cyst and keratocystic odontogenic tumor (KCOT). A retrospective review in a series of 369 patients with all histological diagnoses of developmental odontogenic cysts in children (≤ 12 years) and adolescents (13-18 years) was conducted. Among these, 361 (97.8%) patients were diagnosed as dentigerous cyst ($n = 281$) and KCOT ($n = 80$), with the male-to-female ratios of dentigerous cyst and KCOT both being 2:1. The average age of the patients with KCOT was older than that of those with dentigerous cyst (14.7 years vs 11.8 years, $p < 0.001$). Dentigerous cyst (59.1%) was more common in children, but KCOT (78.8%) was more common in adolescents ($p < 0.001$). Dentigerous cyst (57.6%) predominantly located on the maxilla, but KCOT (60.3%) predominantly located on the mandible ($p = 0.010$). Adolescent patients with lesions located on the mandible would favor KCOT over dentigerous cyst. This study aids in better knowledge of the prevalence of developmental odontogenic cysts in a large pediatric population, and shows that a well-supported early diagnosis is indispensable for a more adequate treatment.

Youssefi MA et al (2020)²⁰ aimed to assess the prevalence and associated factors of dental caries in primary schoolchildren in Yasuj township, Iran. In this cross-sectional study, a total of 460 children aged 7–12 years were investigated. Dental examination was performed at school according to the World Health Organization criteria. Sociodemographic data were collected using a structured questionnaire, and caries statuses of children's teeth were recorded through a dental chart. Data were analyzed using summary statistics, chi-square test, and logistic regression model with odds ratio. The prevalence of dental caries in primary, permanent, and whole dentition among children was 75.3%, 41.1%, and 89.8%, respectively. Among all considered factors, the caries presence in primary teeth was inversely ($p < 0.001$) and in permanent teeth was



positively ($p < 0.001$) associated with the children's age. Moreover, the odds of decaying permanent teeth were significantly higher in girls, in rural children, and in children whose fathers were not an employee compared to their counterparts ($p=0.04$, $p < 0.001$, and $p=0.02$, respectively). The prevalence of dental caries among the studied primary schoolchildren in mixed dentition was high and associated with their sociodemographic factors. Providing and implementing preventive, therapeutic, and informative programs for controlling dental caries at individual, family, and school levels are necessary for local health policymakers.

Conclusion

Endodontic treatment for dental caries comprised of pit and fissure sealants for enamel caries, composite filling for dentinal caries and root canal treatment for cervical and root caries. The eruption cysts required no treatment because they were asymptomatic, dentigerous cysts had been enucleated and the dermoid cyst was removed surgically. The subjects with cleft palate were treated using obturator. There was high prevalence of eruption cyst in children aging between 1-5 years. The most common caries was dentinal caries and the least common caries among children was root caries.

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