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Child India

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Editor's Note

Dear friends,

Greetings with the last issue of Child India for this year! This, the December issue of our monthly e newsletter is dedicated to Pediatric Dentistry.

Pediatric dentistry (formerly pedodontics) is the branch of dentistry dealing with the dental health of children from birth through adolescence. Pediatric dentists also serve as educational resources for parents and children. It is recommended that the first dental visit be after the eruption of the first tooth or by a child's first birthday. It is important to establish a comprehensive and accessible ongoing relationship between the dentist and the child and family – to create a “dental home” for them. This is because early oral examination aids in the detection of the early stages of tooth decay. Early detection is essential to maintain oral health, modify aberrant habits, and treat as needed and as simply as possible. Early oral hygiene habits will develop strong teeth and gums of the child throughout the life. Additionally, parents are given a program of preventive home care (brushing, flossing and fluorides), a caries risk assessment, information on finger, thumb, and pacifier habits, and advice on preventing injuries to the mouth and teeth of children, diet counselling, and information on growth and development.

Minnie Evangeline Jordon established the first dental practice in the United States devoted only to pediatric patients in 1909 and published the first textbook on pediatric dentistry, titled Operative Dentistry for Children, in 1925.

The pediatric dentist needs to exhibit great patience and effective techniques to handle children and eliminate their pain at the same time. There are certain behaviour management techniques and verbal and non-verbal communication skills that they need to master to manage the pediatric dental patient.

We are extremely thankful to our Pediatric Dentistry colleagues for their contributions to enlighten us on some areas of this vast specialty that pediatricians need to be aware of.

Wishing all a Merry Christmas and a Happy New Year.

Jai IAP!

Dr Jeelson C Unni
Editor-in-Chief



President's Address

Dear colleagues,

Greetings from CIAP and on my personal behalf!

We are thankful to our Pediatric Dentistry colleagues for this issue of Child India. We as pediatricians need to be aware of this often neglected area of child health care.



Oral health is considered as an integral component of overall health. It is not just the responsibility of the dentist to manage oral health of a child. All the stakeholders including the guardians, dentists, allied dental professionals, and general health care providers should share the responsibility. Since we pediatricians are the first point of contact of babies and their families - we would see infants many many times more than a dentist - we need to be up-to-date regarding prevention of oral disease that should begin early in life. Collaborative efforts of both the pediatricians and pediatric dentists are essential as we are the custodians of overall health of children and are the ideal health care personnel to impart information and instruction about health care including oral health to the parents and caregivers. We need to be able to diagnose oral disease early and refer appropriately for expert management.

Results of limited number of studies available in this domain highlight lack of training of pediatricians on oral health care of children or they have an opinion that oral health does not fall within their domain. We hope that this issue of Child India will be useful in creating an awareness of our responsibility in this area of child health

Wishing all of you a Merry Christmas and a Happy New Year

Warmest Regards,

Jai IAP!

Piyush Gupta

National President, IAP 2021

Secretary's Message

Dear All

“The undertaking of a new action brings new strength”.
- Richard L Evans



Greetings from your Secretary-General. It has been an eventful month at the IAP Child India in December 2021.

We are happy to invite you to the 59th Annual Conference of IAP (National Pedicon) 2022 ([www. https://pedicon2021noida.com/](https://pedicon2021noida.com/)) scheduled from 16th to 20th Jan 2022 at Noida. This will be the first post corona pandemic mega physical conference. We look forward to seeing you at this conference soon.

We have the following achievements in terms of meetings/webinars this month:

- One Virtual seminar on ‘Children Upper Respiratory Tract Infection Module (CURE It MODULE) “ was successfully conducted on 14th Dec 2021 by IAP Siliguri, IAP Rupashi Bangla, IAP North 24 Parganas, IAP West Bengal. Preparation for the next program scheduled on 24th Dec 2021 at Gujarat is going on.
- Preparation for Pedicon 2022 at Noida is in progress along with the Office Bearers meeting and Executive Board meeting
- One Virtual meeting was conducted with Johnson & Johnson on 15th Dec 2021 to address issues related to ECD ToT scheduled at Pedicon 2022 at Noida and ECD report submission
- One IADVL Webinar was conducted on 1st Dec 2021 IAP Bengaluru Branch
- 1 CADE Module Virtual Webinar was conducted on 4th & 5th Dec 2021.
- One virtual National ToT was conducted on Hepatitis A on 5th Dec 2021
- Total 49 Basic NRP workshops and 8 advanced NRP workshops were conducted this month, and an approx. A total of 16 workshops are planned for the rest of the month. The total number of ToTs conducted are 4 to date.

Secretary's Message

- One National NRP ToT is scheduled to be conducted from 14th Jan to 16th Jan 2021 at Noida prior to Pedicon 2022, and the preparation for the same is in progress.
- Total of 10 NTEP workshops conducted across the country, and 2 more workshops are in the pipeline.
- Overall, the month of Dec 2021 has been very fruitful and focused on academic growth for their members, and we look forward to having more such activities in the coming months.

Last but not least, I would like to formally and sincerely express my gratitude for the fantastic support and coordination given by our esteemed members, all IAP branches and IAP Office Bearers and Executive Board members throughout the last two years.

I would like to thank everyone for doing great work. Your ability to work through unforeseen challenges and to collaborate is well appreciated.

I wish you all a very Happy, Healthy and Prosperous new year 2022.

Jai IAP!! Jai Hind!!

Sincere Regards,

Dr G V Basavaraja

Hon. Secretary General 2020 & 21

Primary Care Paediatrician's role in Paediatric dentistry

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Introduction

Paediatricians evaluate children several times during the first and second years of life. During the initial visits, paediatricians provide necessary immunizations, nutritional counselling, and information related to cognitive growth for the infants and parents. Dental caries is a major public health concern and the most common oral disease in children. Early childhood caries (ECC) is a highly destructive form of dental caries that affects infants and toddlers' primary teeth due to early pulp involvement. During the consultation or vaccination visits, paediatricians can assess age appropriate risks for dental problems and instruct the parents on early childhood caries prevention. Better oral and dental health can be achieved for these children if appropriate advice is provided during this time to prevent numerous oral health diseases (Table 1). A few other common issues related to children and adolescents will be discussed in the other articles of this issue.

Table 1:
Age appropriate oral health care
instructions for infants and toddlers

Age of the Child	Oral/ Dental Care
Birth	Natal and Neo-Natal Teeth
Six Weeks	<i>Streptococcus Mutans</i> Transmission
Ten Weeks	Wiping of Gum Pads
Three to Six Months	Bed Time Bottle Feeding
Six Months	Teething
Nine Months	Brushing and Weaning of Bottle Feed
Twelve Months	First Dental Visit
Fifteen Months	Diet Counselling
Eighteen to Twenty Four Months	Pacifier Weaning

Natal and neonatal teeth

The teeth present in the infant's mouth at birth are referred to as natal teeth, whereas teeth that erupt within a month after birth are considered neonatal teeth [1]. Although the specific cause of this is unknown; infection, maternal exposure to environmental toxins, trauma, malnutrition, febrile conditions, hormonal stimulation, and the superficial positioning of the tooth germ have been suggested as etiological factors [2]. The most common complication associated with the existence of natal/ neonatal teeth is ulceration on the ventral surface of the neonate's tongue, which is produced by the sharp incisal edge of the tooth. As chronic ulceration prevents effective suckling and feeding in infants, nutritional deficits in neonates and infants' failure to gain weight can be seen. Other important concerns associated with natal teeth include the risk of swallowing, aspiration, and injury to the mother's breast, as well as maternal discomfort during suckling. If the extraction is the preferred treatment option, precautions should be taken during the procedure, including delaying the extraction until the 10th day of life to avoid haemorrhage, assessing the baby's general health, administering vitamin K before extraction, and being careful to avoid aspiration and unnecessary injury to the gingiva [1].

Transmission of Mutans streptococci

Dental caries is an infectious and transmissible disease caused by cariogenic bacteria in the oral cavity, the most common of which are Streptococcus Mutans and Lactobacilli, which aid in the advancement of caries [3]. Early cariogenic microbial colonisation in the oral cavity of an infant has been associated with a higher risk of caries in children than those who acquire them later or don't have them at all. As a result, early colonisation and acquisition are associated with higher caries activity in both primary and permanent dentitions [4]. Recent literature also stated that there is evidence of

horizontal transmission of S. Mutans genotypes (as sharing of similar genotypes) among children at home, in school or day nurseries, and dental caries [5]. Several studies have reported that habitual consumption of Xylitol by mothers as chewing gum significantly reduces the probability of the vertical transmission of Streptococcus Mutans [6]. Thus, paediatricians should educate the mothers of infants and care should be taken to prevent the horizontal transmission and early acquisition of Streptococcus Mutans in their children.

Gum pads

Breastfeeding has been associated with dental caries formation in the majority of research, particularly when the feeding pattern is coupled with ad libitum feeding, which is known to promote tooth decay and dental caries [7]. Cleaning the gum pad with a moist gauze pad or clean washcloth on a regular basis has been shown to reduce the accumulation of bacteria and other microorganisms in the oral cavity, which can prevent the formation of dental caries. Therefore, paediatricians can educate the mother on the wiping of their baby's gum pad with a clean, moist gauze pad or washcloth before the eruption of teeth. Mothers should be counselled about wiping the gum pads and removing any debris or plaque at least once a day, preferably before bedtime. This type of cleaning can be continued for one or two teeth too, before switching to a baby tooth brush after several teeth have erupted.

Bed time/ sleep time bottle feeding

Dental caries in young children has been a major public health issue for many years and continues to be so, today. Several studies have investigated and classified the risk factors for early childhood caries, with bottle feeding being one of the most relevant risk factors. Rather than bottle-feeding alone, inappropriate bottle-feeding behaviours (i.e., nocturnal bottle feeding

on demand, sweetened contents) enhance the risk of caries development. According to studies, children who fall asleep with a nursing bottle have a higher chance of experiencing nursing caries than children who discard the bottle before falling asleep [8]. Ripa postulated a mechanism in 1988 for the onset, development, and pattern of nursing caries. Salivary secretion and swallowing enable for the elimination of fermentable carbohydrates while the child is awake. As the child becomes drowsier, the salivary flow and swallowing rate drop, allowing the liquid carbohydrate to remain in the mouth and pool around the teeth, starting the caries process [9]. Hence, paediatricians should educate parents on the importance of not allowing their children to fall asleep with a bottle in their mouth. Parents should be reminded to wipe their children's gum pads after each bottle feeding, especially during the night time.

Teething

Usually, children's first primary (milk) tooth (typically the lower central incisor) erupt at the age of six months, though this might vary and can be delayed sometimes. This period of milk tooth eruption in infants can be difficult and stressful for both the child and their parents, with a variety of minor symptoms. Parents of new-borns should be informed about teething symptoms such as pain, mild rise in temperature, diarrhoea, inflammation of the mucous membrane overlying the tooth (possibly with small haemorrhages), gum-rubbing, disturbed sleep/ wakefulness, drooling/sialorrhea, loss of appetite/alteration in volume of fluid intake, circumoral rash, intra-oral ulcers, increased biting, general irritability and rubbing of the ear on the same side of the erupting tooth [10]. This can be relieved by prescribing pharmacological and non-pharmacological treatments such as analgesic and antipyretics, topical anaesthetic drugs, teething rings (ice-cold), cucumber, teething rusks/ breadsticks, and pacifier (cold).

Brushing and weaning from bottle feeding

Fluoridated toothpaste is advised beginning with the first tooth eruption in childhood and continuing throughout adulthood. Brushing teeth with a grain of rice-sized amount of fluoride toothpaste every morning and night from tooth emergence till the age of three years is recommended. A pea-sized amount of fluoride toothpaste should be administered morning and night to children from the age of three or when they can effectively spit [11]. Also, American Academy of Pediatrics (AAP) guidelines recommend that parents begin bottle weaning at approximately 9 months of age. Paediatricians should counsel parents to follow the suggestion that infants should drink from a cup as they approach their first birthday [12]. Weaning can be accomplished in three ways: Stop providing bottle as a calming strategy; is possibly the quickest way to get rid of bottle in the night. By progressively diluting the milk with water, watering down the milk is a gentle and successful technique to wean the child off bottles at night. Providing them with a dummy and/or a pacifier will keep them warm at night if the child is more dependent on sucking than on drinking milk. However, this pacifier also needs to be discontinued at a later age.

First Dental Visit

Paediatricians are well aware of the medical home concept of AAP, which asserts that medical treatment for children of all ages is best managed when a relationship between the practitioner and the child, as well as their family, has been created. Similar to the concept of a medical home, the American Academy of Pediatric Dentistry (AAPD) supports the concept of a dental home for all infants, children, and adolescents, and also for people with special health care needs, which is inclusive of all aspects of oral health. Children with a dental home are more likely to receive

tailored preventative and regular oral health care, as well as enhance their families' oral health knowledge and habits, particularly in children at high risk of early childhood caries. The AAPD encourages the establishment of a dental home for every child at the age of 12 months by parents and other care providers [13]. As the children visit the clinic for vaccinations, paediatricians can educate and motivate parents about the benefits of early dental visits, thereby providing comprehensive care in a timely manner.

Diet counselling

The aetiology of dental caries is multifactorial, with dietary factors playing a key role, since excessive consumption of sugar-sweetened foods and beverages is linked to dental caries [14]. The 2015-2020 Dietary Guidelines for Americans emphasise the importance of updating a healthy eating pattern that includes a variety of vegetables, fruits, grains, a variety of protein foods, fat-free or low-fat dairy products, and oils, as well as limiting added sugars, saturated fats, and sodium. According to American Heart Association, children and adolescents should consume no more than 25 grams of added sugar per day [15]. At present, most preschool children are prescribed some sort of over-the-counter (OTC) medication, most typically as antipyretics, analgesics, as well as cough and cold medications, with high sugar content added to enhance acceptability and palatability. As a result, frequent intake of sugar-sweetened drugs is linked to dental caries in children with chronic illnesses. For the prevention of dental caries in children, paediatricians/ health professionals and parents should be educated about daily sugar consumption, as well as sugar-containing meals, beverages, and oral liquid medications.

Pacifier weaning

Non-nutritive sucking (pacifier sucking) is a reflexive response in which infants suck for pleasure, comfort, and security even when they

aren't hungry. It's easier to overcome a pacifier habit at an early age. Early pacifier weaning is less likely to cause orthodontic problems. Pacifier usage should be discouraged after 2 years of age, as it causes detrimental effects on dental development. If it is used after 3 years of age, the effects will be significantly more severe such as acute otitis media, various bacterial and viral infections, malocclusion, and infant death syndrome. Parents and caregivers should be educated by the paediatricians on how to use the pacifiers safely and also be instructed to clean pacifiers on a regular basis and to prevent siblings from sharing them and also advise the parents to consider having multiple pacifiers on standby to ensure thorough cleaning [16]. To prevent the development of malocclusion, suggest to parents that pacifier use be limited starting at the age of two and discontinued by or before the age of three.

Conclusion

Thus, the primary care paediatricians can provide age appropriate advice related to oral health for children or refer to a paediatric dentist for specific care if required.

References

1. Saha A, Bandi S, Kumar SK, Nuvvula S. Management of Natal Teeth: Paediatric Dentist Role. *J Dent Craniofac Res* 2018;1:1-3.
2. Leung AK, Robson WL. Natal teeth: a review. *J Natl Med Assoc* 2006;98:226-8.
3. Li Y, Ge Y, Saxena D, Caufield PW. Genetic profiling of the oral microbiota associated with severe early-childhood caries. *J Clin Microbiol* 2007;45:81-7.
4. Thibodeau EA, O'Sullivan DM. Salivary mutans streptococci and caries development in the primary and mixed dentitions of children. *Community Dent Oral Epidemiol* 1999;27:406-12.
5. Manchanda S, Sardana D, Liu P, Lee GHM, Lo ECM, Yiu CKY. Horizontal Transmission of *Streptococcus mutans* in Children and its Association with Dental Caries: A Systematic Review and Meta-Analysis. *Pediatr Dent* 2021;43:1-12.
6. Soderling E, Isokangas P, Pienihakkinen K, Tenovuo

- J. Influence of maternal xylitol consumption on acquisition of mutans streptococci by infants. *J Dent Res* 2000;79:882-7.
7. Chaffee BW, Feldens CA, Vítolo MR. Association of long-duration breastfeeding and dental caries estimated with marginal structural models. *Ann Epidemiol* 2014;24:448-54.
 8. Schwartz SS, Rosivack RG, Michelotti P. A child's sleeping habit as a cause of nursing caries. *ASDC J Dent Child* 1993;60:22-5.
 9. Ripa LW. Nursing caries: a comprehensive review. *Pediatr Dent* 1988;10:268-82.
 10. Wake M, Hesketh K, Lucas J. Teething and Tooth Eruption in Infants: A Cohort Study. *Pediatrics* 2000;106:1374-9.
 11. Featherstone JD, Crystal YO, Alston P, Chaffee BW, Doméjean S, Rechmann P et al., Evidence-Based Caries Management for All Ages-Practical Guidelines. *Front Oral Health* 2021;2:14.
 12. Nainar SM, Mohummed S. Diet counseling during the infant oral health visit. *Pediatr Dent* 2004;26:459-62.
 13. American Academy of Pediatric Dentistry. Definition of dental home. *Pediatr Dent* 2018;40(6):12.
 14. American Academy of Pediatric Dentistry. Policy on dietary recommendations for infants, children, and adolescents. *The Reference Manual of Pediatric Dentistry* 2021:87-9.
 15. Aarthi J, Muthu S, Sujatha S. Cariogenic potential of milk and infant formulas: A systematic review. *Eur Arch Paediatr Dent* 2013;14:289-300.
 16. Adair SM. Pacifier use in children: a review of recent literature. *Pediatr Dent* 2003;25:449-58.

Common Oral pathologies in newborns and Infants: A clinical guide



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Introduction

Although a variety of morphological variants and developmental anomalies can occur in the oral cavities of newborns and infants.¹ The most commonly diagnosed developmental abnormalities include ankyloglossia, Bohn's nodules, congenital epulis, cleft lip and/or palate, dental lamina cysts, Eruption cyst, Epstein's pearls, natal or neonatal teeth, oral thrush.^{2,3} Comprehensive knowledge is imperative to deal with such lesions in newborns and infants.⁴ It is also essential to guide parents through proper guidance and counseling. Nonetheless, It is mandatory to make an accurate diagnosis, treatment plan, and parental counseling and reassurances for newborns and infants with intra-oral lesions. A holistic evaluation and significant knowledge among the clinicians always allow diagnosing such rare abnormalities affecting the oral tissues in newborns and infants.^{2,4} The role and understanding among pediatric dentists and pediatricians are essential in managing such lesions. This paper was aimed to provide an insight into commonly seen dental issues,

their clinical presentations, and management that occurs in the oral cavities of newborns and infants.

Epstein's pearls: Arises from epithelial cells entrapped along the lines of fusion of the different palatal components during embryogenesis. These are white keratin-filled cystic lesions lined with stratified epithelium. These lesions are reported to be 35% in newborns with no gender significance.⁵

Clinical presentation: Epstein's pearls are seen at midline raphe of the hard palate and hard and soft palate junction and gingiva. These lesions do not cause any symptoms beyond their appearance. Newborn babies might feel pain and swelling around the cyst when infected.

Treatment: Usually not required, and they disappear within one to two weeks.

Bohn's nodules: Arises from minor mucous salivary glands remnants and appears as yellowish-white nodules.⁶ Bohn's Nodules are estimated to be seen in 45% of newborns.⁴

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Clinical presentation: Bohn's nodules are commonly seen on palatal and lingual or vestibular surfaces of the alveolar ridges (Figure 1). These lesions are firm and not tender to palpation. These bone nodules are frequently misdiagnosed as natal teeth.⁷

Treatment: Usually not required and they disappear within a few weeks/months.



Figure 1. The maxillary gingival surface consists of Bohn's nodules.

Congenital epulis: Congenital epulis is an uncommon tumor of uncertain histogenesis that occurs on the alveolar ridge of the newborn.^{8,9}

Clinical presentation: Congenital epulis is present at birth, and it does not grow in size after birth. The majority of the cases occur in the anterior alveolar ridges of the maxillary arch. It appears with a smooth lobulated tumor of smaller than 2 cm in diameter. Females are more prone than males, and large lesions are also reported in the literature. Large granular cells with small nuclei will be evident on histological examination of the lesion.⁹

Treatment: Surgical excision recommended, especially if congenital epulis causes obstructing feeding and or respiration. Histological examination of excised lesions is obligatory.

Dental lamina cysts: Grey or white cystic enlargements resulting from remnants of the dental lamina¹⁰.

Clinical presentation: Dental lamina cysts are more frequently seen in the crest of the maxillary and mandibular alveolar ridges (Figure 2).¹¹

Treatment: Specifically, treatment is not required, and they disappear within one or two weeks.



Figure 2. The mandibular anterior region consists of dental lamina cysts.

Natal or neonatal teeth: Teeth present at birth are called natal teeth (Figure 3), whereas teeth erupt with the first month of life called neonatal teeth (Figure 4).¹²

Clinical presentation: Natal and neonatal teeth usually seen in the mandibular anterior region and occur in single or pairs. The majority of the natal teeth are rootless, and Neonatal teeth are less frequent than the natal teeth, with a reported incidence of 1 in 3,500 births.¹³ An intra-oral radiograph is critical to differentiate these teeth from the premature eruption of primary or supernumerary teeth.

Treatment: Usually, treatment is not required. Extraction when the tooth is highly mobile. However, suppose a patient is diagnosed with a natal or neonatal tooth. In that case,

clinical decisions for its management should be customized based on the risk of detachment and aspiration, interference with feeding, and any medical or contributing factors.¹⁴



Figure 3. Natal teeth in a new born



Figure 4: Neonatal teeth in a 14-day old baby

Eruption cysts: These are benign asymptomatic cysts that appear on the mucosa of a tooth shortly prior to its eruption (Figure 5).¹⁵

Clinical presentation: Soft tissue cyst resulting from the dental follicle of an unerupted tooth. Blue-black or brown color lesions depend on the amount of blood (blood is secondary to

trauma) in the cystic fluid.

Treatment: Not required, and it resolves in a few weeks.



Figure 5: Eruption cyst

Riga-fede disease: A ulcer located on the ventral surface of the tongue due to trauma from natal or neonatal teeth is called Riga-fede disease (Figure 6).¹⁶

Clinical presentation: The presence of ulcerative granuloma appearance is caused by reputation trauma. This lesion causes difficulty for the infant to suck and feed, which leads to the baby being at risk of nutritional deficiencies.¹⁷

Treatment: Smoothing of sharp cusp and a composite splint is also recommended if these teeth are causing any discomfort to the mother while feeding and casing laceration to the ventral part of the tongue. Extraction is recommended in some instances on a case basis.



Figure 6: Regafede disease caused by neonatal tooth in a 20 day old baby.

Ankyloglossia: A short lingual frenum that restricts tongue tip mobility is called an ankyloglossia (tongue-tie).¹⁸

Clinical presentation: Tongue-tie is a congenital oral anomaly with an incidence rate of 0.02- 5%. It may range from mild to severe form (tongue fused to the floor of the mouth). Usually, the frenum appears short, and the tip of the tongue is often heart shape. Ankyloglossia can cause several complications such as limitations of tongue mobility, feeding difficulties, speech and articulation difficulties, and periodontal and malocclusion problems.¹⁹

Treatment: Ankyloglossia results in functional limitations or causes symptoms; the need for surgical intervention should be assessed on a case basis. Surgical correction techniques include lingual frenectomy, Z-plasty or frenectomy with or without myotomy.



Figure 7: Ankyloglossia of tongue in newborn.

Cleft lip and/or palate: Cleft lip and/or palate are congenital oro-facial malformations (Figure 8) that occur during pregnancy. This anomaly is associated with more than 400 syndromes. A cleft lip is a physical split of the upper lip, whereas a cleft palate is a split or opening in the roof of the mouth.²⁰ Cleft lip and/or palate occurs in one in 700 births.

Clinical presentation: This anomaly could occur unilaterally or bilaterally. A cleft palate involves hard and/or soft palates. A cleft lip is more common in girls than boys. Feeding

difficulties most common problems in infants with this congenital craniofacial anomaly.²¹

Treatment: Requires much attention, and managing cleft lip and/or palate requires a multi-disciplinary approach involving multi-specialities medical and dental fields (Table 1).²²

Table 1. Management protocol for cleftlip and/or palate

Age	Procedure
Birth to 6 weeks	Feeding assistance, support for parents, hearing tests, and paediatric assessment
3 to 6 months	Durgery to repair a cleft lip
6 to 12 months	Surgery to repair a cleft palate
18 months	Speech assessment
3 years	Speech assessment
5 years	speech assessment
8 to 12 years	Bone graft to repair a cleft in the gum area
12 to 15 years	Orthodontic treatment and monitoring jaw growth



Figure 8: Unilateral cleft lip and palate in newborn baby.

Oral thrush: Oral thrush or oral candidiasis characterizes an oral manifestation of *Candida* species commonly by *Candida Albicans*, and this infection is seen in 40–80% of all candida infections in newborns. It was reported that oral thrush might cause through perinatal transmission through vertical (during birth from mother), or horizontal (external contamination).²³

Clinical presentation: Oral thrush appears as whitish patches with surrounding erythema involving tongue cheek and palate mucosa (Figure 9). These white patches are hardly detachable, and mucosal erosion causes mechanical stress. Various risk factors had have been reported for the etiological factors of oral thrush include low birth weight, prematurity, antibiotics or steroids use, central venous catheter, immunodeficiency, maternal hypertension, and endotracheal tube and dialysis. In babies admitted in NICU (neonatal intensive care units), oral thrush denotes a risk factor for developing Candida septicemia.²⁴

Treatment: Oral hygiene instructions play a significant role. Application of topical antifungal drugs swabs (nystatin and fluconazole) helpful in avoiding feeding problems and systemic candidiasis and amphotericin-B used in severe cases.



Figure 9: Oral thrush in an infant

Discussion:

Babies explore objects with their mouths by putting anything they can hold into it. Hence, the oral cavity is the first discovery of newborn babies.²⁵ A definitive diagnosis of morphological and developmental anomalies and/ or lesions in newborns and infants always poses a challenge to the pediatric dentist and pediatrician.^{26,27} As with any lesion, the pediatrician and pediatric dentist should confirm the diagnosis to rule out a condition; henceforth, the proper management strategies could benefit newborns and infants.²⁶

Any of these discussed pathologies in newborns and infants remind all clinicians that the unexpected can occur. It was also suggested that newborn screening is mandatory. The authors opine that there is a need to add such oral pathological conditions in newborn screening; however, a thorough clinical examination and knowledge of the various lesions are essential for precise diagnosis and management and parental counseling. Knowledge of these frequently seen oral lesions in newborns and infants, therefore crucial among pediatric dentists and pediatricians. Pediatricians are the ones who see newborns and infants regularly compared to pediatric dentists.³⁰ The understanding of oral pathologies among pediatricians is essential. Treatment planning in association with a pediatric dentist would benefit the newborn and infants to improve their oral health.

Conclusion:

Some of these conditions are common, and few are rare and of only minor pathological concern, as most are innocuous and resolve in time in the absence of active management. Furthermore, there is a need to establish the association among pediatric dentists and pediatricians to manage such oral pathologies in newborns and infants.

References:

1. Long CM, Quinonez RB, Rozier RG, Kranz AM, Lee JY. Barriers to pediatricians' adherence to American Academy of Pediatrics oral health referral guidelines: North Carolina general dentists' opinions. *Pediatr Dent.* 2014 Jul-Aug;36(4):309-15.
2. Mecarini F, Fanos V, Crisponi G. Anomalies of the oral cavity in newborns. *J Perinatol.* 2020 Mar;40(3):359-368.
3. Mueller DT, Callanan VP. Congenital malformations of the oral cavity. *Otolaryngol Clin North Am.* 2007;40:141
4. Wagner Y, Heinrich-Weltzien R. Pediatricians' oral health recommendations for 0- to 3-year-old children: results of a survey in Thuringia, Germany. *BMC Oral Health.* 2014 May 1;14:44.
5. George D, Bhat SS, Hedge SK. Oral findings in newborn

- children in and around Mangalore, Karnataka state, India. *Med princ Pr.* 2008;17:385-9.
6. Dutta A, Ghosh SK, Nag SS. Bohn's nodules. *Indian Pediatr.* 2014 Oct;51(10):849-50.
 7. Cizmeci MN, Kanburoglu MK, Kara S, Tatli MM. Bohn's nodules: peculiar neonatal intraoral lesions mistaken for natal teeth. *Eur J Pediatr.* 2014;173:4036.
 8. Cavalcante JFN, Souza Costa MDA, Fixina JNC, Pereira EL, Cipriano OB, Gomes de Queiroz R, Rolim AKA, Ferreira do Nascimento GJ, Rocha JF, Penha ES. Congenital epulis of the newborn: a case report. *Gen Dent.* 2021 Nov-Dec;69(6):54-57.
 9. Merrett SJ, Crawford PJ. Congenital epulis of the newborn: a case report. *Int J Paediatr Dent.* 2003 Mar;13(2):127-9.
 10. Maher WP, Swindle PF. Etiology and vascularization of dental lamina cysts. *Oral Surg Oral Med Oral Pathol.* 1970 Apr;29(4):590-7.
 11. Patil S, Rao RS, Majumdar B, Jafer M, Maralingannavar M, Sukumaran A. Oral Lesions in Neonates. *Int J Clin Pediatr Dent.* 2016;9(2):131-138
 12. Shivpuri A, Mitra R, Saxena V, Shivpuri A. Natal and neonatal teeth: Clinically relevant findings in a retrospective analysis. *Med J Armed Forces India.* 2021 Apr;77(2):154-157.
 13. Saha A, Bandi S, Mallineni SK, Nuvvula S (2018) Management of natal teeth: Paediatric-dentist role. *J Dent Craniofac Res* 2018; 3 (1):2
 14. Bulut G, Bulut H, Ortac R. A comprehensive survey of natal and neonatal teeth in newborns. *Niger J Clin Pract.* 2019 Nov;22(11):1489-1494.
 15. Shamim T, Shabeer KPO. Eruption cyst associated with right maxillary deciduous first molar. *Pan Afr Med J.* 2018 Aug 23;30:285.
 16. van der Meij EH, de Vries TW, Eggink HF, Visscher JG. Traumatic lingual ulceration in a newborn: Riga-Fede disease. *Ital J Pediatr.* 2012 May 23;38:20.
 17. Senanayake MP, Karunaratne I. Persistent lingual ulceration (Riga-Fede disease) in an infant with Down syndrome and natal teeth: a case report. *J Med Case Rep.* 2014 Aug 22;8:283.
 18. Tsaousoglou P, Topouzellis N, Vouros I, Sculean A. Diagnosis and treatment of ankyloglossia: a narrative review and a report of three cases. *Quintessence Int.* 2016;47:523-34
 19. Kupietzky A, Botzer E. Ankyloglossia in the infant and young child: clinical suggestions for diagnosis and management. *Pediatr Dent.* 2005;27:40-6.
 20. Luzzi V, Zumbo G, Guaragna M, Di Carlo G, Ierardo G, Sfasciotti GL, Bossù M, Voza I, Polimeni A. The Role of the Pediatric Dentist in the Multidisciplinary Management of the Cleft Lip Palate Patient. *Int J Environ Res Public Health.* 2021 Sep 8;18(18):9487.
 21. Robin NH, Baty H, Franklin J, Guyton FC, Mann J, Woolley AL, Waite PD, Grant J. The multidisciplinary evaluation and management of cleft lip and palate. *South Med J.* 2006 Oct;99(10):1111-20.
 22. <https://www.nhs.uk/conditions/cleft-lip-and-palate/treatment/> (accessed on 14.12.2021)
 23. Douvoyiannis M, Swank C. The worst thrush i have ever seen. *Pediatr Emerg Care.* 2016;32:614-5.
 24. Su CW, Gaskie S, Jamieson B, Triezenberg D. Clinical inquiries. What is the best treatment for oral thrush in healthy infants? *J Fam Pract.* 2008 Jul;57(7):484-5.
 25. Anthonappa RP, King NM. An unusual white lesion in a 10-month-old child. *Dent Update.* 2010 Mar;37(2):110-2, 114.
 26. Dickson-Swift V, Kenny A, Gussy M, McCarthy C, Bracksley-O'Grady S. The knowledge and practice of pediatricians in children's oral health: a scoping review. *BMC Oral Health.* 2020 Jul 25;20(1):211
 27. Clinical Affairs Committee, American Academy of Pediatric Dentistry. Guideline on Management Considerations for Pediatric Oral Surgery and Oral Pathology. *Pediatr Dent.* 2015;37:85-94.
 28. Jalan A, Kudalkar K. Challenges in Newborn screening in India. *Chid India,* 2021; 9; 13-18.
 29. Unni JS. Newborn Screening Program in India. *Chid India,* 2021; 9; 23-30.
 30. Alshunaiber R, Alzaid H, Meaigel S, Aldeeri A, Adlan A. Early childhood caries and infant's oral health; pediatricians' and family physicians' practice, knowledge and attitude in Riyadh city, Saudi Arabia. *Saudi Dent J.* 2019;31(Suppl):S96-S105. doi:10.1016/j.sdentj.2019.01.006

Early Diagnosis of Early Childhood Caries - What a Pediatrician can do?



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Background

Early Childhood Caries (ECC) is a type of dental caries, affecting primary teeth in children less than 6 years of age. Enamel Hypoplasia (EH) or Enamel Defects (ED) have been established as primary risk factors for Early Childhood Caries (ECC) by a recent systematic review and an umbrella re-view^{1,2}. The odds of developing early childhood caries is 13 times higher in the presence of EH/ED on erupting primary teeth (Milk teeth or Deciduous teeth). EH/ED are structural defects on the enamel ie poorly formed and mineralized enamel which is softer, porous, and extremely vulnerable for dissolution in the presence of prolonged accumulation of food substances or liquids on its sur-face^{3,4}. All

the primary teeth (crowns) are developed and fully formed during the intrauterine life^{5,6,7,8}. Hence, it is logical to hypothesize EH/ED occurs due to some disturbances occurring dur-ing the intrauterine life. However, it is unclear, the nature of disturbances or events during pregnan-cy that influences the development of mineralization process of tooth development.

Clinical Characteristics of Enamel Hypoplasia or Enamel Defects

ED/EH appear as white lines or patches (either demarcated or diffuse). These are also alternatively called White Spot Lesions (WSL) (Refer Fig.1 & 2). These surfaces are called "Non cavitated le-sions". Once these surfaces breakdown, the disease worsens by cumulative

accumulation of food substances on the rough surface of enamel through the day. It becomes a vicious cycle then. The broken-down part of enamel where there is loss of tooth substance is called “cavitated lesions”. The non cavitated lesions are reversible through remineralization strategies and early cavitated lesions can be arrested through minimally invasive strategies.

Early Diagnosis and First Dental Visit

In the recent manual by World Health Organization titled “Ending Childhood Caries” 9 proposes an eight pronged strategy to mitigate ECC globally. One of the eight steps proposed is on “Early Diag-nosis” of Early Childhood Caries. Early diagnosis is feasible only when an early first dental visit occurs. It is essential that this approach has to be quickly disseminated and implemented to prevent millions of children from undergoing rehabilitation under general anesthesia. The ideal first dental visit as recommended by the American Academy of Pediatric Dentistry (AAPD) is soon after the eruption of first primary tooth or by the first birthday whichever is earlier¹⁰. This recommendation came almost three decades ago and it is estimated today that only 30% (exact figures not known) of the children report for their first dental visit at this time in the USA (Personal Communication with Kevin Donly - AAPD President). Hence, this method has not given the anticipated results. Annual-ly millions of children are treated under General Anesthesia for ECC rehabilitation in the USA with billions of dollars spent on this.

In India, it is reported that the first dental visit of a child happens around 6 years of age¹¹. Various other countries report the average age of first dental visit at different time intervals ranging from 3-9 years (Table 1)

Table 1
Average age of First Dental Visit

Country	Average age at First Dental Visit	Reference
India	After 6 years	Meera R et al 2008 ¹¹
Turkey	3-4	Bulut G et al 2020 ¹²
Poland	4	Mika A et al 2018 ¹³
Nigeria	7-9	Olatosi OO et al 2019 ¹⁴
Bulgaria	3-6 years	Mileva SP et al 2010 ¹⁵

Crucial Window for Early Diagnosis of Early Childhood Caries

The Window for the Pediatric Dentist/ Dentist/Pediatrician

Early diagnosis of ECC is feasible if the health care provider has the opportunity to see an infant soon after the eruption of the first tooth. This rarely happens even in developed nations as well. As mentioned above, ED/EH appears as white patches or white lines on the newly erupted enamel sur-face. These extremely vulnerable surfaces of enamel can break down in a shorter span of time (with-in 2-4 weeks) if prolonged accumulation of food substances or liquids persists on its surface. As the first tooth erupts into the oral cavity around 6-10 months of age, it is essential to examine the newly erupted tooth surface soon after its appearance in the oral cavity. Hence the first examination of the tooth surface must be carried out within weeks after the eruption of the tooth inside the oral cavity. The ideal window for this early diagnosis to happen is between 6-12 months in most infants except the ones whose teeth have not erupted by first birthday.

Method of Examination

The infant examination is carried out

on an infant table¹⁶ or in a Knee to Knee position^{17,18,19}. Once the infant is placed in the appropriate position, a piece of gauze or cotton is used to clean/wipe the surface of the enamel. The enamel surface should be dry to visualize the ED/EH/WSL. This examination can be carried out by a Pediatrician as well during the infants' vaccination visits.

Pediatrician's role in Early Diagnosis and Referral

Once EH/ED are identified on the surface of enamel the parents/ caretakers should be alerted about the vulnerability of the surface and its imminent breakdown on accumulation of food substances or liquids on its surface. Immediate consultation by a Pediatric dentist is preferred. Further enhancement of vigorous infant oral care measures, to prevent breakdown of enamel is needed. Many general dentists are not sensitized to this early diagnosis process. Hence, appropriate referral to a pediatric dentist will help the parents arrest the disease at this stage itself.

The role of pediatrician is the most important in the early diagnosis of ECC. During their vaccination visits, a simple intraoral examination and wiping of the enamel surface (as mentioned above) will reveal the vulnerable surfaces if exists. An appropriate and quick referral is the key to preventing this disease from further progression.

Failure of Early Diagnosis and Disease Progression

Failure of early diagnosis can lead to disease progression and eventually become a full-blown ECC affecting multiple teeth. ECC is known to severely affect the quality of life of children and also affects their physical and intellectual growth and development^{20, 21, 22}. The children may miss school hours, or may not be able to focus in the classrooms due to ECC related pain and discomfort. Millions of children are treated

under general anesthesia for ECC worldwide. Globally ECC is a huge public health problem and a major cost to the family and the society in rehabilitating these children.

Conclusion

Simple intraoral examination during vaccination visits and examining the tooth surface in a knee to knee position will allow a health care provider to diagnose the early changes of ECC. Appropriate and immediate referral not to a dentist but to a pediatric dentist is crucial in preventing this disease from progressing.

References

1. Kirthiga M, Murugan M*, Saikia A, Kirubakaran R. Risk Factors for Early Childhood Caries: A Systematic Review and Meta-Analysis of Case Control and Cohort Studies. *Pediatr Dent*. 2019 Mar 15;41(2):95-112. PubMed PMID: 30992106.
2. Tham R, Bowatte G, Dharmage SC, Tan DJ, Lau MX, Dai X, Allen KJ, Lodge CJ. Breastfeeding and the risk of dental caries: a systematic review and meta-analysis. *Acta Paediatr* 2015 Dec;104(467):62-84.
3. Niviethitha S, Muthu MS*, Kavitha S. In Vitro Assessment of Enamel Permeability in Primary Teeth with and without Early Childhood Caries Using Laser Scanning Confocal Microscope. *J Clin Pediatr Dent*. 2016;40(3):215-20. doi: 10.17796/1053-4628-40.3.215. PubMed PMID: 27472569.
4. Narrenthran JS*, Muthu MS, Renugalakshmi A. In vivo scanning electron microscope assessment of enamel permeability in primary teeth with and without early childhood caries. *Caries Res*. 2015;49(3):209-15. doi: 10.1159/000367602. Epub 2015 Feb 7. PubMed PMID: 25677114.
5. Logan W and Kronfeld, R. Development of the human jaws and surrounding structures from birth to the age of fifteen years. *JADA* 1933; 20:376.
6. Lunt RC, Law DB. A review of the chronology of eruption of deciduous teeth. *J Am Dent Assoc* 1974; 89: 872-879.
7. Kraus, BS. Calcification of the human deciduous teeth. *JADA* 1959; 59:1128.
8. Kraus, BS. Differential calcification rates in the human

- primary dentition. *Arch Oral Biol* 1959;1:133.
9. Watt RG, Daly B, Allison P, Macpherson LMD, Venturelli R, Listl S, Weyant RJ, Mathur MR, Guarnizo-Herreño CC, Celeste RK, Peres MA, Kearns C, Benzian H. Ending the neglect of global oral health: time for radical action. *Lancet*. 2019 Jul 20;394(10194):261-272. doi: 10.1016/S0140-6736(19)31133-X. PMID: 31327370.
 10. American Academy of Pediatric Dentistry. Perinatal and infant oral health care. *The Reference Manual of Pediatric Dentistry*. Chicago, Ill.: American Academy of Pediatric Dentistry; 2021:262-6
 11. Meera R, Muthu MS, Phanibabu M, Rathnaprabhu V. First dental visit of a child. *J Indian Soc Pe-dod Prev Dent*. 2008;26 Suppl 2:S68-71. PMID: 19075451.
 12. Bulut G, Bulut H. Zero to five years: First dental visit. *Eur J Paediatr Dent* 2020;21:326-30.
 13. Mika A, Mitus-Kenig M, Zeglen A, Drapella-Gasior D, Rutkowska K, Josko-Ochojska J. The child's first dental visit. Age, reasons, oral health status and dental treatment needs among children in Southern Poland. *Eur J Paediatr Dent*. 2018 Dec;19(4):265-270. doi: 10.23804/ejpd.2018.19.04.3. PMID: 30567441.
 14. Olatosi OO, Onyejaka NK, Oyapero A, Ashaolu JF, Abe A. Age and reasons for first dental visit among children in Lagos, Nigeria. *Niger Postgrad Med J* 2019;26:158-63
 15. Mileva S.P., Kondeva V.K. Age at and reasons for the first dental visit. *Folia Med. (Plovdiv)* 2010;52(4):56-61
 16. Muthu MS*, Farzan JM, Prathibha KM. A new and simple infant assessment table. *Indian J Dent Res*. 2013 Jul-Aug;24(4):515-7. doi: 10.4103/0970-9290.118380. PubMed PMID: 24047850.
 17. Dean AJ, McDonald and Averys's dentistry for the child and the Adolescent. 10th Ed. Missouri: Elsevier;2016.
 18. Muthu MS, Sivakumar N. Principles and practice of Pediatric Dentistry .2nd Ed. New delhi: Elseiver;2016.
 19. Chen J, Duangthip D, Gao SS, Huang F, Anthonappa R, Oliveira BH, Turton B, Durward C, El Tantawi M, Attia D, Heima M, Muthu MS, Maharani DA, Folayan MO, Phantumvanit P, Sitthi-settapong T, Innes N, Crystal YO, Ramos-Gomez F, Medina AC, Lo ECM and Chu CH (2021) Oral Health Policies to Tackle the Burden of Early Childhood Caries: A Review of 14 Coun-tries/Regions. *Front. Oral. Health* 2:670154.
 20. FDI World Dental Federation - Vision 2030. <https://www.fdiworlddental.org/oral-health/ask-the-dentist/facts-figures-and-stats>. Assessed on September 13, 2021 <https://www.fdiworlddental.org/vision-2030-delivering-optimal-oral-health-all>
 21. Abirami S, Panchanadikar N, Muthu MS, Balasubramanian S, Murthy J, Mohan A, Haridoss S, Subbalekshmi T. Effect of Sustained Interventions from Infancy to Toddlerhood in Children with Cleft Lip and Palate for Preventing Early Childhood Caries. *Caries Res* 2021;22:1-9.
 22. Pitts NB, Baez RJ, Diaz-Guillory C, et al. Early Childhood Caries: IAPD Bangkok Declaration. *J Dent Child (Chic)*. 2019;86(2):72.

Legends

Figures

Fig.1 - Early Changes of Early Childhood Caries (ECC) - White Patches



Fig 2 - Early Changes of Early Childhood Caries (ECC) - White Lines



Tables

Table 1 - Average age of First Dental Visit

Pediatrician as primary care givers in traumatic dental injuries



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Abstract

Trauma to teeth and associated structures are one of the most common injuries among children. Recognizing and responding to traumatic dental injuries (TDI) with immediate first aid are the first steps to improving patient outcomes. Pediatricians in certain circumstances may be called upon to give first aid to children with dental trauma. The skill and knowledge for the right management of dental trauma is very important for the better prognosis of the treatment.

Introduction

Dental trauma is the most common type of injury among growing children. Some injuries may be an emergency which needs immediate care as it results in pain, bleeding, loss of teeth, dysfunction, and diminish the patient's quality of life. 1 Pediatrician, more than any other health professionals are considered to be authoritative for children's health care needs. 2 Many a times, the dental trauma patients are presented to their practice for immediate management. However, some studies suggest that their knowledge about management of orofacial injuries are less than adequate. 3 In our medical education syllabus and training, management of dental trauma is seldom taught.

Dental injuries can involve a single tooth or multiple teeth. Generally traumatic dental injuries peaks of incidence in boys is at about

1-3 y and 10-12 y and 1-3 y of age in girls. During the age 2-3 years, the children will be acquiring walking skills with lesser control on motor coordination, which makes these children more vulnerable to falls and injury to front teeth. 1,4

The common etiological factors for traumatic dental injuries in children are falls, sports injuries, fights, road traffic accidents. Non accidental injuries due to child abuse also should be considered as an etiological factor. The prognosis of treatment depends on age of the child, stage of tooth development, direction and intensity of force, size and shape of impacting object and type and the timing of emergency dental treatment provided. The factors such as proclined upper front teeth, malocclusions and short upper lip and makes children more susceptible to TDI. 5

Dental trauma assessment in children

Various types of dental trauma can occur as shown in figure 1. A thorough case history and documentation is needed as some of the cases end in legal issues. Questions on how, when, and where the dental injury occurred are important for determining the need for a tetanus booster, the possibility of child abuse, and the possibility of a head injury. 6 The prognosis of the treatment especially pulp exposures and avulsion depends on the time elapsed since the injury. It is important for the pediatrician to complete an age-appropriate neurologic assessment, which may

include enquiring whether the child experienced loss of consciousness, dizziness, headache, or nausea and vomiting. If any intra cranial injury is suspected, then immediate medical evaluation and management should be prioritized.

The clinical examination should include thorough evaluation of the face, lips, and oral musculature for soft tissue lesions. Any extra oral soft tissue wounds of the lips and buccal mucosa should be examined for any tooth fragment buried in laceration wounds. Therefore if a lip laceration is present, before suturing an intraoral soft tissue radiograph may be indicated to visualize any foreign bodies, including tooth fragments.^{5,6} The facial skeleton should be palpated for signs of fractures. Orofacial clinical examination should include the assessment of occlusion of upper and lower teeth. Any gap or deformity in the occlusion may reveal a displaced tooth or an alveolar or jaw fracture. The dental trauma region should be inspected for fracture of teeth, abnormal tooth position, missing tooth and tooth mobility. Enquiring about tooth sensitivity or pain to hot and/or cold exposures may indicate that the dentin and/or pulp tissue are exposed.^{4,6}

Any tooth sensitivity or pain to hot and/or cold exposures may indicate that the dentin and/or pulp tissue are exposed which requires immediate referral to a dentist. If a patient comes with an avulsed tooth, it has to be cleaned and kept in available tooth storage medium (Table 1) and has to be referred to the dental surgeon immediately. The traumatic injuries to the primary dentition may affect the developing permanent teeth.⁷

Dental trauma management in primary dentition

In children 0 to 6 years of age, oral injuries are ranked as the second most common injury, accounting for almost 20% of all bodily injuries. The most common teeth injury in the primary dentition are luxation of maxillary incisors. In

case of concussion or subluxation, no immediate treatment is necessary but whereas for lateral luxation or intrusive or extrusion of teeth it is important to refer to a dentist as they may affect the developing permanent teeth. An impact against the primary incisors in children below the age of 2 years may have long-term effects on the crown of the developing permanent tooth.⁷

An avulsed primary tooth should not be replanted to avoid damage to the underlying permanent tooth germ. If the tooth is not found, clinical and radiographic examination can confirm that the tooth is not intruded. A chest radiograph may be indicated if the child displays breathing difficulties to ensure the tooth was not aspirated.⁶ Excess mobility of the teeth indicate root fracture. It is rare in primary dentition because of the resilient nature of the surrounding bone

Dental trauma management in permanent dentition

The most common injury reported in the permanent dentition of children is an uncomplicated crown fracture involving the maxillary incisors. In this case enamel and dentin surfaces is affected without exposure of the pulpal tissues, therefore these tooth can be restored with tooth-coloured dental material, or if the tooth fragment is available, it can be rebonded to the tooth. If there is tooth sensitivity the patient should be seen by a dentist to cover the exposed dentin and reduce the discomfort. If the fracture of the permanent tooth exposes the pulpal tissue, then appropriate pulp therapy should be rendered by a dentist immediately to preserve pulp vitality.^{4,5}

No immediate treatment is indicated for subluxation or concussion, but the injured tooth have to be observed for possible future pulpal necrosis by dental surgeon. Luxation injuries such as lateral luxation, intrusion or extrusion needs care and follow-up by the dentist. When the teeth segment exhibits significant mobility

, radiographic examination is needed to find whether there is any root fracture . Immediate referral to dental surgeon is necessary for further treatment.⁶

Avulsion of a permanent tooth is the most serious of all dental injuries in children . Figure 2 shows the flowchart of emergency of dental trauma first aid for avulsed teeth .The prognosis of the avulsed permanent tooth depends on measures taken immediately after the accident. The treatment of choice is immediate replantation. After the tooth is located, it should be handled by the crown portion only and not the root because the root is covered in fragile periodontal ligament fibres which are important for reattachment to the alveolus. Before replantation, it should be confirmed that the avulsed tooth is a permanent tooth; as primary teeth should not be replanted. If the permanent tooth is dirty, it should be washed briefly under cold running water. ¹² If a paediatrician is informed about avulsion, he/she should encourage the guardian or caretaker to replant the tooth at the site of the injury, if possible. The child should be instructed to bite on a cloth to hold it in position until he or she can get to the doctor's office or emergency department. If this is not possible, the tooth should be placed in a suitable storage medium.⁹

Hanks Balances Salt Solution Solution is considered as the best medium for transportation of teeth but it is not readily available in our country . The natural medium such as cold milk , Coconut water , egg white , green tea extract etc are considered as good medium for storage. If no storage media are accessible, then the patient can drool saliva in to a container and use that as a transport medium. Storing an avulsed tooth in water should be avoided because water causes osmotic lysis of the root fibroblasts. After the tooth has been replanted or placed in a proper storage medium, dental care should be obtained immediately . Extra oral dry time of more than 15 minutes is not considered as ideal ,therefore

immediate reimplantation of avulsed tooth is necessary to prevent complications such as resorption and ankylosis of teeth .¹⁰

Tips for Paediatricians in TDI management

It is important to recognize that traumatic dental injuries can be initially managed by the paediatrician with subsequent referral to a dentist , but it is also important to recognize that some traumatic dental injuries require immediate treatment by a dentist.

Some situations that need immediate referral to dental surgeons after the first aid by the paediatrician / emergency are : when there is evidence of jaw fracture , tooth avulsion, tooth displacement abnormal mobility of teeth and in cases of tooth fracture with bleeding from dental pulp . Depending on the severity of the injury, all repositioned teeth should be splinted with a flexible splint for at least two to five weeks. Long term follow is needed in TDI cases as the vitality of the injured teeth may be affected by the injury.^{7,8}

Trauma can be prevented or minimized by identifying and educating individuals who participate in high-risk sports and recommending the use of mouthguards. More emphasis on use of mouthguards to the sportspersons, coaches, and parents by dentists and paediatricians can reduce the incidence of traumatic dental injuries.¹¹

Conclusion

Treatment of a traumatized tooth requires fastidious diagnosis and coordination between all treating health care professionals from the moment of injury Paediatricians play a pivotal role in the provision of primary care following dental trauma, especially for population with limited access to dental care. The criticality of time and knowledge is very important in the

success of dental trauma management . Prompt and appropriate management is necessary to significantly improve the prognosis for many dentoalveolar injuries.

References

1. Petti S, Glendor U, Andersson L. World traumatic dental injury prevalence and incidence, a meta-analysis - one billion living people have had traumatic dental injuries. *Dent Traumatol.* 2018;34: 71-86
2. Goyal A, Nishant, Morankar R, Gauba K, Jaiswal M. Awareness among pediatricians regarding oral health care in children including those with special health care needs: A cross-sectional survey. *J Family Med Prim Care.* 2020;9(8):4151-4155.
3. Khandelwal V, Gupta A. Awareness about management of 'avulsed teeth' among primary contact doctors. *Journal of Indian Association of Pediatric Surgeons* 2013;18:92
4. Lam R. Epidemiology and outcomes of traumatic dental injuries: a review of the literature. *Aust Dent J.* 2016 Mar;61 Suppl 1:4-20.
5. Tewari, N., Bansal, K. & Mathur, V.P. Dental Trauma in Children: A Quick Overview on Management. *Indian J Pediatr* 2019;86:1043-1047
6. Levin L, Day PF, Hicks L, O'Connell A, Fouad AF, Bourguignon C, Abbott PV. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: General introduction. *Dent Traumatol.* 2020 Aug;36(4):309-313
7. Day PF, Flores MT, O'Connell AC, Abbott PV, Tsilingaridis G, Fouad AF, Cohenca N, Lauridsen E, Bourguignon C, Hicks L, Andreasen JO, Cehreli ZC, Harlamb S, Kahler B, Oginni A, Semper M, Levin L. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 3. Injuries in the primary dentition. *Dent Traumatol.* 2020 Aug;36(4):343-359.
8. Bourguignon C, Cohenca N, Lauridsen E, Flores MT, O'Connell AC, Day PF, Tsilingaridis G, Abbott PV, Fouad AF, Hicks L, Andreasen JO, Cehreli ZC, Harlamb S, Kahler B, Oginni A, Semper M, Levin L. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 1. Fractures and luxations. *Dent Traumatol.* 2020 Aug;36(4):314-330
9. Fouad AF, Abbott PV, Tsilingaridis G, Cohenca N, Lauridsen E, Bourguignon C, O'Connell A, Flores MT, Day PF, Hicks L, Andreasen JO, Cehreli ZC, Harlamb S, Kahler B, Oginni A, Semper M, Levin L. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 2. Avulsion of permanent teeth. *Dent Traumatol.* 2020 Aug;36(4):331-342.
10. Vineet IS Khinda et al. Clinical and Practical Implications of Storage Media used for Tooth Avulsion. *IJCPD.* 2017;10(2):158-165
11. Levin L, Zadik Y. Education on and prevention of dental trauma: it's time to act! *Dent Traumatol.* 2012 Feb;28(1):49-54.

Table & Figures

Natural	Synthetic
Milk	Hanks Balanced salt solution
Coconut water	ORS solution
Egg white	Eagles Solution
Green tea extract	Contact lens solution
Saliva	

Table 1: Various tooth storage mediums for avulsed tooth

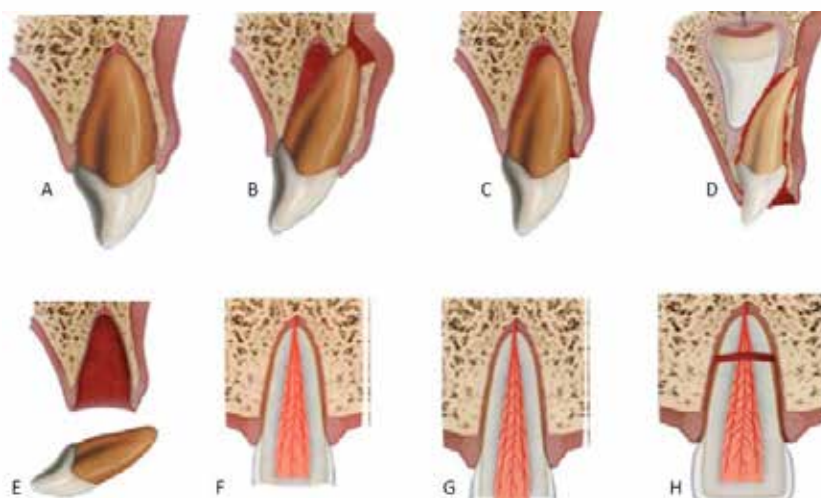


Figure 1: Types of Traumatic Dental Injuries A- Subluxation, B- Lateral Luxation, C- Extrusion , D -Intrusion, E- Avulsion, F -Uncomplicated tooth fracture, G- complicated tooth fracture , H- Root fracture

(Adapted from Textbook and Color Atlas of Traumatic Injuries to the Teeth, 5th Edition)

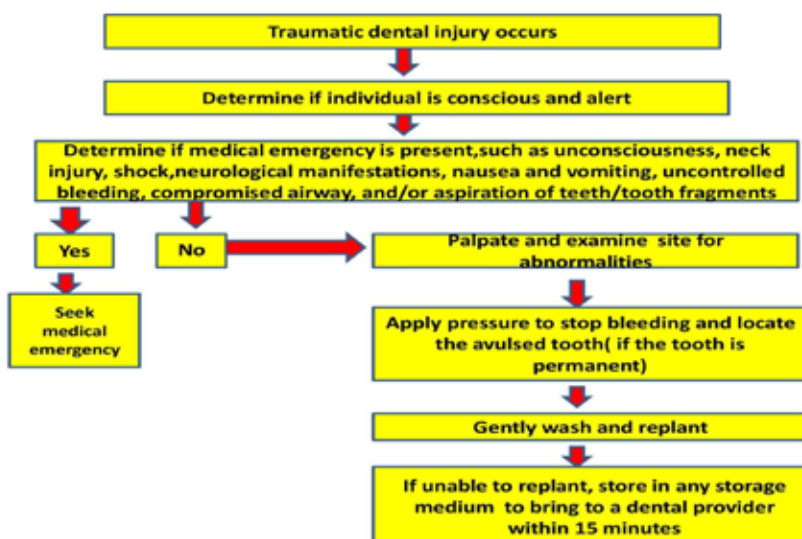


Figure 2: Emergency management of Dental Avulsion

Oral Habits: A Pediatrician's Perspective

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A habit is a repetitive action that tends to occur unconsciously but most of the repetitive behaviors start and finish spontaneously during infantile period. In both children and adults, the mouth is considered to be a primary and permanent location for expression of emotions, relief in passion and anxiety, so there is a palliative action by the stimulation of this region with tongue, finger or nail 1,2. Oral habits can be either Acquired, which are, learned behaviors that could be stopped easily when the child grows up or compulsive oral habits, which are somewhat, fixed in child and are resorted to in case of emotional pressures and anxiety 2,3. The prevalence of oral habits in children have been reported to be ranging from 34% to 68% based on various studies4, 5. The intent of this article is to review different oral habits commonly seen in children, their prevalence, clinical effects, diagnosis and treatment modalities, which serve as a guide to create awareness among pediatricians as they establish the first contact with the parents and children.

Thumb / Digit Sucking: It is one of the most common habit seen in children and is defined as the placement of thumb or one or more fingers in varying depth into the mouth. This habit usually starts in I.U life and continues up to 1-2 yrs after which it spontaneously disappears with maturation. It should be viewed by the clinician as a behavioral pattern of multivariate nature, which may begin for one reason and be sustained by other factors at different ages6. The incidence according to Kelley et al (1973) is around 11.7%

in girls and 8.3% in boys6. Most common cause of this habit emotional insecurity or deprived attention from the family members, hereditary, social stress, retained infantile swallow and post-natal sucking reflex6.

Pediatrician view

- History – Determine the psychological component involved, inquire about frequency, intensity & duration of the habit, and evaluate the feeding pattern and parental care7.
- Diagnosis with Extra-Oral features – Digits would be reddened and exceptionally clean with short fingernail appearing like dishpan thumb (Fig 1); Keratotic lesion on the digit; Upper Lip would be short, hypotonic and lower lip would be hyperactive; Convex profile
- Intra-oral clinical features – Mal-alignment of teeth with Maxillary anterior proclination, anterior open bite (Fig 2), high palatal arch, posterior cross bite are some of the easily discernable effects7.



Fig 1: Dishpan thumb Fig 2: Anterior open bite

- **Treatment:** The treatment strategies for correction of this habit are manifold and comprise of psychological, emotional, reminder modalities which could be initiated by the Pediatrician in consultation with the

Pediatric Dentist.

- o Any stimulus which pushes the child towards the act like nagging, scolding should be avoided. Parent counseling should be done not only to know the cause but also to counsel them for emotional support to child.
- o Dunlop's hypothesis - The child should be asked to sit in front of the mirror and asked to observe himself as he indulges in the habit. Forced purposeful repetition of habit eventually associates with unpleasant reactions and the habit is abandoned.
- o Use of long-sleeve nightgown, Thumb - home concept (Fig 3), Hand Puppets is all of great use to remind the child not to perform the act. This is especially useful in small children who perform the habit during sleep.
- o Chemical treatment and Elbow guard and three alarm system (Fig 4) can be used for older children who perform the habit continuously. This appliance restricts folding of elbow thus preventing the thumb or digit from reaching mouth but also plays music to remind the child that they have to avoid the habit.
- o Thumb guard (Fig 5), Intraoral appliances like Blue Grass appliance (Fig 6), Palatal Rakes are some of the interventions carried out by the Pediatric Dentist in case of more aggressive habits dwellers.



Fig 3: Thumb Home Concept



Fig 4: Elbow guard and three alarm system



Fig. 5: Thumb guard

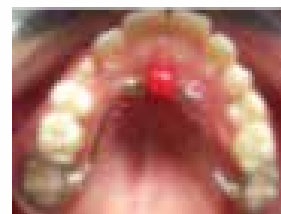


Fig. 6: Blue grass appliance

Tongue Thrusting: It is the most diabolical of all oral habits as it mostly develops secondary to other habits yet it is most deleterious for dentition owing to direct stimulation. Profitt (1972) defined it as the placement of the tongue tip forward between incisors during swallowing. Its incidence varies from 3% in adolescents, 80% in mixed dentition and 97% in newborns. Most common cause of this habit is upper respiratory tract infections, feeding practices, secondary to other habits like thumb sucking and most importantly as a gap filling tendency i.e. Any space around the dental arches not occupied by teeth will tend to be filled by the tongue partly and may functionally adapt to transient change in anatomy.

Pediatrician view

- Diagnosis by Functional examination – Observe the tongue position while the mandible is in the rest position and during various swallows.
- Diagnosis by Palpatory examination – Place water beneath the patients tongue tip and ask him to swallow: In normal swallow mandible rises and teeth are brought together but no contraction of lips or facial muscles but in Tongue thrusting there is marked contraction of lips and facial muscles. Another diagnostic test is asking the patient to swallow while

holding the lower lip: –normal swallow can be completed but in Tongue thrusting patient swallow cannot be completed

- Diagnosis by Speech sounds – In most of the patients there are problems in articulation of s, n, t, d, l, z, and v sounds 7.
- Intra-oral clinical features – Gap filling tendency by tongue (Fig 7) is the most common clinical sign along with features like proclination of maxillary anteriors, anterior or posterior open bite, cross bite, maxillary constriction 6.
- Treatment – This habit usually is self-correcting by 8-9 years as the permanent teeth erupt.
 - o If associated with other habits, associated habit should be treated first.
 - o Myofunctional therapy where a child can be guided regarding the correct posture of the tongue during swallowing by various exercises (4S, candy exercise) like asking the child to place the tip of the tongue in the rugae area for 5 minutes and then asking him to swallow
 - o Pre-orthodontic trainers, Hawley’s appliance with Tongue crib (Fig 8) are some of the options used by the dentists in appliance approach.



Fig. 7: Gap filling tendency by tongue



Fig. 8: Hawley’s appliance with Tongue crib

Mouth Breathing: Chopra (1951) & Sassouni (1971) defined it as a habitual respiration through the mouth instead of the nose 6. Finn (1987) further classified it as Obstructive (obstruction of normal airflow through nasal passage); Habitual (persistence of the habit even after elimination of the obstructive cause) and Anatomical (Short upper lip leads to incompetence of lips and hence mouth breathing) 7. Most common etiological reasons are developmental and morphologic anomalies like nasal turbinates, deviated nasal septum, chronic allergic stomatitis, enlarged adenoids or nasal polyps.

Pediatrician view

- Diagnosis by observation – Observe the patient for Lip posture: in mouth breathers lips will be apart, whereas in nasal breather lips will be touching. Another observation skill is to ask the patient to take a deep breath through nose: Mouth breathers will exhibit no change in shape or size of external nares whereas the nasal breathers will demonstrate good control of alar muscles
- Diagnosis by Extra-oral features – Adenoid Facies (Fig 9), Pigeon chest appearance, nasal tone in voice and short thick incompetent upper lip are the classical features of this habit.
- Diagnosis by Clinical tests
 - o Mirror test: Two-surfaced mirror is placed on the patient’s upper lip. If air condenses on upper side of mirror the patient is nasal breather and if it does so on the opposite side then he is a mouth breather.
 - o Massler’s water holding test: Patient is asked to hold the mouth full of water. Mouth breathers cannot retain the water for a long time.
 - o Jwemen’s butterfly test: Take a few fibers of cotton and place it just below the nasal

opening. On exhalation if the fiber of the cotton flutter downwards patient is nasal breather and if fibers flutter upward he is a mouth breather.

- o Rhinometry reveals that in blood gas constituents there is 20% more Co₂ and less O₂.
- Intra-oral features – Inflamed gingival tissue in the anterior maxillary arch (Fig 10), constricted maxillary arch, tendency towards an open bite, posterior cross bite (Fig 11), low tongue position are the intra oral findings in mouth breathers.



Fig. 9: Adenoid facies



Fig. 10: Inflamed gingival tissue



Fig. 11: Posterior cross bite

- Treatment – The main aspect of management of a mouth-breathing patient is to treat and eliminate the underlying cause or pathology that has created the habit with the help of ENT specialist.
 - o This should be followed by symptomatic

treatment like deep breathing exercises, for 15 to 30 min/day for 4 to 5 months.

- o Intraoral appliances i.e. Oral screen (Fig 12) with or without holes can be made depending on child's age, severity of problem in conjunction with pediatric dentist.
- o Lip exercises, tug of war and button pull exercise - A string is tied to two buttons, one of the buttons is placed between the lips of the patient while the other is held by the patient outside. The outer button is pulled outwards and at the same time the inside button is resisting the forces thereby strengthening the lips on both aspects (Fig 13)



Fig. 12: Oral Screen



Fig. 13: Button pull exercise

Lip Biting: It is defined as habit that involve manipulation of the lips and perioral structures. It may be classified as Lip licking, Wetting of lips by the tongue or Lip sucking habit and has a higher predominance for the lower lip.

Pediatrician view

- Diagnosis by observation – Observe for lip trap, reddened and chapped area below the vermilion border (Fig 14)
- Intra-oral features – Protrusion of upper incisors, Retrusion of lower incisors
- Treatment – It becomes more deleterious with age because of the muscular force interacting

child's growth thus treatment should be directed initially towards the etiology followed by appliance therapy like lip protector (Fig 15) and lip bumper 7.



Fig. 14: Redness on lip



Fig. 15: Lip protector



Fig 16: Cheek biting

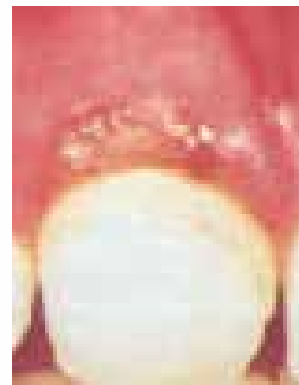


Fig 17: Insertion of sharp objects in mouth

Self-Injurious Habits: These habits or repetitive acts result in physical damage to the individual themselves. They are also called Masochistic habits, Sado-masochistic habits and self-mutilating habits. They are mostly seen in compromised children and are mostly associated with Lesch-Nyhan disease and De Lange's syndrome.

Pediatrician view

- **Diagnosis by observation** – Any injury, which stands out from the ordinary, like biting of fingers, cheek (Fig 16), Picking of gingiva or insertion of sharp objects into the oral cavity like pen, pencil (Fig 17) are tell tale signs of such habits.
- **Treatment** –Care should be taken in dealing with this form of behavior of underlying emotional component. Psychotherapy, Palliative therapy followed by mechanotherapy using protective padding and mouth guards (Fig 18) are most indicated in such cases.



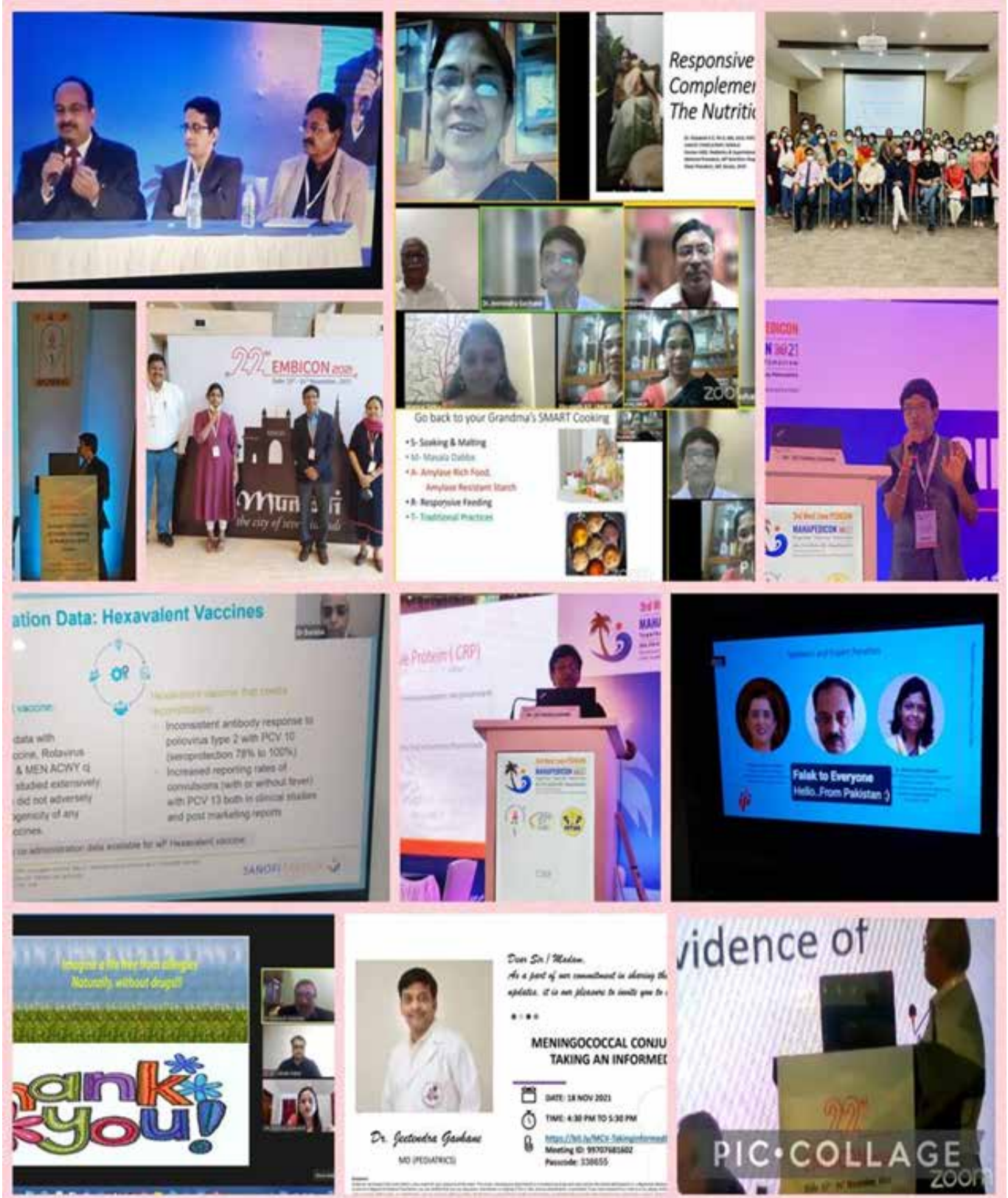
Fig 18: Mouth guards

CONCLUSION - Oral habit can be hard to break and new habits are hard to form, but it is possible to form new habits through repetition. Prevention and interception of these deleterious oral habits at an early stage is vital for good oral health of children and the most important cog for this is the Pediatrician who plays an important role not only in diagnosing the habit but also counseling the patient and parent followed by timely referral for treatment intervention to the dentist.

REFERENCES

1. Shahraki N, Yassaei S, Moghadam MG. Abnormal oral habits: A review. *J Dent Oral Hyg* 2012;4(2):12-5.
2. Shah AF, Batra M, Sudeep CB, Gupta M, Kadambariambildhok R K. Oral habits and their implications. *Ann Med*. 2014;1:179-186.
3. Warren JJ, Bishara SE, Steinbock KL, Yonezu T, Nowak AJ. Effects of oral habits' duration on dental characteristics in the primary dentition. *J Am Dent Assoc*. 2001;132(12):1685-93.
4. Yassaei S, Rafieian M, Ghafari R. Abnormal oral habit in the children of war veterans. *J Clin Pediatr Dent*. 2004;29(3):189-192.
5. Quashie-Williams R, Dacosta OO, Isiekwe MC. The prevalence of oral habits among 4 to 15 year old school children in Lagos, Nigerian. *J Health Biomed Sci*. 2007;6(1):78-82.
6. Khan I, Mandava P, Singaraju GS. Deleterious Oral Habits: A Review. 2015;7(1):28-33.
7. Marwah N. Section -7, Pediatric orthodontics, Oral Habits. *Textbook of Pediatric Dentistry*. 4th Edn. Jaypee Brothers Medical Publishers; 2019.
8. Kamdar RJ, Al-Shahrani I. Damaging oral habits. *J Int Oral Health*. 2015;7(4):85-87.

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30-11-2021**

New PCV10: Is it suitable for India?

A. Santhosh Kumar
National Expert & First Assistant
Ramesh Medical College, Kozhikode

Participants (24):
 Dr Muhammad Hassan (100%)
 Dr Durg Thomas (100%)
 A Santhosh Kumar (100%)
 Dr Jay (100%)
 Lakshmi Manjappan

Kerala Monthly Webinar Series
"BEHIND THE SCENES MEET THE COVERS"
SEASON 4

Hosted by IAP KOZHIKODE
 Moderator: Dr Shaji Thomas John
 25-November-2021, Thursday, 8:00 pm

Anger Management in Adolescents

Speaker: **Dr Preeti M Galgali**
 Professor & Additional Senior Lecturer
 Anger, Aggression, Child & Counseling Center & Post Graduate Level PGD, AICA

Zoom Meeting: Meeting ID: 333 678 2020
 Password: IAPCALICUT

Two day workshop on
EARLY IDENTIFICATION AND INTERVENTION OF NEURODEVELOPMENTAL DISABILITY

Indian Academy of Pediatrics (IAP), South India Chapter & Kerala Academy of Pediatrics (KAP) 20th November 2021
PROGRESS
 Early Identification of Neurodevelopmental Disability

INAUGURATION CEREMONY

Welcome Address - Dr. Binukath Karthasa
 Early Childhood Center, Special Institute of Rehabilitation Studies

Presidential Address
 Dr. Binukath Karthasa
Inaugural Address
 Dr. Jayaraman TP
About the Address
 Dr. Anil KP

RELATIONS
 Dr. Jayaraman TP
 Dr. Anil KP
 Dr. Binukath Karthasa

SPKS OF HONORS
 Dr. Jay (100%)
 Dr. Binukath Karthasa (100%)
 Dr. Anil KP (100%)
 Dr. Jayaraman TP (100%)
 Dr. Binukath Karthasa (100%)

Adolescent and Child Rights Week Celebrations
അഭിമാനം
 Awareness Talk series
Wednesday
 24th Nov 2021
03:00PM

IAP Kozhikode
 Dept of Women and Child Development, Kozhikode

TOPIC
Child Adoption
 (ആപ്തവാക്യം - അഭിമാനം - അഭിമാനം)

SPEAKER
Dr Bennet Xylem
 Consultant Paediatrician,
 Child Health Services & Adoption Counselling Institute

Zoom Meeting: Meeting ID: 333 678 2020
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“Healthy Lifestyle Day” Celebration Report



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“Healthy Lifestyle Day” Celebration Report




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