

Oral Implications of Parafunctional Habits in Children: A Mini-Review

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Abstract

Habits are unconsciously performed repetitive actions. Functional habits actions like nasal breathing, chewing, and swallowing is essential for the growth and development of a child. Para functional habits on the other hand, result from unnecessary actions and have a detrimental effect on the growth and development of a child. They are responsible for a wide array of developmental anomalies, from minor traumatic injuries, malocclusions to major life-threatening ones. This review discusses some of the most interesting case reports depicting the impact of these habits on children. This will help the general practitioner in diagnosing Para functional habits. Also, this review throws light on the etiological aspect of Para functional habits so that they can be nipped at the bud stage.

Keywords: Children; Malocclusion; Parafunctional habits; Trauma

Introduction

Habit is an unconsciously performed repetitive action. Development of habit is considered a part of normal sequence of maturation in children between infancy and three years of age, beyond this period, it is considered abnormal. The most common and earliest reported habit is thumb sucking. It appears during infancy as rooting reflex, thereafter, ceases around three years of age [1].

Finn classified habits into two major groups- acquired and compulsive. Acquired habits are behaviors that are learned and can be stopped easily when the child grows up. Compulsive habits are behaviors that are fixed in the child. They are performed to feel safe in emotionally incapacitating situations [2].

The habits can also be categorized as functional and parafunctional. Functional habits like nasal breathing, chewing, and swallowing are the results of normal functions. These habits are important in the normal growth and development of a child. In contrast, parafunctional habits like digit sucking, lip biting/ sucking, and or bruxism have detrimental effects on the oral and para oral structures [1].

This article is an attempt to showcase the implications of these deleterious habits in children.

Materials and Methods

Case reports and series were searched in Pubmed Central, Google Scholar, and Embase using the keywords: parafunctional habits, children, malocclusion, trauma and using the Boolean operator "AND" or "OR". 193 articles appeared in the search. Inclusion criteria was case reports pertaining to parafunctional habits in children. All other type of articles, case reports in adults, studies, and review articles were excluded. 12 case reports were selected based on their relevance to the topic.

Discussion

Parafunctional habits are developed as a coping mechanism during the period of stress, and emotional instability. Chronic disease during infancy and poor physical health has also been cited as the reason for developing these habits. When a child finds himself in a violent family environment or lack of attention from parents, he falls prey to these habits [3].

Mouth is both the primary and permanent site for the expression

of emotions. Thus, its stimulation with tongue, nail, or finger can be considered as a palliative action [4]. These stimulating (parafunctional) actions when practiced for a long period of time lead to a wide array of anomalies of the oro-dental region ranging from minor traumatic injuries to major life-threatening ones. In the long run, the development of malocclusion (anterior/posterior open bite, cross-bite) and temporomandibular disorders ensue.

Some interesting case reports

- Sharma et al., reported a case of a four-year-old child who presented with a greyish black deposit on the lower molar. Her habit of chewing lead pencil led to graphite deposition in the lower molar tooth mimicking an amalgam restoration [5].

- Goyal and Bharti reported a case where the pencil chewing habit led to window-shaped facets in the maxillary incisors of a four-year-old child. The teeth were restored by composite build up after performing root canal treatment [6].

- Rihani et al., reported a five-year-child with an enlarging bluish lesion on the anterior maxillary gingiva. Surgical exploration of the site lead to the diagnosis of graphite tattoo [7].

- Pai et al., reported recurrent fever and distoangular eruption of maxillary incisors in a child with toe sucking habit. As a consequence of the habit, the toe was deformed, and the right maxillary incisor was erupting in cross-bite. After intervention, the cross-bite was corrected, and the episodes of fever subsided. She was put on pre-orthodontic trainer for the subsequent management of distoangular placement of both maxillary incisors [8].

- Abe et al., reported multiple mucocoeles on the lower lip of a two-year-old child. The child had a habit of biting the lower lip with maxillary teeth. The authors speculated chronic trauma from the teeth as a reason for mucocoeles [9].

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- Rangeeth et al., presented a case of a nine-year-old girl with multiple swellings on the lower lip. She had a habit of lip biting. Excisional biopsy of the swellings revealed mucocele and irritational fibroma. A lip bumper was given to the child as a habit breaking appliance [10].

- Mishra et al., reported a case of solitary, large pedunculated swelling on the palate of an eight-year-old child. The swelling had first appeared three years back and was gradually increasing in size since then. The child had a history of thumb sucking till five years of age. The authors suggested chronic trauma from the habit as the etiology of fibroma [11].

- Rawal et al., presented a case where a 12-year-old boy reported swelling in the anterior palate. He had a history of rapid maxillary expansion (RME) treatment. The swelling was provisionally diagnosed as an inflammatory condition of unknown etiology. However, histopathological examination revealed a fungal infection. The boy had a habit of scratching his palate with a twig whenever he felt uncomfortable during the treatment with RME [12].

- Barberia et al., reported a case of a seven-year-old child with an atypical lesion on the tongue. Thorough evaluation revealed that the lesion was secondary to lip sucking habit. The child was undergoing an interceptive orthodontic management. Due to his lip sucking habit, the tongue was pushed against the appliance leading to the atypical lesion. The authors had to remove the appliance and the orthodontic treatment was deferred till the habit was broken [13].

- Antonio et al., reported bruxism in two children (six and seven years of age). Both had harrowing experiences, one lived in an area of violence and other had witnessed separation of his parents. Both children had presented with severe attrition of teeth. They were given soft-base bite plate for maxillary arch and were referred for psychological monitoring [14].

- Sakabe et al., reported the case of an eight-year-old female with clicking in the right temporomandibular joint and reduced mouth opening. Radiographic evaluation depicted flattening and erosion of the right condyle. The authors managed the case with a fixed stabilization type splint. The child was guided lifestyle changes for reducing stress [15].

Occasionally, children may stumble with foreign objects in the mouth. These injuries are usually minor and self-healing, but sometimes these can be life-threatening. Aggarwal et al., reported a case where the child fell face-off with a pencil in the mouth sustaining injuries to the soft palate. It was followed by episodes of headache, nausea, vomiting, and weakness on the right side of the body. Initial non-contrast computed tomography (NCCT) head revealed normal morphology of the brain. A subsequent NCCT (31 hours later) revealed a middle cerebral artery infarct [16]. Thus, to rule out damage to vital structures (internal carotid artery), NCCT is an advisable modality for patients presenting with impalement injuries in the soft palate.

In all aforementioned cases, the presence of a parafunctional habit was a consistent feature, implying that the conditions would not have occurred, had the child did not have the habit. These habits not only create difficulties for the patient but also radiate financial stress to the parents. Thus, it is imperative to discuss this aspect with the parents.

The etiology of parafunctional habits is multifactorial. The literature has copious studies citing an association between the duration of breastfeeding and parafunctional habits in children. Breastfeeding plays a protective role against the development of parafunctional habits

and their implications like anterior or posterior open bite and cross-bite in children [17-20]. It is also responsible for a child's socioemotional development [21]. A review by Farsi and Salama concluded that parafunctional (sucking) habits were only related to parent's education and child feeding methods and that the rank of the child in the family and socioeconomic status had no impact [22]. Stressful environment, parental separation, violent families, and lack of attention from parents have a major impact on the child's psychology, making them prone to developing parafunctional habits. Thus, it is essential to counsel the parents regarding the same.

Conclusion

The case reports discussed in the manuscript depict a wide spectrum of oral presentations secondary to parafunctional habits. In order to successfully diagnose a parafunctional habit, it is imperative to elicit the history of duration of breastfeeding, use of pacifiers, and any chronic disease during infancy. The diagnostician must also evaluate the presence of psychological stress in the patient and try to elicit its cause. The parents must be explained the benefits of a strong emotional bond with the children in preventing these habits. Counseling of both the child and the parents is imperative in preventing parafunctional habits and their manifestations.

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Competing interests

The authors declare that they have no competing interests.

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