



MANAGEMENT OF ORAL HABBITS IN CHILDREN

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ABSTRACT

Oral habits are learned patterns of muscle contraction and have a very complex nature. They are associated with anger, hunger, sleep, tooth eruption and fear. Some children even display oral habits for release of mental tension. These habits might be non-nutritive sucking (thumb, finger, pacifier and/or tongue), lip biting and bruxism events. These habits can result in damage to dentoalveolar structure; hence, dentists play a crucial role in giving necessary information to parents. This information includes relevant changes in the dentoalveolar structure and the method to stop oral habits. Also, a dentist is required to treat the ensuring malocclusion.

KEYWORDS: Oral habit, pacifier, bruxism, hand sucking, nail biting, lip chewing.

INTRODUCTION

Oral habits may be a part of normal development, a symptom with deep rooted psychological basis or may be the result of abnormal facial growth. A wide variety of habits with varying aetiologies and clinical manifestations exist. Hence for proper management of these habits, proper understanding of each and every habit becomes important especially from dentist's point of view.^[1]

DEFINITIONS

Moyers (1958): Oral habits are learned patterns of muscular contractions, which are complex in nature.

CLASSIFICATION

Morris and Bohanna (1969)⁴ : pressure habits, non pressure habit, biting habits.

Earnest Klein (1971)⁵ : Abnormal pressure habits into intrinsic and extrinsic.

Finn (1975)⁵: compulsive, non compulsive, secondary habits.

Tandon (2001)⁶

- Intentional/meaningful e.g. Nail biting, digit sucking, lip biting.
- Unintentional/empty e.g. Abnormal pillowling, chin propping.
- Masochistic/self inflicting e.g. Gingival stripping.
- Functional e.g. Mouth breathing, tongue thrusting, bruxism.

Prevalence of oral habits^[2]

Kharbanda et al (2003): 5-13 yr old children, Delhi - 25.5% Tongue thrusting – most common (18.1%) followed by mouth breathing (6.6%). Thumb sucking (0.7%) and lip biting (0.04%) - relatively less common. Shetty, Munishi Mangalore: 29.7% of children, Digit sucking (3.1%), pencil biting (9.8%) and tongue thrust (3.02%) highly prevalent among 3-6 yrs. Mouth breathing (4.6%) and bruxism (3.1%) - significant in 7-12 yrs, lip/cheek biting (6%) and nail biting (12.7%) - more common in 13-16 yrs. Digit sucking, tongue thrust, mouth breathing and bruxism more prevalent among boys. Lip/cheek biting, nail biting and pencil biting - more prevalent among girls.

Development of a habit^[1]

It has been stated that unconscious mental pattern of childhood develops from five sources namely instinct, insufficient or in correct outlet of energy, pain or discomfort, abnormal physical size of parts, imitation of or imposition of others.

Functional matrix theory (Melvin Moss): Buccinator, superior constrictor, pterygomandibular raphe harmonious pressure balance oral habits. Normal dentofacial and skeletal growth tongue lips abnormal soft tissue pressure, altered muscular contraction altered dentofacial and skeletal growth.

Psychoanalytical theory (Sigmund Freud): Personality develops through a series of childhood stages during which the pleasure seeking energies of the id become focused on certain erogenous areas. This psychosexual

energy, or libido, was described as the driving force behind behaviour.

THUMB SUCKING

Thumb sucking is the most common oral habit and it is reported that its prevalence is between 13 to 100% in some societies. The prevalence of this habit is decreased as age increases, and mostly, it is stopped by 4 years of age. There is a relationship between the level of education in parents, the child nutrition and the sucking habit. If the child chooses this habit in the first year of his or her life, the parents should move away his or her thumb smoothly and attract the child's attention to other things such as toys. After the second years of age, thumb sucking will decrease and will be appear just in child's bed or when he/she is tired.^[2]

Some of children who do not stop this habit, will give it up when their permanent teeth erupt, but there is a tendency for continuing the sucking habit even until adult life. According to a study in 1973, millions of kids do not give up this habit before the eruption of teeth. Nowadays, the level of stress is higher than the time of that study, and as stress is a powerful stimulus in sucking habit, it is probable to find more kids with long-term sucking habit if we do a research exactly like the one which was done in 1973.^[2]

Thumb sucking has 2 types

(1) Active: In this type, there is a heavy force by the muscles during the sucking and if this habit continues for a long period, the position of permanent teeth and the shape of mandible will be affected.

(2) Passive: In this type, the child puts his/her finger in mouth, but because there is no force on teeth and mandible, so this habit is not associated with skeletal changes.

In the case of active thumb sucking habit, it is better for a child not to be blamed, teased, offended, humiliated and punished, because these methods will increase the anxiety and consequently increase the incidence of the habit. Long-term finger sucking habit has harmful effects on dentition and speech. In 1870s decade, Camble and Jander reported for the first time that long-term finger sucking has harmful effects on dentition.

The side effects of finger sucking are

1. Anterior open bite
2. Increased overjet
3. Lingual inclination lower incisor and labial inclination upper incisor
4. Posterior cross bite
5. Compensatory tongue thrust
6. Deep palate
7. Speech defect

The severity of changes in dentition due to finger sucking is related to the duration and times of doing the

habit. Also, the position of finger in mouth, dental arches relation and child's health affect the severity of changes.

During active phase of permanent tooth eruption, there is a high risk for dental arches deviation. In children who do the sucking habit for 6 h or more, especially during night or sleep, severe abnormalities in dentoalveolar system.

Diagnosis: History, Emotional status, clinical features.

Treatment considerations: Psychological status of the child, age factor, motivation of child, parental cooperation, friendly rapport, emotional significance, status of the child's occlusion

Treatment

- A. Dunlop's hypothesis
- B. Six steps in cessation of habit
- C. Three alarm system
- D. Reward system
- E. Ace bandage approach
- F. Thumb buddy to love
- G. Thumb - home concept
- H. Chemical treatment
- I. Remainder therapy
- J. Thumb guard
- K. Parent counseling

Intraoral approaches: Blue grass appliance, modified blue grass appliance, Quad helix, Palatal crib, spurs, triple loop activator, tongue connector appliance

TONGUE THRUSTING

Definitions: Proffit (1972)⁹: It is the placement of the tongue tip forward between incisors during swallowing.

Classification

Moyers [1955]

- A. Simple: Normal tooth contact during the swallowing act, anterior open bite, good intercuspation of teeth, the tongue thrust forward to establish anterior lip seal and abnormal mentalis muscle activity.
- B. Complex: Teeth apart during swallow, diffuse or absent anterior open bite (bimaxillary protrusion), absence of temporal muscle constriction during swallowing, contraction of the circum oral muscles during swallowing and poor occlusion of teeth.

Etiology: Retained infantile swallow, upper respiratory tract infections, neurological disturbances, feeding practices, functional adaptability to transient change in anatomy, other oral habits, hereditary tonsils and adenoids, lingual frenum, brain injury, faulty surgical procedures.

History: sucking habits, neuromuscular problems, Determine swallow pattern of siblings & parents (hereditary etiology) and determine whether remedial speech therapy was provided.

Clinical manifestations

Extra oral: Lip posture, mandibular movements, speech disorders, facial form. **Intra oral:** Tongue movements, tongue posture, malocclusions associated with tongue thrust.

Diagnosis

Examination of tongue, check for size, shape and movements, functional examination - a) observe for tongue position while the mandible is in rest position b) observe the tongue during various swallows -1. Conscious swallow 2. Command swallow of water 3. Conscious swallow during mastication.

Palpatory examination

1. Place water beneath the patients tongue tip and ask him to swallow
 - a. Normal: mandible rises and teeth are brought together but no contraction of lips or facial muscles
 - b. Tongue thrusting: marked contraction of lips
2. Place hand over temporalis muscle and ask to swallow
 - a. Normal: temporalis contracts & mandible- elevated
 - b. Tongue thrusting: no temporalis contraction.
3. Hold the lower lip with thumb.

Treatment considerations^[4]

Self correcting by 8-9 years: by the time permanent teeth erupt. If associated with other habits: associated habit should be treated first

- 1) Myofunctional therapy
- 2) Orthodontic elastics tongue tip is held against the palate using elastics of 5/16'' and sugarless fruit drop.
- 3) Lemon candy exercise
- 4) 4s exercise

Other exercises

Whistling, reciting count from 60-69, gargling, yawning, peanuts exercise, water holding exercise (in front of mirror) repeat 20 times / day, lip exercises, tug of war and button pull exercise

Sub conscious therapy

Pre orthodontic trainer for myofunctional training
Speech therapy

Mechanotherapy^[4]

Removable appliances: Hawley's appliance, Hawley's appliance modifications- acrylic cut in anterior hard palate region, cribs or rakes employed in anterior part advantages, increased anchorage value, the crib can serve as a reminder.

Oral screen: Restriction of tongue thrusting habit, alignment of maxillary anterior teeth, correction of open bite and lip muscle exercises performed with ring attached in anterior part of appliance.

Fixed habit breaking appliance: crowns and bands on first permanent. Molar, 0.040 inch stainless steel 'u'-shaped lingual bar adapted at the level of gingival

margin, crib formed (3-4 'v' shaped projections), cut cribs as child weans the habit and Nance palatal arch (acrylic button).

Mouth Breathing^[5-7]**Definitions**

Chopra (1951) & Sassouni (1971): Habitual respiration through the mouth instead of the nose.

Classification: Finn (1987)

- 3 categories
1. Obstructive
 2. Habitual
 3. Anatomical

Etiology: Airway obstruction may be due to:

1. Enlarged turbinates
2. Intranasal defects: (more likely to manifest in adulthood) partial obstruction due to deviated nasal septum, localized benign tumours, thickness of sputum, bony spurs
3. Hypertrophy of pharyngeal lymphoid tissue.
4. Infection and inflammation of nasal mucosa, chronic allergic stomatitis, chronic atrophic rhinitis, enlarged adenoids and tonsils, nasal polyps
5. Short upper lip
6. Obstruction in bronchial tree or larynx.
7. Obstructive sleep apnea syndrome.
8. Genetically predisposed ectomorphs.
9. Thumb sucking or similar oral habits leading to underdeveloped or abnormal facial musculature.
10. Cleft lip & palate.

General features: pigeon chest, eosinophilic, maxillary sinus and nasal cavity frequently becomes narrowed. Turbinates become swollen and engorged. Speech acquires a nasal tone and sleep apnea syndrome.

Appearance

Adenoid faces is the characteristic feature of mouth breathers, Lips are held wide apart. There is lack of tone of oral musculature, Upper lip: short, Nose: tipped superiorly; bridge: flat, Long narrow face, Face: expressionless.

Dental and skeletal

Low tongue position, narrow maxillary arch, protrusion: maxillary and mandibular incisors, palatal vault: high mandible hangs in a slack manner, anterior open bite increased: caries, mucus and plaque : more tenacious chronic keratinized marginal gingivitis.

History: Parents can be questioned whether the child frequently adopts a lip apart posture. Frequent occurrence of tonsillitis, allergic rhinitis, otitis media should be questioned. Also whether the patient has restless sleep, snores wakes up feeling thirsty.

Diagnosis

Mirror test: fog test, Butterfly test (Massler's), Water holding test, Rhinometry (inductive plethysmography) Cephalometrics.

E.N.T examination: Correction symptomatic treatment: the gingiva of the mouth breather should be restored to normal health by coating the gingival with petroleum jelly, applying preventive dentistry methods and clinically correcting periodontal defect that have occurred due to the habit in mixed dentition.

Treatment: Elimination of the cause, Lip exercises, Maxillothoraxmyotherapy, Oral screen, Construction of the membrane, Construction of cast another direct method, Correction of malocclusion (mechanical appliances). Depending on child's age severity of problem and economics, dentist may continue the present orthodontic treatment, institute a new interceptive treatment or refer the patient to orthodontist for more comprehensive care.

LIP HABITS^[8-11]**Lip sucking**

Most common presentation. In many patients, this occurs in conjunction with hyperactivity of the mentalis muscle. This places a lingually directed force on mandibular teeth and facial force on maxillary teeth. The result is protrusion of upper incisors and impedes forward development of lower anterior alveolar process, and causes lingual inclination of incisors leading to increased overjet. This can be recognized by the reddened, irritated and chapped area below the vermilion border. In fact, the vermilion border may be relocated farther outside the mouth due to constant wetting of the lips. Although this may occur with either lip, it is more commonly associated with the lower lip. An important variation of lip sucking is the mentalis habit.

Difference between lipsucking and mentalis habit

In lip sucking, the entire lip including the vermilion border is pulled into the mouth whereas in the mentalis habit, vermilion border of the lower lip is often everted, with the lingual aspect elevated into the mouth along with their lower lip eversion, a sub labial contracture line develops between lip and chin. Deep mentolabial sulcus is characteristic of a hyperactive mentalis muscle.

Management of mentalis habit

Lip over lip exercise, playing bass instruments, lip bumper/shield, oral screen.

LIP WETTING

The tongue constantly wets the lips due to dryness/irritation which later becomes a habit. Lip biting it may involve either of the lips, with cuts and abrasions, marks of incisors on lips and reddening of lips.

Etiology

1. Malocclusion

2. Habits

3. Emotional stress

4. Cases of hyperactivity of mentalis muscle

Clinical features: Protrusion of maxillary incisors and retrusion of mandibular incisors with either of these habits in action is to wedge the lip between the upper and lower incisors thus, muscular imbalance is created. If practiced with a sufficient intensity and frequency will cause maxillary incisors to move labially and upward with interdental spacing and lower incisors to collapse lingually with crowding.

Lip sucking

Lip sucking can be recognized by: reddened, irritated and chapped area below the vermilion border. The border may further be relocated farther outside the mouth due to constant wetting of the lips. Most commonly seen with lower lips. Vermilion border becomes hypertrophic and redundant at rest. In some cases, chronic herpes infection with areas of irritation and cracking of lip appears.

Management

Correction of the habit is not within the province of the dentist, but lies with child psychologist, psychiatrist, or family counselor if there are psychological issues concerned. The dentist's responsibility is to bring the habit to the attention of the parent and make recommendations for therapeutic counseling.

CONCLUSION

Regarding the effect of stress on the development of oral habits, increased stress level in modern societies cause these habits to become more prevalent as compared to the past decades. Since oral habits adversely affect dentoalveolar system, more attention to control and prevent them is required, so the duty of dentist is not only tooth repair and modification of dentoalveolar changes, but also, he has to have enough knowledge about prevention and treatment of disorders caused by oral habits. This point is considerable that most parents who spend their time with their children are not aware of the harmful oral habits and their bad effects. Dentists should provide parents with information about different types of oral habits, etiology of habits especially with emphasis on role of stress in development of them and ways to manage and treat habits at home.

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