"Comparative study of efficiency of various oral hygiene measures on halitosis and its causative organisms in fixed appliance therapy patients."

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Introduction:

Healthy human breath exhibits a slightly sweet, generally not discernible smell under normal circumstances. Factors such as time of day, salivation, oral flora, and food intake or dental hygiene can change breath intensity.

Halitosis denotes the offensive smell of breath. Synonyms for bad breath are foetor ex ore, oral malodor or offensive breath. Halitosis combines various pathologies. A distinction is made between real halitosis (distinctive bad breath, intensity clearly above socially accepted degrees), which can be physiological or pathological, pseudo-halitosis (bad breath not discernible by others, improved situation after patient information) and halitophobia (bad breath not discernible by others, no improvement of situation after patient information)

Various studies have investigated the influence of orthodontic appliances on the level of bacteria in the oral cavity. The side effects described include decalcification, white spots, cavities.

Fixed orthodontic appliances favour the accumulation of plaque, therefore increasing the risk of halitosis during treatment .

The design and surface structure of the orthodontic appliance, as well as the composite, influence plaque retention . The manner of mounting the orthodontic wire on the brackets also plays a role.

Rationale

Though studies have proved the effect of fixed appliance on halitosis, little has been done to establish the most economic , convenient and effective method of oral hygiene method and adjuvant in orthodontic patients undergoing fixed appliance therapy.

Aim

The aim of this randomized clinical trial is to

- To evaluate efficiency of four oral hygiene measures (OHM)in controlling halitosis during fixed appliance therapy, i) brushing and placebo ii)brushing and normal saline iii) brushing and oil pulling iv) brushing and chlorex mouthwash

Objectives

- 1)To find subjective measurement of improvement in odour after OHM
  2) To evaluate the microbacterial load as an indicator of effectiveness of OHM

Sample Size

Total of 40 samples -

Groups

Group I (N= 10) – " brushing and placebo"

Group 2(N=10) - " brushing and normal saline

Group 3 (N =10) – " brushing and oil pulling"

Group 4 (N =10) – " brushing and chlorex mouthwash"

INCLUSION CRITERIA

1. Class I malocclusion

EXCLUSION CRITERIA

1. history of antibiotic use within the past 3 months;
2. history of otolaryngology consultation due to sinusitis, tonsillitis or tonsilloliths within the past 3 months;
3. use of a gargling solution on the day of screening;
4. periodontitis;
5. Organoleptic score (ORS) of 0;
6. CH3 SH in mouth air <26 ppb

Materials and Methods:

1. Ortho brush (STIM)
2. COLGATE Regular toothpaste
3. Hexidine oral rinse (chlorhexidine 0.2% w/v)
4. Normal Saline
5. Sesame oil for oil pulling
6. Orthox brackets 0.022' size
7. Niti wires
8. Robertsonson cooked –meat broth medium
9. Thyoglycolate broth
10. Blood agar

Methodology

- Patients with common baseline feature of moderate crowding based on sevearity score will be choosen .
- They will be divided randomly into 4 study groups
- Subjects will be studied at T1 ,T2,T3 (ALLIGNMENT PHASE)

    T1 – Immediately after giving FA

    - T 2 – 10 days after FA
    - T3 – 20 days after FA

- At T1,T2,T3 their organoleptic score will be recorded by modified organoleptic method
- This will be further substantiated by TANITA breath analyser score
- Plaque sample will be collected from the subgingival area at T1,T2,T3 Subgingival plaque samples were collected from four sites (16 mesiobuccal,26 mesio buccal, 36 mesio buccal and 46 mesio buccal) by gracey currette
- They will be provided with a standard toothbrush and toothpaste to be used
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Data collection

Organoleptic method – KIM method

Scale of 0 to 4 (De Boever & Loesche) -

0 – no appreciable odor

1- Barely noticeable of low intensity and acceptable limits

2- Slight to moderate odor clearly noticeable and slightly unpleasant

3- Moderate to high ,clearly noticeable ,unpleasant and moderately intense

4- Offensive odor of strong intensity

RESULTS

The results show that all the oral hygiene measures were effective in reducing the anerobic bacterial load and hence improve the gingival health and reduce halitosis.

Oil pulling was more efficient in improving the gingival health and reducing halitosis compared to chlorhexidine. Normal saline was also effective but was less efficient than oil pulling and chlorhexidine.

CONCLUSION

Oil pulling and normal saline are efficient in reducing halitosis in fixed orthodontic patients.