

Oral Malodour in Children!!!**Deepak Viswanath* and Shruti Karale**

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Opinion Article

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ABSTRACT

Halitosis is formed by volatile molecules which are caused due to pathological or non-pathological reasons and originates from an oral or a non-oral source. It is very common in general population and nearly, more than 50% of the general population have halitosis. Although halitosis has multifactorial origins, the source of 90% cases is oral cavity such as poor oral hygiene, periodontal diseases, coatings on tongue, food impaction, unclean dentures, faulty restorations, oral carcinomas, and throat infections. Halitosis can be treated if its etiology can be detected appropriately. Management may include simple measures such as scaling and root planning, instructions for oral hygiene, tongue cleaning, and mouth rinsing. The aim of this write-up is to describe the etiological factors, underlying causes, classification diagnosis and management of halitosis from a pediatric perspective.

INTRODUCTION

Oral malodour, or halitosis, is any unpleasant odour originating from the mouth, a condition that causes severe social handicap in children who suffer from it; either caused by intra- and/or extra-oral factors ^[1]. Among the 50 to 65% of the population with halitosis, 8% of cases are associated with respiratory problems, and 90% are associated with oral problems ^[2,3].

Oral malodour' is divided into the following groups: real halitosis, pseudo-halitosis and halitophobia. Oral malodour does not exist clinically in children with pseudo-halitosis or halitophobia but they detect their own bad breath. These problems require psychological care (cannot be solved by a dentist). Real halitosis can be further subdivided into physiological and pathological ^[4,5].

Generically, halitosis is classified as either primary or secondary. Primary halitosis denotes respiration exhaled by the lungs, whereas secondary halitosis originates either in the mouth or upper airways. Oral secondary halitosis results from the decomposition of organic matter that originates from flakes of epithelial cells retained on the posterior portion of the dorsum of the tongue. This decomposition is expedited by mucin precipitation, a reduction in salivary flow and/or water imbalance, microbial attack and alkalization of the oral environment; all of which favours the growth of proteolytic bacteria and consequently results in the production of volatile sulfur compounds ^[6-8].

The prominent elements of oral malodour are volatile sulphide compounds (VSCs), especially hydrogen sulphide (H₂S), methyl mercaptan (CH₃SH), and dimethyl sulphide [(CH₃)₂S] ^[9]. Various other compounds in oral air may also be provocative, such as butyric or propionic acid, diamines, indole, and skatole ^[10]. The proteolytic activity is associated mainly with anaerobic, gram-negative bacteria located on the tongue and tooth surfaces or in the periodontal pockets ^[9,11-13] (**Tables 1 and 2**).

Table 1. Possible causes of oral malodour ^[14].

Physiologic	Lack of flow of saliva during sleep, Food, Smoking
Pathologic	
Disorders of oral cavity	Poor oral hygiene, Dental plaque, Dental caries, Gingivitis, Stomatitis, Periodontitis Hairy tongue, Oral carcinoma
Disorders of upper respiratory tract	Mouth breathing, Chronic sinusitis, Foreign bodies, Atropic rhinitis, Wegner's granulomatosis, Tuberculosis, Syphilis, Rhinoscleroma, Adenoiditis, Nasopharyngeal abscess, Carcinoma of the larynx
Disorders of lower respiratory tract	Pulmonary abscess, Carcinoma of the lung, Bronchiectasis, Necrotising pneumonitis, Empyema

Gastrointestinal conditions	Salivary gland dysfunction (Dehydration, Anticholinergic drugs, Radiotherapy, Sjogren’s syndrome), Peritonsillar abscess, Retropharyngeal abscess, Cryptic tonsillopatry, Vincent’s angina, Carcinoma of the tonsil or pharynx, Pharyngitis sicca, Gangrenous angina, Zenker’s diverticulum, Post cricoid carcinoma, Congenital broncho-esophageal fistula
Disorders of lower gastrointestinal tract	Gastric carcinoma, Hiatus hernia, Pyloric stenosis, Enteric infections
Neurologic disorders	Dysosmia, Dysgeusia, Zinc deficiency
Systemic diseases	Leukemia, Agranulocytosis, Febrile illness with dehydration, Ketoacidosis, Hepatic failure, Azotemia
Drugs	Lithium salts, Penicillamine, Griseofulvin, Thiocarbamide, Dimethyl sulfoxide
Functional	Psychoses, Depression

Table 2. Classification of subjectively perceived halitosis.

Degree 0	From approximately 10 cm distance, have the patient say “A”. No unpleasant smell is perceived.
Degree 1	1 From approximately 10 cm distance, have the patient say “A”. An unpleasant smell is perceived.
Degree 2	From approximately 30 cm distance an unpleasant smell is perceived during a conversation
Degree 3	From approximately 1 m distance, i.e., during the anamnesis talk, an obvious bad breath is perceived

Diagnosis

Establishing diagnosis of oral malodour involves complete medical history, medication history, review of systems. Thorough physical examination, with special attention to the structures of the head and neck, along with complete oral and dental examination should be done.

Measurement and Evaluation of the Breath is Done Using the Following Methods

The sensory (organoleptic) technique

It is based on the examiner’s perception of patient’s breath. The examiner stands 4 to 6 inches away from the mouth for assessing patients breathe. The odour level is scored on a five-point scale. The tongue odour is measured by gently scraping the back of the tongue with aplastic spoon and evaluating the odour on the spoon. The patient is abstained from ingesting food or drink, and any oral hygiene practice two hours before the procedure. Garlic or spicy food should be prohibited 48 hours before the evaluation.

Halimeter

This is an instrumental device specific for hydrogen sulfide gas only. Aflexible straw is inserted into the partially opened mouth, or into the nostrils, while the patient holds their breath. The peak VSC level is measure in parts per billion. Any measurement over 75 ppb is diagnostic for halitosis.

Further examinations like roentgenography, cultures, cytologic examinations, biopsies and other investigations should be executed if indicated.

Management

Gentle daily cleaning of the dorsum of the tongue (mechanical removal of furry of the tongue coating) with small, soft-bristled brush or tongue scrapper is very important ^[15].

Routine oral hygiene procedures i.e., brushing and flossing reduce the number of bacteria and fermentable substrates in the mouth. Children should brush their teeth thrice a day with a soft-bristled toothbrush. Children younger than 8 years of age need parents help and guidance in cleaning. Mouth rinses (Chlorhexidine, Zinc) can also be counselled in children who can expectorate. Alcohol-containing mouth rinses should be avoided, as they dry the oral tissues and may cause oral tissue sloughing.

When oral malodour is due to dry mouth, treatment involves consuming lots of fluids. Sugarless gum may stimulate salivary flow. Children are recommended to eat fibrous foods, as this will stimulate the flow of saliva and reduce oral microbial levels. In very severe cases, an artificial salivary substitute such as Carboxy methyl cellulose may be needed.

If oral malodour is due to periodontal disease, dentist may need to intervene with surgical or pharmacologic treatment. Dental caries abscess and defective dental restorations may need endodontic or surgical treatment. If halitosis is because of the medical conditions, underlying disorder should be managed along with oral hygiene programs.

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