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Article *in* Nigerian journal of medicine: journal of the National Association of Resident Doctors of Nigeria · June 2009

DOI: 10.4314/njm.v18i3.51192

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TONSILLECTOMY FOR THE TREATMENT OF HALITOSIS

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Abstract

This study aimed to investigate the tonsils as an origin of halitosis and to assess the efficacy of tonsillectomy for the treatment of oral bad breath caused by chronic tonsillitis. After excluding dental, periodontal, sinonasal, oral, pulmonary, and gastroenterological diseases as the origin of halitosis, fourty-four patients with halitosis caused by chronic tonsillitis which proved by positive Finkelstein's tonsil smelling test (pressing the tonsils and smelling the squeezed discharge), were included in the study. All patients were treated by tonsillectomy. Subjective and objective postoperative assessment was based on self-and-family report and clinical assessment. Patients were reviewed after 4 and 8 weeks postoperatively. Complete improvement of halitosis occurred in 31 patients (70.4%) after 4 weeks, this value increased to 35 patients (79.5%) in the second review after 8 weeks. It is concluded that tonsillectomy is significantly effective procedure for the treatment of halitosis caused by chronic tonsillitis.

Introduction

Halitosis, or oral mal-odor, is a terms used to describe noticeably unpleasant odors exhaled in breathing, whether the smell is from an oral source or not, it is estimated to affect up to 50% of the population[1]. Causes of oral malodor include extrinsic causes such as smoking, alcohol, and certain foods[2], and intrinsic causes that are either oral or systemic in origin[3] Oral causes of halitosis include periodontal diseases, pericoronitis, oral infections, and ulcers and are mainly associated with the production and release of volatile sulfur compounds (VSCs)[4], while systemic causes include respiratory tract infections, tonsillitis, sinusitis and post-nasal drip[5], respiratory tract and lung carcinomas[6], diabetic ketoacidosis[7], renal failure, gastrointestinal disorders[8,9] and the use of certain medications[10]. Oral causes have been proposed to be responsible for the majority of halitosis complaints, accounting for 85–90% of all cases[1,4,11]. This estimate is based mainly on the results of one study of 260 patients with halitosis in which 87% of patients were said to have an oral cause (periodontitis, gingivitis, or tongue coating), 8% had an ear-nose-and-throat (ENT) related cause, and 5% had an unknown cause[12]. In contrast, another similar study reported that 26% of patients with halitosis had ENT related disorders, 23% had dental problems, 18% had oral discomfort, and 10% exhibited gastrointestinal

pathology (or a combination of these conditions), while 31% had no clinically detectable problems[13]. Consequently, it appears that the relative contribution of systemic causes to the etiology of oral malodor is not clearly established. In addition, limited information is available on the association of sociodemographic factors (such as age, gender, and level of education), oral hygiene, and dental visit histories with complaints of oral malodor[14].

When dental or periodontal disease, sinonasal, pulmonary, or even gastro-enterological diseases are ruled out, the tongue[15,16] and the tonsils[17-19] remain optional sites for bad breath.

The palatine tonsils contain crypts that are twisted tubular invaginations extending from the tonsillar surface deeply through the parenchyma. Exfoliated epithelium, keratin debris, and foreign particles may be retained in the crypts[20]. Therefore, the palatine tonsils are the most suitable sites for the activity of anaerobic bacteria in the upper airway system. The tonsils are known as a source of halitosis in a form of "caseous tonsillitis," which is a variant of chronic tonsillitis. Apart from having caseous tonsillitis, the majority of the patients suffering from "halitosis of unknown origin" have in fact chronic foeted tonsillitis[20]. Clinical diagnosis and management of halitosis should rely on an accurate halitosis-oriented otolaryngological examination. To successfully accomplish this examination, a maneuver termed "Finkelstein's tonsil smelling test" that includes massaging the tonsils and smelling the squeezed discharge was designed[20]. The aim of the present study was to investigate the tonsils as a source of halitosis and to assess the efficacy of tonsillectomy for the treatment of halitosis.

Patients and methods

Study population

T he study included 44 halitotic patients due to chronic tonsillitis , for whom tonsillectomy done. There were 25 males and 19 females, ranging in age from 3 to 44 years (mean 16.6). More than this number of patients were seen but were excluded because of associated other cause of halitosis(as stated by dentist and internist) and presence of any relative or absolute contraindication of tonsillectomy.

Preoperative evaluation

Patients, partners, and/or family members were asked to rate the severity of halitosis. The specific symptoms were graded as (1) severe when bad breath was offensive and disturbed family members and social relationships, (2) moderate when bad breath was smelled only within close distance from the patient, disturbing partners or family members and social relationships only mildly, and (3) mild when bad breath was smelled intimately and disturbed only close relationships. All patients were seen by dentist and internist to roll-out the presence of another cause of halitosis .They underwent a complete oto-laryngological examination to roll-out other otorhinolaryngological causes of halitosis and then all patients underwent Finkelstein's tonsil smelling test, which is based on squeezing the tonsils and smelling the squeezed discharge. The patient and, if possible, the partner or a close family member is asked to determine whether the smell of the glove is the patient's typical malodor. Severity depended on distance for which the patients, examiner or relatives can smell the squeezed discharge, to be mild if smelled closer than 5 cm, moderate if

smelled 5-10 cm and sever if smelled even more than 10 cm distance.

Postoperative evaluation

Patients were reexamined 4 and 8 weeks post-operatively. Patients, partners, and/or family members were asked to compare halitosis with its preoperative state and rate its postoperative severity, using previously determined criteria for evaluation.

Results

Twelve patients (27.2 %) reported severe halitosis, 21 patients (47.7 %) moderate halitosis, and 9 (20.4 %) mild halitosis. Eighteen patients (40.9 %) also reported intermittent expelling of caseous foeted particles.

Finkelstein's tonsil smelling test was positive in 38 patients (86.3 %). Because of the fluctuant nature of halitosis, in 6 patients (13.6 %) a positive test was established at a second visit. Halitosis was graded by the examiners as severe in 5 patients (11.3%), moderate in 18 patients (40.9%), and mild in 21 (47.7%). Complete agreement between the subjective and objective ranking was found only in 31 patients (70.4%). The correlation between the subjective and objective assessment of halitosis severity was significant (P = 0.004).

Thirty one patients (70.4%) reported complete disappearance of bad breath after 4 weeks, and all had a negative smelling test. Nine patients (20.4%) reported insufficient improvement but the smelling test was positive in only 2 (22.2) of them, and 4 patients (9%) reported no change has been occurred after operation. The smelling test was positive in all them. After 8 weeks 35 patients (79.5%) reported complete improvement, and had negative smelling test, the remaining 9 patients (20.4%) reported incomplete disappearance of halitosis, all of them had negative smelling test.

Discussion

The tonsils have been suggested as a potential target for halitosis, yet clinicians and researchers often tend to overlook their role in the formation of bad breath. The tonsils possess unique anatomical and microbiological characteristics, rendering them as the most suitable host for gas-producing bacteria and consequent bad breath in the upper airway. They play an important part not only in local infections and upper airway obstruction, but also in the occurrence of secondary diseases, providing a route of entry for bacteria and viruses[21]. More than three fourth of our patients were cured from their bad breath (79.5 %), and even those reported incomplete improvement had negative smelling test i.e. clinically improved. These findings support those of Krespi and Ling[18,19].

The most common organisms are aerobic gram-positive cocci such as staphylococci and streptococci[22]. Among the anaerobic bacteria are also Prevotella, Fusobacterium species, and Peptococcus[22,23], which are known to produce volatile sulphide gas as H2S and CH3SH[24,25].

Once the source of halitosis in the tonsils is established, the therapeutic management may begin with metronidazole for 10 days. In many cases the outcome of antibiotic treatment is initially satisfactory and the odor disappears, but reappears shortly following cessation of treatment.

The reason behind incomplete improvement of halitosis reported by the patients in spite of clinical

improvement (negative smelling test) in our series probably due to associated other cause of halitosis or the presence of pseudo-halitosis and halitophobia. If oral malodour does not exist but the patient believes that he or she has oral mal-odour, the diagnosis would be pseudo- halitosis. If, after treatment for either genuine halitosis or pseudo-halitosis, the patient still believes that he or she has halitosis, the diagnosis would be halitophobia, this classification suggested by Miyazaki and others[26]. Most halitophobic patients interpret other people's behavior, such as covering the nose, averting the face or stepping back, as an indication of their own bad breath, and such behaviors convince the patients that they have offensive oral malodour[27-29].This interpretation is the most common complaint of patients with psychosomatic halitosis.

Conclusions

Tonsillectomy is very effective procedure to eliminate one of the annoying complaint which is halitosis in those complaining from chronic foeted tonsillitis, but we have to put in mind the rolling out all other causes of halitosis and we should emphasized on psychogenic causes.

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