The Role of Tonsillectomy in Managing Halitosis: Our Experience

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ABSTRACT

Background: Halitosis is an offensive odour emanating from the mouth and can be of oral or extra-oral origin. It is a social problem affecting approximately 25% of adults. It can be subjective or objective with tonsils contributing about 3% of objective halitosis due its characteristic crypts that are capable of retaining epithelial debris and food particles that undergo anaerobic bacterial activity producing foul smelling cheese-like substance that sometimes, becomes mineralized leading to formation of tonsilloliths. Tonsillectomy is one of the treatment options in halitosis of tonsillar origin. **Objectives:** To evaluate the relationship between tonsils and halitosis and to determine the role of tonsillectomy in the management of halitosis. **Methods:** This is a 4-year retrospective review of clinical information of patients who presented to the department of Ear, Nose and Throat, Federal Teaching Hospital Katsina with diagnosis of halitosis of tonsillar origin from January 2021 to November 2024. Data on demographics, clinical features, treatment and outcome of treatment were analysed using SPSS version 25.0. **Results:** Out of 28 people diagnosed with halitosis of tonsillar origin, 12 (42.9%) were males and 16(57.1%) were females with 14(50%) below the age of 20 years and 14 from 21 years to 40 years. Twelve (42.9%) had moderate halitosis while 16(57.1%) suffered halitosis of severe degree with associated recurrent sore throat in 8(28.6%), recurrent sore throat and tonsilloliths in 10 (35.7%), with 10 (35.7%) having no associated symptoms. Halitosis resolved within 4 to 6 weeks of tonsillectomy in 20 (71.4%) of the patients and within 7 to 12 weeks in 6(21.4%) of the patients while 2 (7.1%) complained of persistence of symptom 12 weeks after the surgery. **Conclusion**: Halitosis is a common social problem that can originate from oral or extra oral sources. Tonsils are important sources of halitosis of extra oral origin and when found to be the primary source, tonsillectomy stands as an important treatment option.

Keywords: Halitosis, Tonsilloliths, Tonsillectomy, FTH Katsina.

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Introduction

Halitosis can be defined as an offensive odour emanating from mouth originating from the oral or extra-oral sources.[1] This ailment is capable of impairing with social function of affected patients and negatively affects the patient's relationship with his or her family members and friends.[2,3] It approximately affects up to 8-50% of people in the general population and it is estimated that up to 25% of adult patients experience halitosis.[4]

Halitosis can be objective or subjective. It is said to be objective when the offensive odour is clinically detected and subjective when it is only claimed to be perceived by the patient. Ten percent of objective halitosis is of extra-oral origin with 3% attributed to the tonsils and 4% to 10% to upper respiratory tract pathology.[5] Some authors reported that tonsils are identified to be the most common cause of extra-oral halitosis and most of the cases of idiopathic halitosis are believed to originate from chronic tonsillitis.[6]

Palatine tonsils are lymphoid tissues which form part of Waldeyer's ring that surrounds the oropharyngeal

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and nasopharyngeal inlets to the aerodigestive tract, sampling antigens from inhaled air, foods and microbiota.[6] Embryologically, each tonsil is a bi-lobed structure because of its origin from the second and third branchial arches separated by the second pharyngeal pouch in utero which is represented in the adulthood as intratonsillar cleft.[6] This cleft, together with the branching and interconnecting crypt system provide an ideal anaerobic environment for bacteria. Constant antigenic and microbial exposure stimulate tonsillar parenchyma to undergo undetectable immunologic and inflammatory processes that can generate odour.[6]

The tonsillar crypts occasionally retain epithelial debris and food particles which undergo anaerobic activity by bacteria to produce foul smelling cheese-like, semi-solid whitish substance.[6,7] When this debris is mineralized it leads to formation of tonilloliths. This is found in chronic caseous tonsillitis (CCT) which is a variant of chronic tonsillitis and can be unilateral or bilateral, occurring in both sexes and at any age.[8] Effective treatment of halitosis of tonsillar origin depends on accurate clinical otolaryngological examination that is achieved through Finkelstein's tonsil smelling test. This manoeuvre includes massaging the tonsils and smelling the squeezed discharge.[8] Data on demographics, clinical features, treatment and outcomes of treatment were analysed using SPSS version 25.0.

This study aimed at evaluating the relationship between tonsils and halitosis and to determine the role of tonsillectomy in the management of halitosis.

Methods

This is a retrospective study carried out among 28 patients who presented to the department of Ear, Nose and Throat of Federal Teaching Hospital Katsina from January, 2021 to November, 2024 with halitosis of tonsillar origin who consented for surgery and underwent tonsillectomy in the absence of any relative or absolute contra-indication to the surgery. There were 16 females and 10 males with their ages ranging from 4 to 42 years. Patients symptoms were assessed by asking family members for grading as mild when the odour was perceived intimately and disturbed only close relationship, moderate when the odour was perceived within close distance from the patient, disturbing partners or family members and social relationships only mildly, and severe when the odour was offensive and disturbed family members and social relationships.[7] All patients were assessed by dentist and gastroenterologist and pulmonologist to rule-out halitosis arising from other causes They were all noticed to have halitosis not of gastroenterologic, chest or oral origin. They underwent full ear, nose and throat examination including endoscopy and radiology to exclude halitosis of sinonasal and laryngeal origin. In oropharyngeal examination Finkelstein's tonsil smelling test, a subjective test, was used. In this test, the patient is asked to open the mouth, oropharynx exposed using spatula and gloved fingers are used to squeeze the tonsil. The squeezed discharge is smelled. The patient and the close family member or a partner is asked to determine if the smell of the gloved finger is similar to the patient's typical malodour. Severity is dependent on the distance for which the smell is perceived. It is said to be mild if smelled closer than 5cm, moderate if smelled 5-10 cm, severe if smelled more than 10 cm distance.[7] Patients were reviewed 4 to 8 weeks after the surgery and bad breath was assessed and the findings documented.

Fig. 1: Blue arrow showing tonsil stone

Results

Demography

Out of 28 people involved in the study, 12 (42.9%) were males and 16(57.1%) were females, 14(50%) below the age of 20 years and 14 from 21 years to 40 years.

Halitosis Severity

Twelve (42.9%) had moderate halitosis while 16(57.1%) suffered halitosis of severe degree with associated recurrent sore throat in 8(28.6%), recurrent sore throat and tonsilloliths in 10 (35.7%), with 10 (35.7%) having no associated symptoms.

Post Tonsillectomy Outcome

Out of the 28 patients that participated in the study, 26 (92.9%) of patients experienced complete resolution of halitosis within 12 weeks of the surgery ($p< 0.0001$).

Discussion

Tonsils have a unique structure that renders them as one of the suitable sites for bad breath in the upper airway. They have crypts which accumulate exfoliated epithelium, keratin and food debris and provide suitable media for anaerobic gas producing microorganisms such as Fusobacteria and Peptococcus.[9] Similar findings were noted in our study in which some of the patients had tonsils with visible crypts and caseum with expulsion of foul smelling tonsilloliths. However, in our study microscopy and culture of the samples was not carried out to determine the offending organisms.

Patients with halitosis of tonsillar origin present with other symptoms such as throat pain and discomfort, ear pain and production of white, gray masses in the tonsil crypts.[10] Similar complaints were also received from some of the participants in our study.

Patients presenting with complaints of halitosis are usually evaluated for the actual source of the malodour which could be dental, sinonasal, pulmonary, gastro-intestinal, tongue or tonsils. In those with halitosis of tonsilar origin, conservative treatment with antibiotics and anti-inflammatory treatment for at least 10 days is usually the first management strategy offered. When conservative treatments fail, then surgical treatment is usually recommended.[9]

All our patients were reviewed by dentists, pulmonologist and gastroenterologist and some of them underwent upper GI endoscopy to rule out gastrointestinal cause. In the clinic, sinonasal and other non-tonsillar causes where excluded by endoscopy and radiologic tests where necessary. The patients were then managed conservatively with Amoxiclav and metronidazole for at least 2 weeks and those that failed conservative treatment were planned for tonsillectomy.

Several diagnostic tests are employed to confirm the presence of halitosis. Organoleptic test is considered the "gold standard" in the diagnosis of unpleasant odour emanating from the mouth. Gas chromatography is used to measure specific gases accurately and is reliable in determining the concentration of volatile sulfur-containing compounds in saliva or exhaled breath samples.10 In our study however, the diagnosis of halitosis was based on clinical assessment and the use of Finkelstein's tonsil smelling test for halitosis. This was due to unavailability of these devices which limited advanced evaluation.

Cold steel tonsillectomy was the surgical intervention offered to all the patients in our study with 92.8% presenting with no mouth odour 12 weeks after the surgery. This finding is slightly better than that obtained in a study in which 79.5% of the participants reported complete disappearance of halitosis.6 In this study however, the technique of tonsillectomy was not stated. It is also slightly different from the findings in another study in which 76.47% of the patients reported disappearance of halitosis 12 months after the surgery although radio frequency cryptolysis was the surgical technique.[3] Moreover, small sample size in our study may contribute to the difference. The persistence of halitosis in 2 of our patients may be due halitophobia.

Limitations of the study

Small sample size of 28 may not be used as a true representation of the relationship of tonsillits and halitosis

Lack of objective method of diagnosing halitosis

Lack of microscopic evaluation of the tonsils after tonsillectomy

Conclusion

Halitosis is a common social problem that can originate from oral or extra oral sources. Tonsils are important sources of halitosis of extra oral origin and when found to be the primary source, tonsillectomy stands as an important treatment option.

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