



Helicobacter Pylori Induced Halitosis and Trichitillomania

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ABSTRACT

H.pylori is an underestimated diagnosis which necessitates a low threshold thinking about this chronic infection. We report a case of a patient who suffer of chronic halitosis and trichitillomania of more than six years which was resolved following triple-therapy for Helicobacter pylori.

KEYWORDS :

Case presentation

A 24 year old man Asian descent who presented to the internal medicine clinic for evaluation of bad halitosis and trichitillomania for 6 years.

No history of fever, vomiting or diarrhea. No family history of the same illness. He has a History of frequent visits to health care institutions but no clear diagnosis or treatment plan.

On examination, the patient looks well. Absent eyebrows, mustache and beard. No abnormality detected during examination of chest, cardiovascular, gastrointestinal or neurological systems. Stool test for Helicobacter pylori is positive. The patient had received the eradication therapy which consists of Amoxicillin one gram orally every twelve hours, Clarithromycin 500mg orally every twelve hours for fourteen days in addition Pantoprazole 40mg orally every twelve hours for 14 days. The patient was seen in the internal medicine clinic after that with a dramatic improvement in disappearing of halitosis and stopping of the intense for hair picking. After one month of that the patient has full growth of eyebrows, mustache and beard.

Literature review

Halitosis is the offensive odour from the mouth. In 80%-90% of cases, bacterial activities especially on the dorsum of the tongue are implicated.

Halitosis has a worldwide occurrence with a prevalence range of 22% to 50%. Due to the associated social and psychological effects, it should be taken seriously in all affected patients. It is due to oral, nasal, gastric or systemic (1)

The oral burning sensation can be a symptom of an underlying disease or a syndrome of unknown etiology.

It was subdivided into:

(1) Physiological-halitosis, in which there is no disease;

(2) Pathologic-halitosis, which may be oral or extra-oral. Oral pathologic-halitosis occurs as a result of a pathological process in the mouth, either dental or mucosal (caries, periodontal disease, canker sores, cancer, etc.). Non-oral pathological-halitosis can originate from the upper respiratory tract and from other sources that are carried by blood and exhaled in the lung

Oral halitosis is caused by volatile sulfur compounds (VSC), such as methyl mercaptan, hydrogen sulfide, methyl disulfide, which are generated by the action of bacterial metabolism that degrades the sulfur containing amino acids present in the oral cavity. (2)

Anaerobic and gram-negative bacteria are the agents most fre-

quently involved

These bacteria are found in gingival grooves, in periodontal pockets and in posterior lingual dorsum and it is considered that the anaerobic flora of the tongue plays an essential role in halitosis origin.

Bacterial anaerobic respiration produces foul smelling compounds which could cause halitosis under suitable conditions. There are two major problems with the hypothesis that H. pylori is the causative organism in this case of halitosis and that eradication of H. pylori led to the cessation of foul smelling breath(3)

There are different research lines that postulate lingual anaerobic flora action as one of the causes of halitosis appearance. These researches show that the tongue acts as a reservoir that allows the accumulation of bacteria and food waste

There are different research groups that attempted to relate halitosis to H. pylori (3)

The first were Timony who in 1992 in Israel studied 6 patients with halitosis, 5 of whom were H. pylori-positive. They found that halitosis had disappeared after H. pylori treatment, and highlighted the possible connection between halitosis and H. pylori infection.

At the University of Bari (Italy), Ierardi and partners associated halitosis with H. pylori infection and correlated H. pylori eradication in dyspeptic patients. They established the levels of VSCs at diagnosis and in subsequent controls after H. pylori treatment was established(4)

they considered that halitosis is a frequent and treatable symptom of H. pylori-positive non-ulcer dyspepsia and may be a valid indication for H. pylori treatment.

The combination of tetracycline and metronidazole is effective in the eradication of a wide spectrum of aerobes and anaerobes. Triple therapy will eradicate many possible candidate infections making it unclear whether the therapy was successful directly as a result of its action on H. pylori or because another organism was eliminated.

In the year 2005 in Argentina, we designed a case-control study to determine whether H. pylori was a risk factor in subjects with burning, halitosis, and lingual dorsum hyperplasia. A total of 124 subjects with different gastric diseases were studied: 46 patients with halitosis and 78 patients with other oral diseases. H. pylori detection in the oral cavity by histopathology diagnosis and molecular biology was confirmed in (87%) patients

In these researches, halitosis had been resolved in 90% to 100% of the cases.

H. pylori is one of the risk factors of halitosis, with an oral or gastric origin. Therefore, the search for the bacterium must be oral and gastric. Oral and/or gastric infection by *H. pylori* may occur with intense burning.

In those cases, it is necessary to determine whether the patient experiences gastric discomfort. If so, it would be necessary to look for the bacteria.

referred chronic gastric discomfort made us hypothesize about the association between *H. pylori* both in tongue and stomach.

Infection by *H. pylori* is one of the most frequent infections in the world, and has revolutionized the gastric pathology in the last twenty-five years. Early diagnosis is essential for infection control. The interest in *H. pylori*-infection in the oral cavity has progressively increased, since the presence of this bacterium in the mouth determines an oral-oral way of transmission.

Designs for prospective cohorts are required to demonstrate the bacterial action in the mouth using sensitive and specific diagnostic methodologies. In terms of *H. pylori* identification methods, culture is considered the gold standard. However, though sensitive, the method is not specific, since additional testing must be performed on the isolates. *H. pylori* PCR amplification is the method of choice.

Helicobacter pylori can produce volatile sulfur compounds. study found an association of malodor with *H. pylori* on the dorsal tongue in a population complaining of burning symptoms

Trichotillomania (the compulsive urge to pull out (and in some cases, eat) one's own hair leading to noticeable hair loss, distress

Trichotillomania may be a reflection of a mental health problem. Psychological and behavioral theories suggest a person may pull their hair out as a way of relieving stress or anxiety

As trichotillomania involves compulsive behavior, some experts think it is closely related to obsessive compulsive disorder (OCD).

OCD is a condition that tends to run in families. It is thought to be caused by both biological and environmental factors, which may lead to a chemical imbalance in the brain. Neurotransmitters are chemicals that send messages from nervous system.

Most people with trichotillomania pull out hair from their scalp, but some pull out hair from other areas include :eyebrows ,eyelashes ,genital area and face, such as a beard or moustache

People with trichotillomania feel an intense urge to pull their hair out and growing tension until they do. After pulling their hair out, they feel a sense of relief.

Hair pulling may sometimes be a response to a stressful situation, or may be done without really thinking about it.

The cause of trichotillomania is unclear. But like many complex disorders, trichotillomania probably results from a combination of genetic and environmental factors. Also, abnormalities in the natural brain chemicals serotonin and dopamine may play a role in trichotillomania

These factors tend to increase the risk of trichotillomania such Family history, Genetics may play a role in the development of trichotillomania., Negative emotions, Positive reinforcement and other disorders. People who have trichotillomania may also have other disorders, such as depression, anxiety or obsessive-compulsive disorder (OCD) (5).

Helicobacter pylori (*H. pylori*) has been found in the oral cavity and stomach, and its infection is one of the most frequent world-wide.

By reviewed the literature (6), which identified studies reporting an association between *H. pylori*-infection in the oral cavity and

H. pylori-positive stomach. This work was designed to determine whether *H. pylori* is the etiologic agent in halitosis

.in meta-analyses there are selected 48 articles reporting on the association between saliva and plaque and *H. pylori*-infection.

There is a close relation between *H. pylori* infection in the oral cavity and the stomach. The mouth is the first extra-gastric reservoir

Frequency of *H. pylori* isolation in dental plaque was first studied in 1989 in Canada by Krajde who performed *H. pylori* isolation by culture in patients with *H. pylori*-positive gastric pathology. *H. pylori* was isolated from the stomach of 29 of 71 patients examined, with only one (3%) of the 29 patients having the organism present in dental plaque(7).

That year the same group, also in Canada, studied *H. pylori* strains from the stomach and plaque of this patient to determine if they were epidemiologically linked.

DNA from each isolate plaque was genetically closely related or identical to the strain from the stomach.

Also in India, in 1991, reported that when administering the triple therapy to 24 patients with *H. pylori*-positive gastritis and dental plaque, stomach bacterium remitted in 100% of the patients, but *H. pylori* persisted in the 24 dental plaques. Therefore, they considered that the triple therapy was not sufficient for *H. pylori* eradication, and it should be simultaneously approached with local treatment.

in Italy, reported a low relative frequency that dental plaque culture of 83 dyspeptic patients, and found in each patient the identical protein profile of the bacteria, both in the plate and in the stomach

In Venezuela, Berroteran investigated *H. pylori* infection in dental plaque from 32 dyspeptic patients, and its relationship with gastric pathology. They found that 24/32 (75%) patients presented *H. pylori*-positive gastric pathology, and 12/32 (38%) also presented *H. pylori* in the dental plaque, assuming that this organism in the dental plaque could be a risk factor for gastrointestinal re-infection

On the basis of the results obtained with the rapid urease test (RUT) in the mouth was not sufficiently sensitive for the determination of the microorganism in the oral cavity.

The most frequent genotype in dental plaque and gastric mucosa saliva and gastric biopsy from the same patient. Then they suggested that saliva could be the transmitting and re-infecting vector

The bacterial plaque or oral biofilm is a translucent film mixing of bacteria increases with periodontitis development, include *Porphyromonas gingivalis*, *Fusobacterium nucleatum*, and *Fusobacterium periodonticum* which co-aggregated with *H. pylori* strain in a meta-analysis selection list of *H. pylori* detection(8) in dental plaque between the years 1994 and 2012, which demonstrated the presence of *H. pylori* in 11/29 (38%) sub gingival plaques of patients with chronic periodontitis. They suggested that, in this patient group at least, subgingival plaque may be a reservoir for *H. pylori* infection. But none of these researchers evaluated the gastric condition. It was determined that proper oral hygiene is required to remove *H. pylori* from dental plaque. They further suggested that the presence of *H. pylori* in dental plaque must be controlled in order to avoid its recurrence

If *H. pylori* does cause halitosis then the mechanism might be that these people have intermittent achlorhydria and at times have residual food putrefying in the stomach. In this state food takes only a few hours to start to smell after being mixed with saliva and chewed to inoculate it with oral bacteria. If *H. pylori* and ammonia production (from urease) are present in the stomach of a person who only makes a small amount of acid, any

residual acid is neutralized by the ammonia thus making the contents a perfect anaerobic culture medium. After eradication of HP, ammonia product stops and even a small amount of acid will be enough to keep the stomach sterile. Finally(9), even if the HP were not at fault, our two most effective HP antibiotics (clarithromycin and metronidazole) are secreted in saliva and are likely to eradicate any single pathogenic species, which could cause halitosis and which might inhabit the mouth

Triple therapy with a proton pump inhibitor (PPI) should be used in areas where clarithromycin resistance is low (<15 percent). In the United States, given the limited information on antimicrobial resistance rates, we generally begin treatment with triple therapy with a PPI

However, in patients with recent or repeated exposure to clarithromycin or metronidazole or when clarithromycin resistance is high (≥ 15 percent), quadruple therapy should be used to treat *H. pylori*

A longer duration of treatment (14 versus 7 days) may be more effective in curing infection but this remains controversial

A meta-analysis is suggested that extension of PPI-based triple therapy from 7 to 14 days was associated with a 5 percent increase in eradication rates

Most studies included were based upon amoxicillin-based triple therapy.

Metronidazole (500 mg twice daily) can be substituted for amoxicillin in penicillin-allergic individuals. PPI -clarithromycin-metronidazole and PPI-clarithromycin-amoxicillin regimens are equivalent(10)

REFERENCES

- 1 -<http://www.ncbi.nlm.nih.gov/pubmed/25525639> | <http://dx.doi.org/10.3748%2Fwjg.v20.i29.9922> 2- | World J Gastroenterol. Aug 7, 2014; 20(29): 9922–9935. | Published online Aug 7, 2014 | | 3-Rosenberg, M (2002). "The science of bad breath". Scientific American 286 (4): 72–9. doi:10.1038/scientificamerican0402-72 | | 4-<http://dx.doi.org/10.3748%2Fwjg.v20.i29.9922> | | 5-<http://www.nhs.uk/> | | 6- <http://www.ncbi.nlm.nih.gov/pubmed/25110422#> | | 7-World J Gastroenterol. Aug 7, 2014; 20(29): 9922–9935. | Published online Aug 7, 2014. doi: 10.3748/wjg.v20.i29.9922 | | 8- Asikainen S, Chen C, Slots J. Absence of *Helicobacter pylori* in subgingival samples determined by polymerase chain reaction. Oral Microbiol Immunol. 1994;9:318–320. [PubMed] | | 9-halitosis, *Helicobacter pylori*, breath, anaerobic bacteria, achlorhydria, gastritis, antibiotic therapy, tetracycline, metronidazole, bismuth, triple therapy. | Journal: *Helicobacter* Web. 1996 | | 10-uptodate.com/contents/pathophysiology-of-and-immune-response-to-helicobacter-pylori-infection |