Sheet 25 Oral Medicine
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**Halitosis:**We have different ways to describe this problem: malodor, oral malodor, breath malodor, bad breath.

Slide 3: Same as slides.

Slide 4:
Women maybe more because they are more likely to seek medical care.
There are some studies which states that the intensity of malodor might increase with age.

Slide 5:
-Genuine halitosis: This type is confirmed from a medical professional.
-Pseudo-halitosis: It's not true halitosis, the patient has concerns that he has a bad breath but he doesn’t. And we discover pseudo-halitosis by methods we are going to talk about them in this lecture.
-Halitophobia: Very few up to 1%. Psychological disorder, the patient is obsessed that he has a problem, even if all evidence says that he doesn’t have a problem. They need a psychiatrist council.

Slide 6: Etiology:
Most of the cases the cause is the oral cavity. There are some reports showing it's up to 90%.
Extra oral causes: Like diabetes (acidosis).

Slide 7+8:
What is the cause of bad smell in general (not only in the oral cavity)?
Sulfur compounds which are products of bacteria. Most of these bacteria are the anaerobic gram –ve bacteria and these bacteria are associated with periodontal diseases in general.

Slides 9+10: Same as slides.

Slide 11:
When we say other compounds we are now switching to the other pathway which is the first pathway which is that there are certain metabolites released from the alveoli.
Ketones smell like acetone.
When we say DM, we mean uncontrolled diabetes.

Slide 12:
-The most important intra oral cause of halitosis is the tongue and tongue coating. The filliform papillae cover the tongue surface, so these papillae becomes a good medium for bacteria and debris to be entrapped and produce the volatile sulfur compounds.
-Usually occurs on the dorsal posterior tongue and you'll see varying degrees of discoloration of the tongue (white/yellow/brown/black), and this is a sign of elongation of the filliform papillae which could be a cause for the bad breath.
-Management: Tongue scraping or tongue brushing (you can use the back of a brush which has a rubber surface for brushing the tongue or use a tongue spray, but the problem with this spray is the gag reflex.

Slide 13:
Not every patient with gingivitis or periodontitis should have halitosis, but actually it's very common with a patient with established generalized periodontitis.
In a lot of cases periodontal infections are associated with tongue coating.

There are studies that looked for periodontitis as a sole cause for halitosis and they found in so many cases that there is halitosis because its associated with tongue coating, according to the study, for example a study found that the cause is tongue coating in 60% of the cases, 11% periodontitis, 18% both of them, so tongue coating is 60-70% of the causes so you HAVE to remember that TONGUE COATING is one of the most important causes.

-Other causes are when you have a dental pathology, for example; 1-open cavities because they'll accumulate food and then it'll rot, also 2-the extraction socket is a dental pathology (impacted food debris; something organic) 3- acrylic dentures (the surface will appear as if it is a petri dish).

-One of the other important causes is the Dry Mouth, when do we suspect that the patient has Xerostomia ?

An unstimulated whole saliva flow rate in a normal person is 0.3–0.4 ml per minute, and below 0.1 ml per minute is significantly abnormal. A stimulated saliva flow rate less than 0.5 ml per gland in 5 minutes or less than 1 ml per gland in 10 minutes is decreased.

-How does it contribute to halitosis ?

1- the washing effect of the saliva is gone/buffering.

2- accumulation of microbes/food debris.

3- the antibacterial effect will be less (IgA).

4- when you have a wet coating you'll minimise the amount of molecules that'll become volatile.

so, when a patient comes to you complaining of Halitosis you should investigatem you look for the wet coating if you can't find any you should look for xerostomia, ask the patient about medications because so many medications are actually related to xerostomia for eg: AntiHypertensives.

-Extra-oral causes like 1)Ear-nose-throat infections; tonsillitis, Pharyngitis, Post-nasal drip (احتقان في الجيوب الأنفية).

2) Bronchi and lungs; chronic bronchitis, bronchiectasis,carcinoma, these are more significant conditions. most of these cases are transient.

3) GI, actually its a misconception that GI is the cause of bad breath even to physicians. actually its less than 1% (cases of halitosis due to GI conditions). Ulcers, diverticular disease; probably a significant GI disturbance. so its not as an important cause as tongue coating for example. you have to rule out every oral cause before thinking of the stomach.

Note: -not every person with an acid reflux has a bad smell.

- there are some studies for the association of the H-Pylori of the peptic ulcer with Halitosis but there are no clinical evidence for this.

4)liver insufficiency.

5)Renal insufficiency.

6)Metabolic disorders; Diabetes.

we should rule out every oral cause before thinking of those.

\*Detection or confirmation of the Halitosis:

at first we should take a proper medical history to see if there is any significant health issues as kidney, oral, metabolic diseases also if he takes any medications, when did he start, the frequency, the time during the day, why? because usually when we wake up there's some degree of bad breath it goes away as soon as you resume your oral hygiene and during the night there is reduction of the salivary flow, no mastication, the cleansing effect of the tongue and cheek will be less so any remaining debrii can cause a bad smell so this is considered normal thats why you should know the time during the day, if the patient is complaining of a bad smell when he wakes up this is normal, you can advise him to improve his plaque control before he sleeps and as long as he brushes his teeth it goes away then its not that of a big deal.

also we should ask if others notice it or not, why ?

to know if its a genuine problem or he's just obssesed about it.

-also we should ask if he has a dry mouth, allergies or post-nasal drip.

Those kind of questions are the kind that leads you to a diagnosis!

-We have different techniques that can help you in the diagnosis; self examination, the patient himself can examine himself. A- He can smell a spoon after scraping his tongue with it or smelling a toothpick after using it . so if the tongue was the cause he'll smell it on the spoon or if it was a periodontal problem he'll smell it on the toothpick. B- Hands in front of the mouth but its not reliable.

So, self-examination in general is not reliable.

- The patient reports halitosis, so you do your clinical examination (oropharyngeal examination) you look for caries, food impactions,deep cavities, defective restorations, bleeding gums, periodontal problems, pocketing also you check the tongue for tongue coating and also if there is a dry mouth also you have to examine the pharynx (tonsils) to see if there's a defection or smthn, so what you're doing exactly is ruling out the oral causes. for example: appliances.

the third thing you have to do is the organoleptic rating, it's considered the gold standard for the diagnosis of halitosis, it's an assesment by a trained judge, it's the easiest, cheapest and most often used. you actually have somebody smelling your patient's breath.

-the judge smells different air samples, so you have the patient exhale and the judge smells it then you have the patient lick her wrist and the judge smells it (to detect if the cause was from the tongue), then you ask the patient to close one nostril and exhale through the other (to detect if the cause was from something in the nasal cavity or from the sinuses) and then the patient scrapes her tongue and the judge smells the scraping.

- There are other attempts to use other more objective techniques; Halimeter that measures the amount of volatile sulfur compounds, gas chromatography( the patient exhales through a device that measures the amount of volatile sulfur compounds), DF microscopy, but actually the most reliable one (the gold standard) is the organoleptic rating (the judge).

\*\*Treatment:

CAUSE-RELATED: I have to know the cause, good interview with the patient, good medical history, good clinical exam, good oropharyngeal examination.

if you decided that the cause is the bacteria for example then you have to do 1- mechanical reduction as brushing, tongue scraping, professional periodontal therapy by the dentist or the dental hygienest, chewing gum because it increases the salivary flow and its cleansing effect.

2- chemical reduction of microbial loads as in using mouthwashes. we should prescribe mouthwashes, studies have shown that the most effective is the CXD. (the gold standard).(so if they wanted to invent a new mouthwash and make a study on it for example, there'll be 3 arms, arm that uses CXD and an arm that uses the new mouthwash and an arm that uses the placebo(with water or alcohol which means the same vehicle without the active ingredient)). It (CXD) reduces the microbial load and hence the halitosis. Triclosan and quaternary ammonium has shown to be effective as well.

3- rendering malodorous gases nonvolatile as in stimulating more salivation (solving the dry mouth problem). some chemicals attract these compounds (volatile sulfur compounds) and prevents them from being volatile. some studies have shown that when you add zinc to CXD you have more synergestic effect to the antihalitosis effect.

4- masking the malodor. like gums for example. its only problem that its TRANSIENT.