



Oral Manifestation Of Some Bacterial Infection

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Bacterial lesions of the oral mucosa can originate anywhere in the oral cavity and are usually the first sign of the condition. In the initial phase, some diseases could present symptomless, making the diagnosis challenging

The oral cavity harbors a diverse microbial flora that under normal conditions resides in homeostasis. The imbalance of this flora or the colonization with new microorganisms from a viral, fungal, or bacterial origin can infect the oral cavity and its mucosa.

Primary bacterial infections of the oral mucosa seldom arise because of the oral epithelium's protective role over the underlying tissues, the saliva's antibacterial characteristics, and the immune responses of the phagocytes

However, if the oral mucosa is disrupted due to poor oral hygiene, trauma, smoking, alcohol misuse, or any other stimuli, the risk of primary bacterial infections goes up. Immunocompromised patients such as those with HIV, cancer, or undergoing prolonged corticosteroid therapy are also at increased risk. The buccal aspects of the most common bacterial infections with oral mucosa involvement, including sexually transmitted diseases: syphilis and gonorrhea; a granulomatous disease: tuberculosis; and a condition most commonly affecting young children: scarlet fever.

Syphilis

Syphilis is caused by a spirochete known as *Treponema pallidum* that can be sexually transmitted (vaginal, anal, or oral contact) or passed through the placenta, causing congenital syphilis. It has an incubation period of approximately 20 to 40 days. The host for *T. pallidum* is humans, and it has no animal reservoir

Gonorrhoea

Gonorrhoea is a sexually transmitted disease caused by gram-negative cocci called *Neisseria gonorrhoeae*. *N. gonorrhoeae* mainly affects mucous membranes causing urethritis in men and cervicitis in women.

Oral or pharyngeal gonorrhoea, although uncommon, is more prevalent in females or in men who have sex with men (MSM). Oropharyngeal gonorrhoea is known to be rare because the saliva is a hostile environment for *N. gonorrhoeae*. The disease may be transmitted through oral sex and kissing, even in an asymptomatic infected person.

Tuberculosis (TB)

Tuberculosis is a granulomatous disease caused by aerobic acid-fast bacilli, *Mycobacterium tuberculosis*, triggering a primary pulmonary infection.

Oral tuberculosis results from a secondary infection via blood dissemination. The spread of *M. tuberculosis* occurs through aerosols generated by coughing, sneezing, or speaking. The bacteria can remain airborne within tiny droplets for hours and infect susceptible individuals. The risk of TB transmission in a dental practice appears low, however possible, primarily through patients from high-risk areas of the world or with reactivated TB infection.

Scarlet Fever

Scarlet fever is a bacterial infection that develops in patients suffering from bacterial pharyngitis - strep throat - and occasionally from streptococcal skin or wound infections. The causative agent is *Streptococcus pyogenes*, which belongs to the gram-positive A beta-hemolytic streptococci group (GABHS). Humans are the primary reservoir for this bacterium, with approximately 2 to 5 days of incubation.

Scarlet fever, also known as scarlatina, can spread directly from person to person via infected saliva or nasal secretions. There is a higher risk of transmission in crowded conditions such as daycare centers and schools

History and Physical Syphilis

The oral manifestation of syphilis is usually the first sign of the disease. The initial oral lesion characteristic of primary syphilis, known as a chancre, appears at the site of inoculation around two weeks after the exposure. The most common locations are the buccal mucosa, tongue, and lips.

The chancre usually presents as a solitary, painless, round, and indurated nodule, with firm margins accompanied by regional lymphadenopathy. The chancre begins as a macule that evolves into a papule. The papule may erode and transform into an ulcer of around 0.5 to 1.5 cm in diameter. There may also be evidence of petechial hemorrhage on the soft palate with or without a chancre. Lack of pain characterizes the syphilitic lesion and prompts to differentiate it from a squamous cell carcinoma.

Secondary syphilis is a highly contagious stage that appears 2 to 8 weeks after the primary chancre emerges. In this period, oral lesions can be maculopapular or mucosal patches. The mucosal patches are more common, appearing as slightly raised or shallow oval ulcers surrounded by an erythematous border with a gray pseudomembrane. Lesions on the tongue may appear as irregular fissures or pronounced ulcerations. Unlike primary syphilis, oral lesions in the secondary stage of the disease are multiple and painful. Patients also report sore throats. Systemic symptoms include fever and lymphadenopathy. In the skin, a maculopapular rash involving the palms and soles and alopecia may be found. Condylomata lata, a painless, smooth wart-like lesion, can be observed on the genitals during this period.

Tertiary syphilis is a destructive stage that manifests months or years after the initial infection in patients who have not received effective treatment during the primary or secondary stages of the disease. Oral manifestations of this phase include a chronic granulomatous gumma usually located on the hard palate, which may perforate into the nasal septum. The tongue may present with leukoplakia dorsally or appear atrophic and fissured

Tertiary syphilis symptoms result from complications of previous stages. They include Argyll Robertson pupil that constricts with accommodation but is not reactive to light, aortitis due to the vasa vasorum destruction, and neurosyphilis, such as tabes dorsalis.

Congenital syphilis is transferred from an infected mother to the fetus, usually after 16 weeks of pregnancy. Before this period, Langerhans cells prevent the transmission of the spirochete to the fetus. As the fetus develops, Langerhans cells' number decreases, allowing the passage of the spirochetes.

When pregnant women transmit syphilis to their children, various developmental defects commonly arise, including dental abnormalities. Hutchinson's incisors are characteristic of congenital syphilis patients, small, widely spaced, and peg-shaped incisors; semitranslucent rather than ivory, with a screwdriver-shaped incisal edge. Another dental abnormality that may be seen is Moon molars or mulberry molars, where molar anatomy is replaced by small, dome-shaped teeth, with dental cusps set closer together. Mulberry molars have also been associated with enamel hypoplasia

. Oral gonorrhoea presents symptomless in many cases, but a persistent sore throat is the most predominant kind when symptomatic. Other possible signs include acute ulceration, diffuse oropharyngeal erythema, edematous tissues that bleed easily, and flu-like symptoms.

Untreated oral gonorrhoea may lead to disseminated gonococcal infection,

Oral tuberculosis lesions are more commonly located in the posterior aspect of the dorsum of the tongue, followed by the buccal mucosa, gingiva, lips, and the floor of the mouth. Primary oral tuberculosis manifests as a single painful, necrotic ulcer that can expand from the sulcular epithelium and the epithelium of the oral cavity to the base of the bordering vestibule. The ulcer can last more than 2 to 3 weeks. Primary lesions are also associated with the spread of the disease to cervical lymph nodes that present as enlarged and painful. Tuberculosis osteomyelitis may also appear as lesions within the jaw.

Secondary tuberculosis presents as slowly growing, irregular, and painful oral ulcers that exhibit a thick white mucus at the base and do not self resolve. Like primary lesions, secondary lesions are usually exposed to mechanical trauma. Some other systemic symptoms that may accompany a patient with tuberculosis are fever, chronic cough, sputum production, hemoptysis, night sweats, weight loss, and appetite loss

Scarlet Fever

Scarlet fever is typically associated with acute pharyngitis with accompanying symptoms such as sore throat, fever, odynophagia, cervical adenopathy. The skin presents with a papular-blanching rash, covering most of the body. This rash is described as a "sandpaper rash" because of the lesions' lack of confluence. It develops on the face, trunk, underarms, and groin first, spreading to the extremities later, sparing the palms and soles.

Scarlet fever has a common oral manifestation known as "strawberry tongue" because of the hyperplastic fungiform papillae and white coating; as the white coating resolves, the remaining papules give the tongue a red, bumpy appearance. The throat may also appear erythematous along with white or yellowish patches making swallowing painful.

Evaluation

Any non-healing oral lesion of more than two weeks old requires obtaining an excellent medical history and examining the oral cavity, its contiguous structures, and associated lymph nodes. Obtaining radiographs searching for possible hard tissue abnormalities is also required.