

ORAL COMPLICATIONS AND LESIONS ASSOCIATED WITH HYPOSALIVATION AND DRY MOUTH

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Abstract: Hyposalivation is the reduction of salivary flow and Xerostomia is the sensation of having a dry mouth. Patient with this sensation of dry mouth will also have a noticeable and measurable decrease in the amount of saliva in their mouths, a condition referred to as hyposalivation. Saliva is a key element in oral homeostasis, oral function and maintenance of oral health. Dry mouth has multiple oral health consequences and affects quality of life. This article emphasizes on the oral complications and lesions that can be commonly encountered among patients with hyposalivation.

1. INTRODUCTION:

Physiological amount of normal saliva secretion are essential for oral health. Saliva influences various functions in the oral cavity. It helps to maintain a neutral oral pH and provides a reservoir of calcium and phosphate ions to remineralize teeth. Saliva protects oral mucosa and teeth against harmful substances; lubricates the mouth to facilitate chewing, swallowing and speech; and reduces tissue trauma. Saliva contains enzymes, immunoglobulin A, lactoferrin, histatins and defensins, which provide local antimicrobial activity. The daily secretion of saliva normally range from 1.0 to 1.5 L at an average rate of 0.5ml/mint. When there is a decrease within this range then the condition is termed as Hyposalivation or Hypoptyalism. Hyposalivation can be assessed by specific exams, such as sialometry method, while xerostomia is rather a subjective feeling of oral dryness. The latter is however not necessarily related to a reduction of salivary flow, because this symptom has also been reported by patients who did not present with hyposalivation^{1,2}.

CAUSES FOR DRY MOUTH:

Xerostomia is a common problem. Its prevalence is difficult to determine, because it varies between different geographical zones and age groups. The prevalence of xerostomia increases with age and is approximately 30% in those aged 65 years and older. Many factors have been associated with xerostomia. The most common causes are:

- a. Medications (more than 400 drugs are associated with xerostomia as a side effect). Drugs are the most common cause, because most elderly people take at least 1 medication that adversely affects salivary function.
- b. Psychological conditions, such as stress and anxiety
- c. Salivary gland disorders, such as Sjögren's syndrome
- d. Head and neck radiotherapy.
- e. Side effect of certain diseases and infections. Dry mouth can be a side effect of medical conditions, including Sjögren's syndrome, HIV/AIDS, Alzheimer's disease, diabetes, anemia, rheumatoid arthritis.

Xerostomia is more common in women, and its prevalence is highest in the sixth decade, probably because of an increase in drug intake, due to chronic disorders, such as hypertension, diabetes, depression, etc. however, there are reports that age itself acts as a risk factor for xerostomia^{3,4}.

COMMON COMPLAINT OF PATIENT USUALLY ENCOUNTERED.

Although it is normal to produce less saliva while sleeping, patients with dry mouth commonly describe their mouths as feeling "parched", "like sandpaper" or "like a desert" at all times and typically carry a water bottle with them everywhere they go. Patients report that there is a film or more than usual dental plaque on the teeth, that their tongue and lips stick to their teeth, that their mouths feel rough or swollen, or that there is pain, burning and sensitivity. Patients may notice they have a "bitter" or "metallic" taste, or even reduced or no taste sensations. Some patients have difficulty talking and chewing food and may lose weight as a result. In severe cases, patients have difficulty swallowing with food getting stuck in their throats. These symptoms are due to decreased lubrication from reduced saliva flow. The oral mucosa, especially the tongue may appear dry and red with minimal saliva pooling under the tongue; occasionally mouth sores are present. The saliva is often frothy, thick, pasty and sticky, or the tongue may be coated and white. Patients who wear denture also complaint of ill fit of the denture due to reduced dry mouth.

DIAGNOSIS:

Diagnosis of hyposalivation is based on the patient's history and clinical examination. Diagnosis may be facilitated by asking few simple but important questions to rule out the diagnosis. It is very important to elicit an accurate drug and family history. Extraoral findings include dry and cracked lips, which may be infected with *Candida*, and occasionally enlarged salivary glands. Some older people may develop acute parotitis after undergoing extended periods of dehydration and anesthesia due to secondary retrograde salivary infection⁵. Patients may also report dryness of the eyes along with xerostomia, which is suggestive of primary Sjogren syndrome. Other systemic autoimmune diseases, such as rheumatoid arthritis, polyarthritis nodosa, scleroderma and systemic lupus erythematosus may also be present in secondary Sjogren syndrome⁶.

COMMON FINDINGS ON EXAMINATION OF PATIENT WITH HYPOSALIVATION:

The oral mucosa may appear dry and glossy. The tongue can become furrowed, dry and sticky or it can undergo partial or complete depapillation of the dorsum. A mouth mirror or a tongue

depressor, used to examine the mouth, can stick to the buccal mucosa due to dryness. The dry mucosa is more susceptible to trauma and infection, and the patient may be suffering from painful mucositis. Recurrent carious lesions are also noticed very often. One other common findings of hyposalivation / dry mouth is candidiasis which include angular cheilitis and erythematous candidiasis, which may be more common than pseudomembranous candidiasis (oral thrush), which is more readily recognized^{7,8}. Palpation of the parotid papilla and milking of the gland and duct may reveal little or no saliva output. Food debris may stick to teeth or soft tissue and the normal pooling of saliva in the floor of mouth is absent.^{9,10}

ORAL MUCOSITIS:

Oral mucositis, also called stomatitis, is a common, debilitating finding caused due to dryness of mouth. Oral mucositis is inflammation of the mucosa of the mouth which ranges from redness to severe ulceration. Symptoms of mucositis vary from pain and discomfort to an inability to tolerate food or fluids. Mucositis may also limit the patient's ability to tolerate either chemotherapy or radiotherapy. Mucositis also compromises the body's defenses against the invasion of microorganisms from the oral cavity into the bloodstream, increasing risk for systemic infection from both fungi and commensal and pathogenic bacteria^{11,12}. Saliva has a number of mucoprotective effects, including lubrication of tissues, prevention of trauma and irritation, and protection against microorganisms through physical cleansing and salivary proteins and antibodies. The Local risk factors of dry mouth and oral mucositis include oral hygiene status which can cause harbouring of microorganisms thereby causing various infections. Defective and sharp restorations can cause more harm to inflamed mucosa. And the presence and fit of fixed and removable restorations and prostheses could cause severe irritation in the affected site. Both the presence of sharp restorations and appliances and ill-fitting prostheses can lead to mucosal trauma. Saliva has a number of mucoprotective effects, including lubrication of tissues, prevention of trauma and irritation, and protection against microorganisms through physical cleansing and salivary proteins and antibodies^{13,14}.

CANDIDIASIS:

Salivary gland hypofunction, hyposalivation, dry mouth have high potential to alter the oral microbiota and increase the risk of oral candidiasis, which is the most prevalent opportunistic infection affecting the oral mucosa, caused by *Candida* species. Sixty percent of healthy adults and 45%–65% of healthy children may harbor commensal *Candida* microbe without any clinical signs and symptoms. Saliva plays a significant role in oral homeostasis. It contains antimicrobial proteins such as lysozyme, lactoperoxidase, immunoglobulins, histatins and lactoferrin. Histatins have potent antifungal activity and there is also some evidence that salivary IgA inhibits oral adhesion of *Candida albicans*. The salivary calcium-binding myelomonocytic L1 protein or calciprotein also play a role in the defense against oral candidiasis in HIV-infected patients. Under variety of pathological conditions, *Candida* can proliferate in the mouth and produce oral lesions. This correlation is more significant in patients with medical conditions such as Sjogren's syndrome, diabetes mellitus, cardiovascular diseases, psychological disorders, thyroid dysfunction, hepatitis C infection and human immunodeficiency virus (HIV) infection^{15,16}.

ERYTHEMATOUS CANDIDIASIS AND ANGULAR CHEILITIS:

Erythematous candidiasis can account to about 60% of oral candidiasis in patients with hyposalivation . Patient usually present with a burning sensation in their oral cavity associated with a metallic or bitter taste. Lesions are red and sometimes ulcerated. Angular cheilitis may be

associated with reduced salivary secretion exhibiting inflammation of one or both corners of the mouth. Often the corners are red with skin breakdown and crusting. It can also be itchy or painful. The condition can last for days to years.¹⁷

DENTAL CARIES:

Both hyposalivation and low salivary pH are the contributory factors for a poorer quality of life. In addition, higher caries prevalence has been observed compared to those with a normal salivary flow rate. In addition, high caries prevalence has been reported to be associated with significantly poorer quality of life compared to low caries prevalence. Reduced salivary secretion leads to inability in self-cleansing of the oral cavity this causes increased production of microorganisms. Increased microorganism content can alter the oral pH where the oral pH is acidic. This can cause demineralization of enamel and dentin which leads to dental caries. Therefore saliva plays a very important factor in the development of caries.^{18,19}

2. CONCLUSION:

Hyposalivation is common among patients with systemic autoimmune, hormonal, neurologic and psychogenic diseases but also after intake of various medication or after exposure to radiation therapy directed against head and neck region. Even though Dry mouth and xerostomia are common clinical conditions with a growing prevalence little attention has been given to the impact of dry mouth and xerostomia on quality of life, in comparison with the effects of associated oral lesions, caries and periodontal diseases. Required treatment can be provided in patient with complaint of dry mouth, which can help in reducing the complaint and there by decreasing the ill effects of hyposalivation.

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