Biomedical & Pharmacology Journal Vol. **6**(2), 385-388 (2013)

Non-neoplastic Salivary Gland Diseases

N. BALACHANDER, SUDHA JIMSON, K.M.K.MASTHAN and SUDHA MANIKKAM

Department of Oral And Maxillofacial Pathology,
Sree Balaji Dental College & Hospital, Bharath University, Chennai, India.
*Correspoding author E-mail: Sudha.umashankar@yahoo.com

DOI: http://dx.doi.org/10.13005/bpj/431

(Received: September 29, 2013; Accepted: November 19, 2013)

ABSTRACT

Non-neoplastic disorders of the salivary glands are divided into the following groups: salivary gland cysts, sialadenosis, sialolithiasis, sialadenitis, HIV-associated salivary gland disease, oncocytosis and necrotizing sialometaplasia (salivary gland infarction). Clinically, an etiological classification of sialadenitis is mandatory. Sialadenosis is distinguishable from sialadenitis by its clinical, radiological, and morphological characteristics. Non-neoplastic cysts make up about 6% of diseases of the salivary glands. Mucoceles represent the majority of these cysts (75%). HIV-associated salivary gland disease includes lymphoepithelial lesions and cysts involving the salivary gland tissue and/or intraglandular lymph nodes, and Sjögren's syndrome-like conditions, diffuse interstitial lymphocytosis syndrome, and other reported lesions of the major salivary glands[5]. The clinical features, histopathological features and treatment of various non-neoplastic salivary gland diseases are discussed.

Key words: Sialadenosis, Sialolithiasis, Sialadenitis, Sjogren's syndrome, Necrotizing Sialometaplasia.

INTRODUCTION

Tumours of salivary glands constitute a heterogeneous group of lesions of great morphologic variation. Tumours of salivary glands have a annual incidence of around 1-6.5 cases per 100,000 people. Non-neoplastic salivary gland lesions are classified as:

WHO Classfication[10]

Tumour like lesions

1) Sialadenosis
2) Oncocytosis
3) Necrotising Sialometaplasia
4) Benign lymphoepithelial lesion
5) Salivary gland cysts
6) Chronic sclerosingsialadenitis

Non-neoplastic salivary gland diseases are classified as below[7]

Disease	Features
Viral	Acute onset; associated symptoms
Acute suppurativesialadenitis	Acute onset; postoperative or debilitated patient; diffusely swollen and painful gland
Chronic sialadenitis	Middle painful recurrent swelling; decreased saliva production
Tuberculosis	Acute inflammatory lesion or chronic swelling
Actinomycosis	Painless swelling often with drainage
Sarcoidosis	Usually asymptomatic swelling
Sjogren syndrome	Painless swelling of multiple salivary glands
Sialolithiasis	Painful swelling, usually associated with eating
First branchial cleft cyst	Repeated acute suppurative swelling
Penetrating injury	Obvious defect with appropriate history
Sialadenosis	Asymptomatic swelling

Some of the common non-neoplastic diseases are explained as below:

Review

Sialadenosis

Sialadenosis refers to non-neoplastic, non-inflammatory enlargement of salivary glands mainly the parotid gland. The enlargement is bilateral and may be associated with the recurrence or pain or both.The disease is due to increased weight, improper nutrition, alcoholic cirrhosis, in hypothyroid patients, myxedema..

Classification of Sialadenosis[10]:

1. Hormonal Sialadenosis
2. Sex hormonal
3. Diabetic
4. Thyroid
5. Neurohormonal Sialadenosis
6. Malnutritional Sialadenosis
7. Mucoviscidosis
8. Drug-induced Sialadenosis

Clinical Features

Characterized mainly by the presence of chronic, afebrile salivary gland enlargement usually of parotid gland. The enlargement is slowly evolving, indolent, undulating and recurrent. Decreased salivary secretion occurs and sialochemistry demonstrates the increased levels of potassium and decreased levels of sodium. Hypertrophy of acinar cells crowd and compresses the finer terminal ducts forming “leafless tree” pattern.

Histopathological Features

Reveals hypertrophy of the acinar cells, sometimes two or three times greater than normal size. The nuclei are displaced to the cell base and the cyptoplasm is engorged with zymogen granules. In cases associated with long standing diabetes there may be acinar atrophy and fatty infiltration[3.]
Treatment: Sub-total parotidectomy

Necrotising sialometaplasia

Necrotising sialometaplasia is a benign self limiting and rare inflammatory disease which mimics malignant neoplasms[1]. Other name is salivary gland infarction. The clinical and histopathological features sometimes simulate those of squamous cell carcinoma or mucoepidermoid carcinoma.

Etiology

1. Associated with the history of trauma, radiation therapy or surgery
2. Mostly, etiology is related to vascular ischemia
3. Tobacco use is suggested a risk factor for necrotising sialometaplasia

Clinical Features

Lesions of Necrotising sialometaplasia are painless, less frequently they cause pain and numbness. This is characterised by swelling with or without ulceration in anatomic sites with or without ulceration in anatomic sites that have mucous or serous glandular tissue. Typical clinical presentation shows crateriform ulcer of the palate that simulate a malignant process. The ulcerated lesions are about 1-3 cm unilateral, bilateral lesion can occur. Extra nodal lymphoma is also considered in the clinical differential diagnosis of palatal swelling[10].

Histopathological features

Characterized by acinar necrosis in early lesion’s, followed by associated squamous, metaplasia of salivary ducts. The lobular architecture of the involved gland is preserved which is a histologic clue[8]. The squamous metaplasia of salivary ducts is a striking feature.Histopathological examination is mandatory for diagnosis of necrotising sialometaplasia, as the clinical features of this condition can resemble other diseases particularly malignant neoplasms[11.]

Treatment

Biopsy is only indicated to rule out malignancy. The lesion usually resolves on its own, with healing time of 5 to 6 weeks

Sjogren’s syndrome

Is the second most common auto immune disease[6.]

Sjogren’s Syndrome is a chronic, systemic autoimmune disorder that principally involves salivary and lacrimal glands, resulting inxerostomia (dry month) and xeropthalmia (dry eyes). The effect on the eye often called keratoconjunctivitis sicca . Two forms of the disease are:-

(i) Primary Sjogren Syndrome – only the sicca syndrome.

(ii) Secondary Sjogren Syndrome – In addition to Sicca Syndrome, autoimmune diseases seen.

HLA antigens are found with great frequency in patients with Sjogren's Syndrome. HLA – DRW52 is associated with both forms of Sjogren's Syndrome. HLA – B8 and HLA – DR3 are seen in increased frequency in the primary form of the disease [10].

Clinical features

The prevalance rate is 0 .5 % of the population and 9:1 female to male ratio. Secondary Sjogren's most commonly associated with rheumatoid arthritis and patients with systemic lupus erythematosus.

The principal oral symptom is xerostomia Affected patents may complain of difficulty in swallowing, altered taste, difficulty in wearing dentures. The tongue becomes fissured with atroply of papillae. Firm enlargement of major salivary glands during the course of the disease. The swelling may be unilateral or bi-lateral, non-painful or intermittent in nature. Sialographic examination reveals punctate sialectesia and lack of normal arborization of ductal system showing" fruit–laden" , "branch-less tree" pattern .

Kerato conjunctivitis sicca, a prominent feature is not only reduced tear production by lacrimal glands but also the pathologic effect on epithelial cells of ocular surface. Decrease tear secretion is confirmed by schirmer test.

Histopathologic features

Lymphocytic infiltration of salivary glands with destruction of acinar units. On histology labial gland biopsy reveals predominate lymphocytic infiltration should contain greater than 50 lymphocytes with normal appearing acini per 4 sq.mm of glandular tissue. Sjogren syndrome focus score = number of lymphocyte aggregates x 4 ÷ area of salivary gland parenchyma[2].

Treatment

Dry eyes are managed by periodic use of artificial tears. Conservation of the tear film through use of sealed glass to prevent evaporation. Artificial saliva, sugarless candy or gum helps to keep the mouth moist. Symptoms often revealed by use of oral–hygiene products that contain lactoperoxidase and lactoferrin. Sialologue medications such as pilocarpine and cevimeline can be used to increase salivary flow. The detection of immunoglobulin gene arrangement in labial salivary gland biopsies is a useful marker for predicting the development of lymphoma, (Hodykin's B–cell lymphoma) for which the patients with Sjogren's syndrome are prone to develop[3].

Mikulicz Disease

Mikulicz disease otherwise called benign lympho-epithelial lesion, in which patients have bilateral painless swelling of lacrimal glands and all of salivary glands. Mikulicz syndrome represents salivary and lacrimal involvement of other diseases, namely tuberculosis, sarcoidosis and lymphoma. Many of mikulicz disease are examples of sjogren syndrome. Increased level of IgG4 is associated with MIKULICZ DISEASE. Hence called as IgG4-related plasmacytic disease[12.]

Clinical features

Most benign–lymphoepithelial disease are associated with sjogren's features .Most common in females than males and affects middle adult years. Mikulicz disease is characterized by sudden onset of xerostomia that may lead to difficulty in swallowing and result in tooth decay. Other symptoms include enlarged lacrimal glands, leading to decreased or absent tears. Painless swelling of parotid & sub-maxillary glands are noticed. Fever accompanied by dry eyes, diminished lacrimation and uveitis are the classical signs.

Histological features

Reveals lymphocytic infiltration of salivary gland tissue destroying or replacing the acini with the persistence of islands of epithelial cells.

The epithelium may consist of ducts showing cellular proliferation and loss of polarity, solid nests or clumps of poorly defined epithelial cells called epimyoepthelial islands[3.]

Treatment

Biopsy of one of swollen glands is the key to diagnosis of Mikulicz disease. Treatment is symptomatic artificial tears may be used to maintain

moisture in the eyes, artificial saliva may be used to treat oral symptoms

Sialolithiasis

Salivary duct stone, Salivary duct calculus

They are formed by deposition of calcium salts around a central nidus which may consist of altered salivary mucins, desquamated epithelial cells, bacteria, foreign bodies or production of bacterial decomposition[9]. Sialolithiasis is the most common disease of salivary gland which is mostly symptomless. The obstruction of salivary gland or its excretory duct due to presence of sialolith is a characteristics of sialolithiasis[4.]

Clinical features

Patients with sialolithasis involve duct of major salivary gland. Complains of moderate to severe pain particularly just before and after meals, owing to psychic stimulation of salivary flow, associated with swelling of salivary gland. Sometimes swelling is diffuse and simulates a cellulitis. Sialolithasis may occur at any age , but is most common in middle –aged adults. Distribution of Sialolilthasis is as follows 20 % parotid, sub–mandibular gland 64 %, sublingual gland 16 %. The majority of these sialoliths are found in the the upper lip and buccal mucosa ,with only slightly fever.

Histological features

Microscopically Calcified mass exhibits concentric laminations around a central nidus of amorphous debris. The lamellated structure of the calculi is result of successive deposition of inorganic and organic material. Periductal inflammation is also seen.

Treatment

Small calculi may sometimes be removed by manipulation or increasing the salivation by sucking a lemon, leading to the expulsion of the stone. An intravenous antibiotic like nafcillin is given for bacterial infection due to persistent obstruction of duct. The larger stones require surgical exposure for removal. Piezoelectric shock wave lithotropsy is an alternate to surgical removal.

CONCLUSION

There are a wide variety of malignant neoplasms occurring in our oral cavity. The non-malignant neoplasms do tend to occur more diversely than many malignant neoplasms. Here Tumour like lesions which are mainly discussed may resemble the malignant tumours clinically. Symptoms like dry mouth, ulcers, growth seen in the malignant neoplasms are also seen in the non-neoplastic lesions. Histological examinations and biopsy may rule out malignancy from non-neoplastic lesions.

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