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STUDY OF HISTOPATHOLOGICAL STUDY OF NON NEOPLASTIC SALIVARY GLAND LESIONS - AN INSTITUTIONAL STUDY

Pathology

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KEYWORDS

INTRODUCTION

Salivary glands are exocrine organs responsible for the production and secretion of saliva. They comprise of three paired major glands, the parotid, submandibular and sublingual, and the minor glands.

Salivary gland lesions encompass a heterogenous group of disorder and are broadly classified as neoplastic and non-neoplastic. Non-neoplastic lesions range from inflammatory disorder of infectious, granulomatous or autoimmune etiology to obstructive, developmental and idiopathic disorder. They often clinically present as tumor and may have pathological features similar to some of neoplasm.

MATERIAL AND METHOD:

The present was undertaken in Histopathology section of Department of Pathology, GMC Miraj over a duration of 10 years, i.e. August 2003 to July 2013. This included a retrospective period from August 2003 to July 2011 and a prospective period from August 2011 to July 2013.

The data was collected from 82 cases of surgically resected salivary gland lesions including neoplastic and non-neoplastic lesions.

I. Retrospective Study:

1) The glass slides of histopathological sections and paraffin blocks were retrieved from the Department of Pathology.
3) The relevant clinical details were taken from the case files of the patients and were recorded in the proforma.

II. Prospective Study:

A detailed study of the salivary gland specimens was done, with respect to size and external and cut surfaces.

The findings were noted down. The specimens were fixed in 10% formalin solution.Routine processing and paraffin embedding of the sections was done. The sections were cut at 3-4 microns thickness and stained with hematoxylin and eosin (H & E). The slides were studied under light microscope.

RESULTS:

Out of total 82 cases 30 cases were of non neoplastic lesion .After benign salivary gland tumours, inflammatory & obstructive lesions were more common (36.6%) lesion found in salivary gland.

Table 1: Age Wise Distribution Of Various Salivary Gland Lesions:

Type of lesion	11-20 yrs	21-30 yrs	31-40 yrs	41-50 Yrs	51-60 yrs	61-70 yrs	71 and above	Total	Percentage
Chr. Sialadinitis	8	1	2	1	-	1	-	13	43.4
Chr. Sclero. Sial.	-	-	-	1	-	-	-	1	3.33
Benign lympho. Lesion	-	-	-	1	-	-	-	1	3.33
Mucocele	7	1	1	2	1	2	-	14	46.6
Caseating tuberculosis	-	-	1	-	-	-	-	1	3.33
Total	15	2	5	4	1	3	-	30	100

Maximum incidence of inflammatory and obstructive lesions was noted in 2nd decade. Mucocele is most common lesion followed by Chr. Sialadinitis

Table 2: Gender Wise Distribution Of Various Salivary Gland Lesions:

Type of lesion	Male	Female	Total	M:F
Chronic sialadenitis	7	6	13	1:16
Chr. Sclero. Sialadinitis	1	-	1	1:1
Benign lympho.lesion.	-	1	1	
Mucocele	6	8	14	1.3:1
Caseating tuberculosis	1	-	1	

Inflammatory and obstructive lesions were equally common in males and females.

Table No.3 Frequency Of Individual Salivary Glands Lesions:

Lesion	Number of cases	percentage
Chronic sialadenitis	13	43.4
Chronic Sclerosing Sialadenitis	1	3.33
Benign lymphoepithelial lesion	1	3.33
Mucocele	14	46.6
Caseating tuberculosis	1	3.33
Total	30	100

Mucocele(46%) is most common lesion and is followed by Chr. Sialadinitis.(43%)

Table 4 Site Wise Distribution Of Various Salivary Gland Lesions:

Types of lesion	Site wise distribution								Total cases
	Major glands			Minor glands					
	P	SM	SL	C	L	PL	T	BOM	
Inflammatory and Obstructive lesions									
Chronic sialadenitis	2	11	—	—	—	—	—	—	13
Chr. Sclero. Sialadinitis	—	1	—	—	—	—	—	—	1
Benign lympho. Ca.	1	—	—	—	—	—	—	—	1
Mucocele	1	2	—	1	8	—	—	2	14
Caseating tuberculosis	1	—	—	—	—	—	—	—	1
Total	5	14	0	1	08	0	0	2	30

Chronic sialadenitis affected most commonly submandibular glands (11 out of 13 cases). Mucoceles were observed most commonly in lips (8 out of 14 cases).

DISCUSSION

Frequency Of Non Neoplastic Lesions Of Salivary Gland

The total number of biopsies received in our department during the study period was 18116. Out of these, 82 were salivary gland lesions out of which 30 (36.5%) cases were of non-neoplastic leasions and 52 (63.5%) cases were of neoplastic lesions. The frequency of salivary gland lesions in our study was compared with that of other studies.

Table No. 5 Comparison Of Frequency Of Non Neoplastic And Neoplastic Lesions Of Salivary Glands:

Author	Total cases	Non neoplastic lesions (%)	Neoplastic lesions (%)
Ashraf et al.(2010)[1]	100	14	86
Mohan et al.(2011)[2]	393	55	45
Ghandhi et al.(2013)[3]	49	18.4	81.6
Jain C et al.(2013)[4]	30	54.3	45.7
Present study(2013)	82	36.5	63.5

It can be noted from table 11 that frequency of neoplastic and the non neoplastic salivary gland lesions in different studies was variable.

The frequency of neoplastic lesions of salivary gland was found to be high in the series of Ashraf et al[1], Ghandhi et al[3]and present study. However, Mohan et al[2] and Jain et al[3] report much higher frequency of non neoplastic lesions of salivary gland.

Out of 82 cases 30 cases showed inflammatory and obstructive lesion. There were 14 cas es of Mucocele, 13 cases were of Chronic sialadenitis and one case each of Chronic Sclerosing Sialadenitis, Benign lymphoepithelial lesion, Caseating tuberculosis.

Chronic sialadenitis

It is chronic inflammation with or without gland destruction. The potential etiologies of chronic sialadenitis include mechanical, physical, microbial, and immunologic factors. Calculi are associated with chronic sialadenitis of parotid and submandibular glands in a proportion of cases.[27] Microscopically, there is progressive glandular atrophy with varying degree of fibrosis and chronic inflammation.[19]

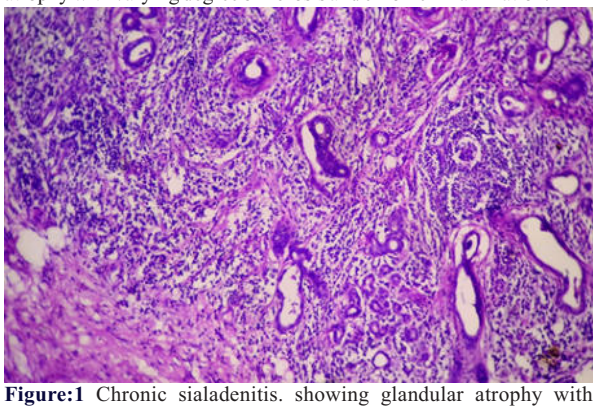

Figure:1 Chronic sialadenitis. showing glandular atrophy with varying degree of fibrosis and chronic inflammation.

Submandibular gland is common site for sialolithiasis and chronic sialadenitis as observed by other authors.[15,7]

We observed 1 3 cases of chronic sialadenitis, which accounted for 15.8% ,of all salivary gland lesions and 43.3% of all inflammatory salivary gland lesions.

In all 13 cases included in the present study, submandibular gland was the most favoured site involving 84.6% of cases. Submandibular gland is the most Calculi were found in the ducts in two cases (16.66%). No specific etiology could be identified in remaining 11 cases. Seifert and Donath[8] found 41% cases associated with sialolithiasis mechanical, physical, microbial, and immunologic factors. a proportion of cases.[27]

Chronic Sclerosing Sialadenitis

It is a chronic inflammatory disease first described by H.Kuttner in 1896 and is believed to result from inspissated secretions, stones or microliths, and autoimmune aetiology.[10,11]

It affects almost exclusively the submandibular gland, and is called Kuttner tumour in its advanced stage, as it presents clinically as a hard swelling indistinguishable from a tumour. The mean age of patients is 61 years with a slight male predominance.[10]

In early stages, the lymphocytic infiltrate commences around the salivary ducts and is followed by periductal fibrosis. The lymphocytic infiltrate and fibrosis intensify and gradually involve the whole lobule, accompanied by atrophy of acini. Reactive lymphoid follicles are frequently present. In the advanced stage, there is marked fibrosis and loss of parenchyma.[10,11]

We observed a single case of chronic sclerosing sialadenitis, with the frequency of 7.7% of all cases of sialadenitis and 10% of all cases of submandibular chronic sialadenitis. Siefert and Donath[8] observed a greater frequency with 38% of all cases of submandibular chronic sialadenitis.

The patient in our cases was a 35 years male. Chow et al[10] observed a slightly greater frequency with mean age of 61 years. He also observed slight male predominance.

In our case, the submandibular gland was slightly enlarged and was firm in consistency. Cut section showed tan brown appearance this finding was similar to that of Agale et al.[11] Microscopically, the salivary gland showed predominantly periductal lymphoplasmacytic infiltration. Some of the ducts showed evidence of periductal fibrosis. The parenchyma showed destruction with lymphoid aggregates having germinal centres. Similar microscopic finding is observed by Agale et al[3] and Kwon et al.[12]

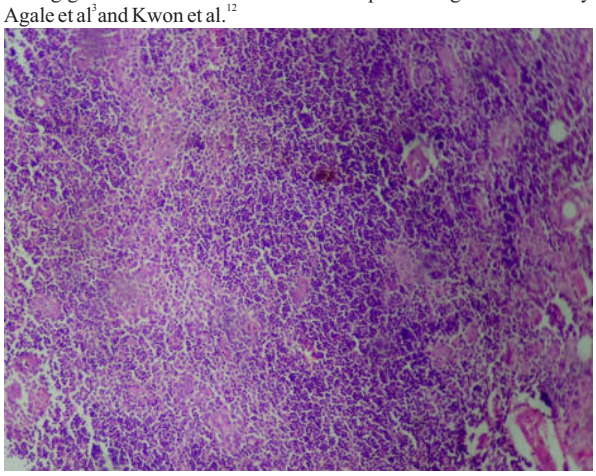

Figure 2: Kuttner tumor (Chronic sclerosing sialidinitis) the salivary gland

showed predominantly periductal lymphoplasmacytic infiltration and parenchyma showed destruction with lymphoid aggregates having germinal centres.

Benign Lymphoepithelial Lesion

We reported a single case of benign lymphoepithelial lesion. Thus the frequency is 7.7 % of all cases of sialadenitis, which is comparable with hefrequency of 10.14% as reported by Kondratowicz et al. [13]

The single case encountered in the present study was 50 years old female.. Some authors have described a female predominance with up to 90% patients being females.[14,15] Average age at diagnosis is 50 years.[15]

Our case of benign lymphoepithelial lesion was located in the parotid gland. Kondratowicz et al[13] described parotid as the most common site with an frequency of 80-85%..

On microscopy, the gland was densely infiltrated by lymphocytes, at places forming lymphoid follicles with prominent germinal centers. Few epimyoepithelial islands and areas of fibrosis and hyalinization were also noted. Similar findings were described by various authors.[14,15,16]

A microlith was identified in the duct lumen in our case. Kondratowicz et al[13] described calculi in three out of seven cases (42%).

Caseating Tuberculosis Of Parotid Gland

We observed a single case of caseating tuberculosis of parotid gland, with an frequency of 3.3 % of all inflammatory and obstructive lesion.

The single case encountered in the present study was 40 years old male. Our finding is consistent with that of Lee et al.[18] However, Bruzgielewicz et al[17] report 64.3 years as mean age and female predominance.

Our case of caseating tuberculosis was located in the parotid gland. Kim et al[19], Thakur et al[20] and Patra et al[21] describe parotid gland as most common site of involvement.

On microscopy, the gland was extensively replaced by caseous necrosis surrounded by well formed granulomas composed of epithelioid cells, Langhan's type giant cells and lymphocytes. Similar findings were described by other authors .[14,15,21] According to Kim et al [19] caseation was found in 33.3% of case.

MUCOCEL

Mucoceles is a clinical term that includes mucus extravasation phenomenon and mucus retention cyst.[25]

Microscopically, retention mucocele is a cyst cavity generally well defined with an epithelial wall covered with a row of cuboidal or flat cells produced from the excretory duct of the salivary gland. Extravastion mucocele is pseudocyst without defined walls. The extravasated mucous is surrounded by a layer of inflammatory cells and then by a reactive granulation tissue made up of fibroblasts caused by an immune reaction. Even though there is no epithelial covering around the mucosa, this is well encapsulated by the granulation tissue**.**

Table 6 Frequency Of Site Wise Distribution Of Mucocele:

Site of involvement	Oliveira et al[22] (1993) [%]	Ali et al[23] (2010) [%]	Present study (2013) [%]
Lower Lip	60	73.7	85.8
Tongue	17	15.4	-
Buccal mucosa	6	-	-
Base of mouth	6	-	14.2
Others	11	10.9	-

We encountered 14 cases of Mucocele, which accounted for 17.07 % of all salivary gland lesions. Seifert and Donath[26] observed a much lower frequency with values of 6%.

Site

In our study 78.57% of cases were observed in the minor salivary glands, while 21.43% were seen in the major salivary glands. Among the minor salivary glands, lip was the most common site with 78.57% of total cases of mucoceles. Among the major salivary glands submandibular gland was the most common site with 14.28% of cases.

From table no 6 it can be concluded that lip is the most common site for mucocele. Ali[23] and Thompson[26] also observed lower lip as most common site for extravastion mucocele. Regezi[25] observed a lower frequency of retention cyst in lip as compared to palate, check & floor of mouth.

In our study 57.1 % cases were females, but Rashid[5] and Mustapha[6] found a male predominance.

Gross Features

Most of the cysts in our study were translucent and were filled with mucin. Similar findings were noted by Ali.[23]

Microscopic Features

The lining epithelium was either cuboidal or flat cells in the mucus retention cysts in our study, which was consistent with the findings of Ali. [23]

On microscopy Ali[23], Thompson[26] and Oliveira[22] described mucus surrounded by inflammatory cells, foamy histiocytes, giant cells and reactive granulation tissue in the lining of extravasation mucoceles. We observed similar findings in the 2 cases.

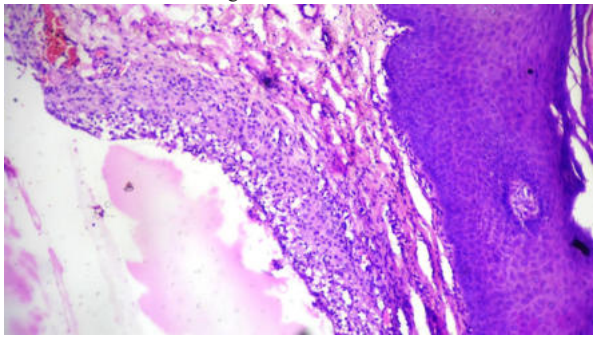

Figure 3. Mucocele: Cyst lined by flattened epithelium with mucin.

CONCLUSION:

1. The maximum frequency of inflammatory and obstructive lesions was found in 2nd decade with no sex predilection.
2. The commonest non neoplastic lesion of salivary glands in present study was Mucoceles (14 cases) Most common site was lip.

Second most common lesion was chronic sialadenitis (13 cases) Submandibular gland was the commonest site involved by chronic sialadenitis. Other inflammatory lesions were Chronic Sclerosing Sialadenitis(1 case), Benign lymphoepithelial lesion (1 case), Caseating tuberculosis (1 case).

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