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RESEARCH ARTICLE

A CLINICOPATHOLOGICAL STUDY OF NEOPLASTIC AND NON-NEOPLASTIC LESIONS OF SALIVARY GLANDS

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ABSTRACT

Introduction: Salivary glands are the site of origin of non neoplastic and neoplastic lesions. The histopathology of these are more various and diverse.Salivary gland tumours affect the parotid gland in more than 70% of cases, submandibular gland 5-10%, sublingual gland 1% and minor glands 5-15%.

Aim of the study: To clinicopathologically study the various neoplastic and non neoplastic lesions of salivary glands.

Materials and Methods: The study was conducted in the department of pathology at Mahatma Gandhi Mission Hospital, Navi Mumbai during the period from October 2008 to October 2014, a total of 11,197 specimens were received for histopathological examinations, of which 50 specimens were of salivary gland lesions.

Results: Chronic sialadenitis was the commonest (53.8%) non neoplastic lesion, Pleomorphic adenoma (64.8%) was the commonest benign tumor, Mucoepidermoid carcinoma (13.5%) was the most common malignant tumor of the salivary glands. Parotid was the commonest site accounting for 67.5% of all tumors followed by minor salivary glands (29.7%) and submandibular gland (2.7%). A female preponderance was seen in almost all tumors except Warthin's tumor with peak age incidence of 2nd to 6th decade.

Conclusion: From the present study, it is evident that histopathological examination of salivary gland lesions is the most important modality in establishing the final diagnosis in predicting prognosis and typing of non neoplastic and neoplastic lesions of salivary glands.

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INTRODUCTION

Salivary glands are the site of origin of non neoplastic and neoplastic lesions. The histopathology of these are more various and diverse. (Speight and Barret, 2002) The salivary glands seem at first sight to be relatively simple organs, yet the neoplasms that arise from them display a rich variety of microscopic appearance often within a single lesion. (Simpson, 1994) Salivary gland is subjected to different types of pathological processes constituting a variety of lesions ranging from inflammatory lesions to neoplasms. (Sajeevan *et al*., 2003) The neoplasms constitute about 3% of tumours and despite their low incidence are very heterogenous. Their remarkable morphologic variability combined with rarity renders these tumours difficult to diagnose. (Maria *et al*., 2004) Salivary gland tumours affect the parotidgland in more than 70% of cases, submandibular gland 5-10%, sublingual gland 1% and minor glands 5-15%. (Chan and Cheuk, 2007) They can show a striking range of morphological diversity between different tumour types and sometimes within an individual tumour mass. In addition, hybrid tumours, dedifferentiation and the propensity for some benign tumours to progress to malignancy can confound histopathological interpretation. (Barnes *et al*., 2005; Lingel *et al*., 2004) However there are no reliable criteria to differentiate, on clinical grounds the benign from the malignant lesions and morphologic evaluation is necessary. (Iwafuchi *et al*., 2004) Hence the present study is undertaken to study the spectrum of histomorphological features of various neoplastic and non neoplastic salivary gland lesions.

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MATERIALS AND METHODS

The study was conducted in the department of pathology at Mahatma Gandhi Mission Hospital, Navi Mumbai. The surgically resected salivary gland specimens between the periods of October 2007 and October 2014 prospectively as well as retrospectively. A total of 50 specimens of salivary

gland lesions were studied. This study includes non neoplasticand neoplastic lesions of the salivary glands. The specimens consisted of biopsies, partial and total parotidectomies. Specimens were received in formalin and sections were processed and embedded in paraffin after gross examination. Haematoxylin and Eosin staining were done as routine in all the cases. Alcian Blue and Mucicarmine special stains were done wherever needed. Pathologic review included assessment of local invasiveness alongwithclinicopathological correlation in relation to age, sex and site of the tumour incidence with emphasis on the histological typing.

RESULTS

The present study was conducted over a period of 7 years from October 2007 to October 2014 in the department of pathology MGM Medical college and Hospital, Navi Mumbai. Chronic sialadenitis (Fig. 1, 2) was the commonest non neoplastic lesion accounting for 7 cases (53.8%) out of 13 non neoplastic lesions. Pleomorphic adenoma (Fabio A Alves *et al*., 2002) (Fig.3, 4, 5) was the most common benign tumor accounting for 24 cases (85.7%) of all benign tumors and 64.8% of all neoplastic tumors of the salivary glands. Mucoepidermoid carcinoma (Fig. 6, 7) was the commonest malignant tumor accounting for 5 cases (55.5%) out of 9 cases of the malignant tumors and 13.5% of all salivary gland tumors. A female preponderance was seen in almost all tumors except Warthin tumor (Fig.10) and a peak age incidence of 2nd to 6th decade. The commonest site was the parotid gland in 67.5% of all tumors followed by minor salivary glands and submandibular glands in 29.7% and 2.7% respectively. The most common clinical presentation was in the form of mass alone accounting for 31 cases(62%) followed by mass associated with pain in 8 cases(16%), with the duration being mostly less than 1 year.

Table I: Incidence per year of salivary gland tumors in different studies

Series	Total no. of tumors	Period of study (in years)	No. Per year
Ahmed *et al*	100	2	50
Rewusuwan *et al*	198	4	49
Edda *et al*	268	10	27
Thomas *et al*	190	9	21
Ito *et al*	496	29	17
Nagarkar *et al*	36	4	09
Agarwal *et al*	147	17	08
Gupta *et al*	113	21	05
Fenn *et al*	57	15	04
Present study	37	7	5.28

Table II: Frequency of Neoplastic lesions (benign and malignant)

Series	Total	Benign	Malignant
Ito *et al*	335	67.5%	32.5%
Edda *et al*	125	53.4%	46.6%
Ahmed *et al*	100	86%	14%
Nagarkar *et al*	36	75%	25%
Present study	37	75.6	24.3%

Table III: Age distribution in different studies

Series	Benign	Malignant
Thomas *et al*	39	47
Ahmed *et al*	35.7	42.4
Edda *et al*	38	44
Rewusuwan *et al*	72	49
Agarwal *et al*	35	42
Present study	35	42

Table IV: Sex distribution in different studies

Series	Total	Benign	Malignant
Ahmed *et al*	1.17:1	1.1:1	1.1:1
Edda *et al*	1:1.3	1:1.4	1:1.1
Rewusuwan *et al*	1:1.3	1:1.2	1:1.5
Present study	1:1.04	1.16:1	1:1.17

Table V: Location of tumors in various sites in different studies

Series	Parotid	Submandibular	Minor salivary glands
Rewusuwan *et al*	79%	18%	2%
Edda *et al*	34%	33.2%	32.8%
Buddhiraj *et al*	82.8%	13.8%	3.4%
Ahmed *et al*	70%	18%	12%
Present study	67.5%	2.7%	29.7%

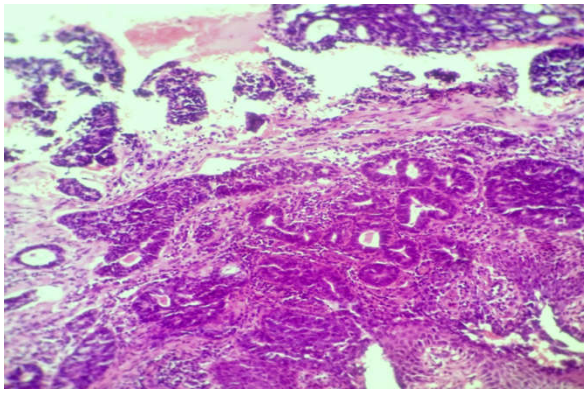

Fig.1. H&E (10x) Chronic Sialadenitis showing dense lymphocytic infiltration

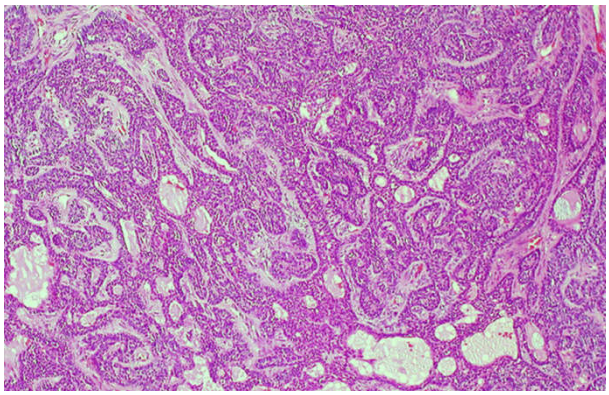

Fig.2. H&E (40x) Kuttner's tumour (chronic sclerosingsialadenitis) showing fibrosis, sclerosis along with dense lymphoplasmacytic infiltration

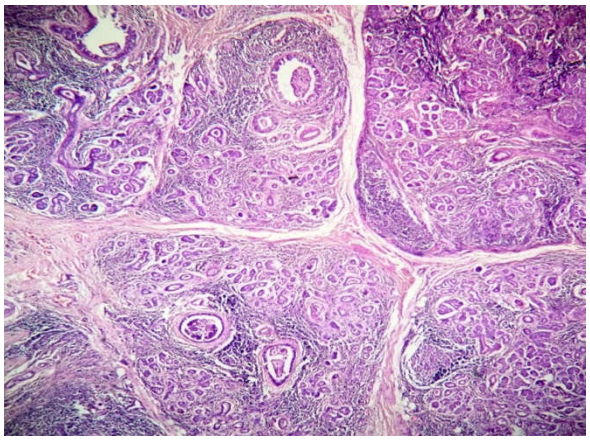

Fig.3. H&E (40x) Pleomorphic Adenoma showing epithelial and myoepithelial against a chondromyxoid stroma

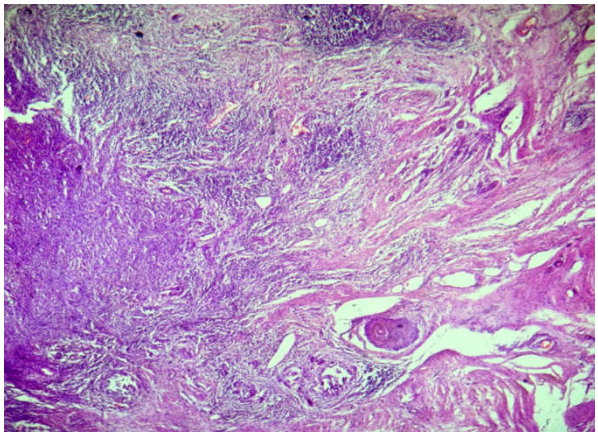

Fig.4. H&E (100x) Pleomorphic Adenoma showing chondroid stroma comprising of mature chondrocytes

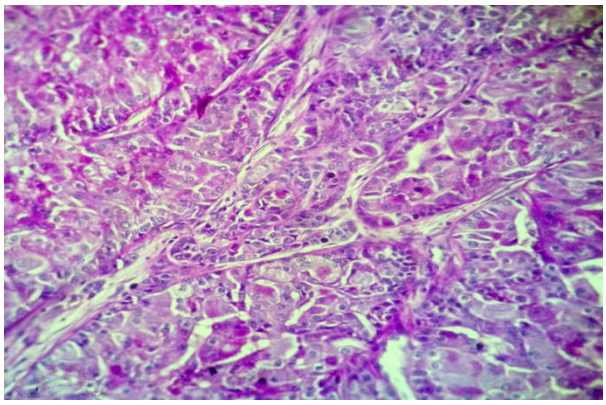

Fig.5. H&E (100x) Pleomorphic Adenoma showing squamous differentiation comprising of well formed keratin pearls

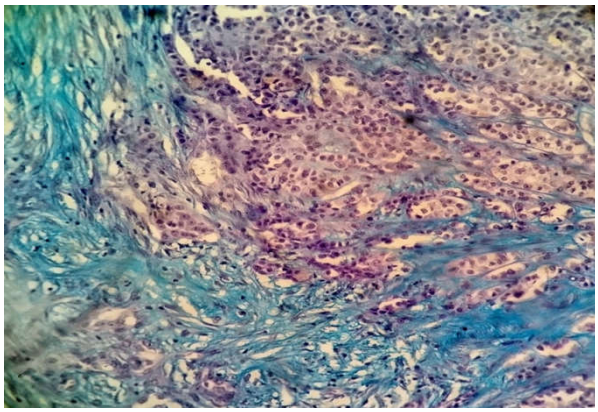

Fig.6. H&E (100x) Mucoepidermoid carcinoma showing squamoid cells along with foamy cells

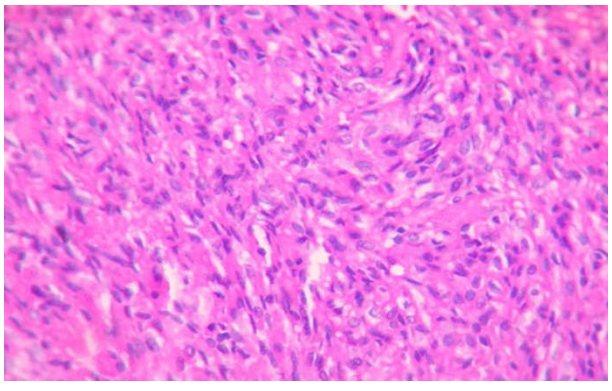

Fig.7. Mucoepidermoid carcinoma showing squamoid cells along with foamy cells and mucin pools, AB (100x)

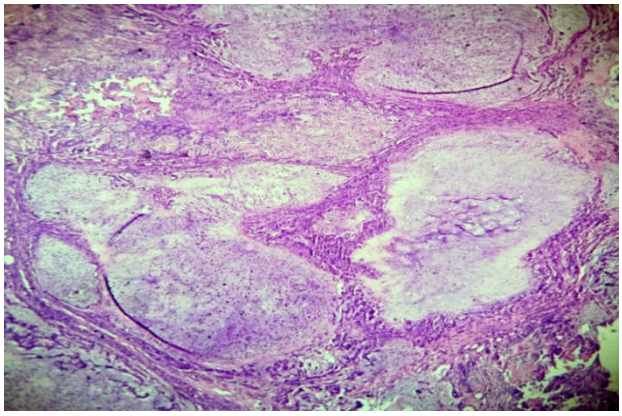

Fig.8. H & E (40x) Adenoid cystic carcinoma showing cribriform pattern with cystic spaces (swiss cheese pattern)

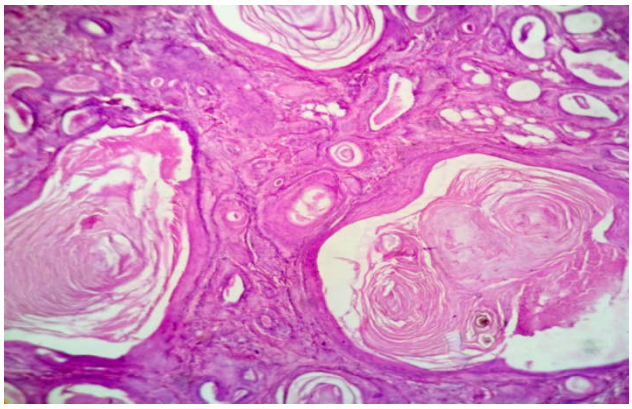

Fig.9. H & E (40x) Polymorphous low grade adenocarcinoma showing well circumscribed infiltrating tumor with tubular, ductular and glandular pattern

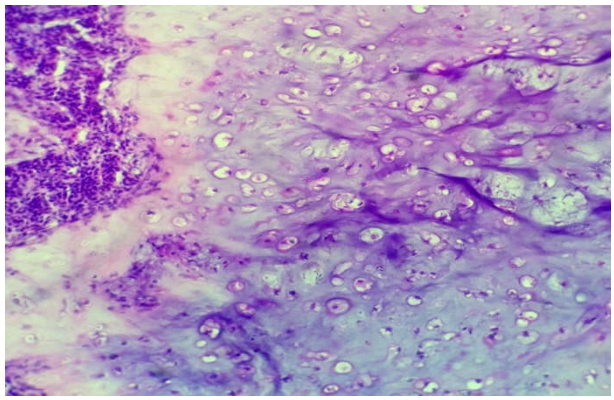

Fig.10. H & E (40x) Warthin's tumor showing oncocytic cells in two cell layer (cuboidal basal cells and columnar luminal cells) with accompanying lymphoid stroma

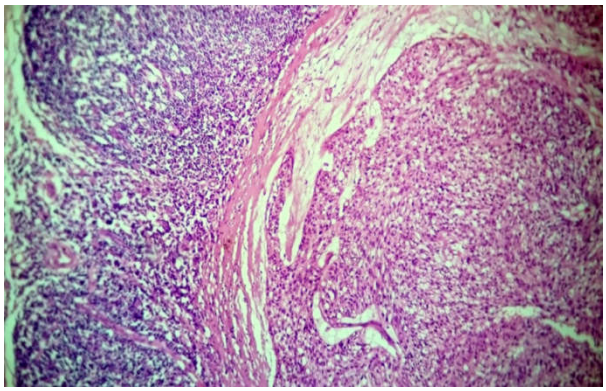

Fig.11. H & E (40x) Basal cell adenoma showing islands of neoplastic epithelial cells with peripheral palisading

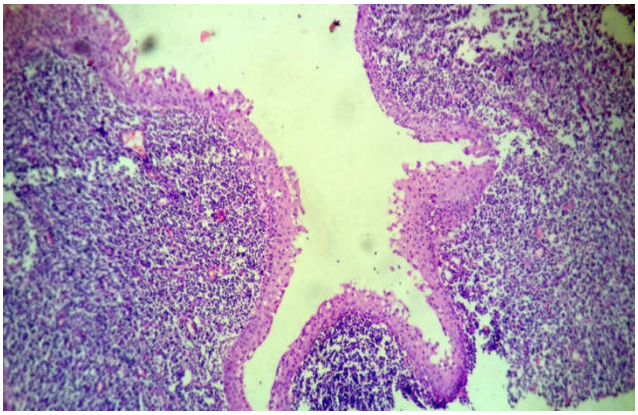

Fig.12. H & E (40x) Myoepithelioma showing interlacing fascicles of spindle shaped cells with eosinophilic cytoplasm

DISCUSSION

This study was conducted over a period of 7 years from October 2009 to October 2014 in the department of Pathology, Mahatma Gandhi medical college and hospital. Retrospective study of 16 cases and prospective study of 34 cases was done with respect to incidence, age, sex, clinical presentation, gross and microscopic features. In the present study incidence per year is 7.1% cases which correlates with Agarwal *et al*. (1967), Gupta *et al*. (1975) and Fenn *et al*. (1982) Benign tumors predominate over the malignant tumors which was observed in the present study as well as those in the series. Results in the study are consistent with other Indian studies. In most of the studies benign tumors occur at a lower age group than compared to malignant tumors. There was a slight female preponderance seen in this study similar to other studies. The site distribution is consistent with that of Buddhiraj *et al*. (1974) and Ahmed *et al*. (2002) with predilection for parotid gland.

Conclusion

In conclusion from the present study, it is evident that histopathological examination of salivary gland lesions is the most important modality in establishing the final diagnosis in predicting prognosis and typing of non neoplastic and neoplastic lesions of salivary glands.

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