

Clinico-Pathological Study of Salivary Gland Tumours

Abhijit Medikeri¹, Praveen Kamatagi²

Author's Affiliation: ¹Senior Resident, Department of General Surgery, Koppal Institute of Medical Sciences, Koppal, Karnataka 583231, India, ²Assistant Professor, Department of General Surgery, KLE Prabhakar Kore, Jawaharlal Nehru Medical College, Belagavi, Karnataka 590010, India.

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Abstract

Background: Salivary gland tumors account for between less than 1% of all neoplasms of the head and neck.

Objective: to find out clinico-pathological study of salivary gland tumours.

Methods: All patients with salivary gland tumours in surgical wards of KIMS Hospital during the period of July 2013 to November 2015. Total 20 cases clinically presenting as salivary gland tumours during the period of July 2013 to November 2015 were taken for study.

Results: The age incidence of the patients in the study group ranged from 16–60 years. 7(35%) patients were males and 13(65%) were females. Parotid gland is the most commonest site accounting for 90% of all cases. All patients presented with swelling. Features of rapid growth, pain, and associated facial paralysis were considered as signs of malignancy. Overall pleomorphic adenoma, constitute 80% of all salivary gland tumours. Among malignant tumours squamous cell carcinoma constitute 5% and myoepithelial tumour constitutes 5% of all tumours occurring in salivary glands.

Conclusions: It was concluded Most of the salivary gland tumours occur in females. Most of the salivary gland tumours arise in parotid gland. Most of them are benign and most of the benign tumours are pleomorphic adenoma. Swelling is the commonest symptom of salivary gland tumours.

Keywords: Salivary gland tumours; Clinico-pathological study; parotid gland; pleomorphic adenoma.

Introduction

The major salivary glands are the parotid, submandibular and sublingual glands and there are 750 minor salivary glands.¹

Salivary gland tumors account for between less than 1% of all neoplasms of the head and neck. Demographics vary according to tumor type, but in general salivary gland tumors are more common in women than in men and have a peak incidence in the sixth to seventh decades of life.

Salivary gland neoplasms are rare, constitute of less than 1% of head and neck tumours. 70–80% of salivary gland neoplasms occur in parotid gland, of which 80% are benign, 20% are malignant, out of 80% benign tumours are pleomorphic adenomas.

Submandibular gland tumours constitute 22% of tumours and sublingual gland tumours constitute of 8% of all major salivary gland tumours. In submandibular salivary glands 50% benign and rest are malignant.²

In sublingual glands 85% are malignant and only 15% are benign. The incidence of malignancy in submandibular gland is higher than parotid gland and the prognosis is poorer than parotid malignancies.

As in the thyroid gland, fine needle aspiration biopsy (FNAB) represents the initial diagnostic modality in assessing the pathology of a salivary gland mass; FNAB is cost-effective and efficient; has a sensitivity rate reported to be 81–98%; has a specificity rate reported to be 60–75%; has a false-negative rate reported to be 5–10%; has a false-positive rate reported to be 0–6%.

Corresponding Author: Praveen Kamatagi, Assistant Professor, Department of General Surgery, KLE Prabhakar Kore, Jawaharlal Nehru Medical College, Belagavi, Karnataka 590010, India.

E-mail: kamagipraveenms@gmail.com

In general, the light microscopic features of salivary gland neoplasms are distinctive, such that immunohistochemistry is not necessarily required in order to arrive at a diagnosis; however, exceptions to this rule exist and immunohistochemical analysis may be required in the diagnosis and differential diagnosis of salivary gland neoplasms: the immunohistochemical antigenic profile of salivary gland neoplasms often correlates to the histogenetic derivation of the tumor.

Methods

All patients with salivary gland tumours in surgical wards of KIMS Hospital during the period of July 2013 to November 2015. Total 20 cases clinically presenting as salivary gland tumours during the period of July 2013 to November 2015 were taken for study. Each case will be examined clinically and properly in a systematic manner. The cases are treated on their individual merits.

Inclusion Criteria

- All patients admitted to surgical wards of KIMS hubli with signs and symptoms of salivary gland tumours.

Exclusion Criteria

- Non-neoplastic swellings of the salivary glands.
- Patients refusing for surgical treatment.
- Paediatric patients (less than 12 years).

All patients admitted were evaluated by documenting the history, thorough clinical examination, routine laboratory investigations and specific investigations. In history, importance was given to presenting complaints, duration of lump, rapid increased in size, associated symptoms of facial nerve involvement, previous surgical treatment or any medical problem.

Regarding physical examination, particulars mentioned in the proforma was noted. Importance was given to the site, extent of the tumor, deep lobe enlargement and fixity to the surrounding structures, nerve involvement and regional.

lymphadenopathy Associated medical conditions like diabetes, hypertension, and anemia were managed and controlled before surgery with physician's advice.

As a part of general work up for surgery in all patients, hemoglobin level, bleeding time, clotting time, urine, sugar albumin, microscopy, chest screening. ECG, Blood urea, Serum creatinine, RBS

was estimated. Specific investigations like FNAC, were done for all patients in the study group.

After evaluation of the tumor by clinical examination and specific investigations, a surgical plan was formulated. The final decision was taken per operatively by the surgeon. The specimen was sent for HPE.

Appropriate antibiotics and analgesics are administered post operatively for all cases. Drainage tube was removed on 3rd day and sutures on 7th day. Malignant tumors were referred to Kidwai Memorial Institute of Oncology, after surgery, for post operative radiotherapy.

The adjuvant treatment was decided depending on the final HPE report. Different modalities of treatment adopted in this study are

1. Surgery alone
2. Surgery and postoperative radiotherapy

The follow up period of these patients ranged from 3 months to 1 year. All patients were asked for follow up after 15 days of surgery then every month for first year then every 3 month in second year, to detect morbidity and recurrence. Long term follow up is necessary to study the tumor recurrence, which was not possible in this study.

Results

Following observations were made in 20 patients who presented with salivary gland neoplasms in this study.

The age incidence of the patients in the study group ranged from 16–60 years. Most of the patients in this series were in the 2rd to 3th decade. Benign tumours are more common in 20–30 years. Malignant tumors are common between 21 – 60 years. Mean age for benign tumour is 35 years and for malignant tumours 40 years (Table 1).

Table 1: Age tumour cross tabulation.

Age in years	Benign tumors	Malignant	Total No. of patients	% of total
11–20	3	0	3	15
21–30	9	1	10	50
31–40	3	0	3	15
41–50	1	0	1	5
51–60	2	1	3	15
Total	18	2	20	100

In this series, 7 (35%) patients were males and 13 (65%) were females. M:F ratio is 0.5:1. M:F ratio for benign tumours is 1:2. Male to female ratio for malignancy is 1:1.

Parotid gland is the most commonest site accounting for 90% of all cases. Among parotid tumours 88.88% are benign and 11.11% are malignant.

Only two cases are reported involving submandibular gland and minor salivary gland and both are benign (Table 2).

Table 2: Tumour site cross tabulation.

Salivary gland	Benign	Malignant	Total	%
Parotid	16	2	18	90
Submandibular	1	0	1	5
Sublingual	0	0	0	0
Minor salivary gland	1	0	1	5
Total	18	2	20	100

All patients presented with swelling. Features of rapid growth, pain, and associated facial paralysis were considered as signs of malignancy. One out of 20 patients presented with pain in swelling, that was malignant (Table 3).

Table 3: Symptoms of salivary gland tumors.

Symptom	No. of patients	Percentage
Swelling	19	95
Pain	1	5
Facial palsy	0	0
Recurrent tumor	0	0
Parapharyngeal mass	0	0
Cervical lymphnode swelling	0	0

Features of fixity, facial paralysis and nodal involvement were considered as signs of malignancy. Hard in consistency suggests malignancy. All patients in this study had only swelling and no other signs (Table 4).

Table 4: Signs of salivary gland tumors.

Signs	Benign	Malignant
Swelling	19	1
Fixity	0	0
Deep lobe involvement	0	0
Facial nerve involvement	0	0
Nodal involvement	0	0
Metastasis	0	0

Overall pleomorphic adenoma, constitute 80% of all salivary gland tumours. In parotid it constitute 77.77% of all tumours occurring in parotid gland.

Among malignant tumours squamous cell carcinoma constitute 5 % and myoepithelial tumour constitutes 5% of all tumours occurring in salivary

Table 7: Site distribution in various studies.

Series	Total	Parotid	Submandibular	Sublingual/Minor salivary gland
N. Saghravanian et. al. ⁶	165	10	15	140
Patric j et. al. ⁷	517	423	47	47
A Renehan et. al. ⁸	1194	1082	47	65
Nitin M et. al. ⁵	36	24	3	9
Present study	20	18	1	1

glands. One HPR was normal accounting for 5% and one was haemangioma (Table 5).

Table 5: Distribution of various types of salivary gland tumors.

Tumor	No. of Cases	% of total
Pleomorphic adenoma	16	80
Mucoepidermoid carcinoma	0	0
Warthin’s tumour	0	0
Adenoid cystic carcinoma	0	0
Epithelial myoepithelial carcinoma	1	5
Squamous cell carcinoma	1	5
Normal study	1	5
Haemangioma	1	5
Total	20	100

Discussion

In this study, a short series of 20 cases of salivary gland tumours, which were admitted to the surgical units of KIMS Hospital, during the period July 2013 and November 2015 studied. Detailed analysis has been done and has been compared with statistics available from Indian authors and other authors of the world.

Analysis of the above data shows that, in most studies, benign tumor occurs at younger age group than malignant tumor. Salivary gland malignancies present at an earlier age than most other malignancies. (Table 6)

Table 6: Average age distribution of salivary gland tumors in various studies

Series	Average age in year	
	Benign	Malignant
S Shashinder et. al. ³	52	52
Rekesh kumar et. al. ⁴	44	50
Nitin M et. al. ⁵	49	49
Nasrollah Saghravanian et. al. ⁶	37	45
Present study	35	40

Sex distribution: Results of this study resembles the study by S Shashinder et. al.³ Present study shows female preponderance. The male:female ratio is 0.5:1 in total. The male:female ratio for benign tumours is 0.5:1.

Site distribution in present study is in agreement with the results obtained in other series, with predilection to parotid. Minor salivary gland tumors are extremely rare and only one case is reported in the present study. (Table 7)

In this study, benign tumors are more common than malignant tumors, similar to other studies. In present study malignant tumours are reported only in parotid gland.

As per data shown swelling is the commonest symptom. Pain, facial palsy, lymph node involvement, fixity and deep lobe involvement suggests malignancy. Rekesh kumar et. al.[4]. reported that the incidence of pain, facial nerve, cervical lymph node in malignant tumours as 20.4%, 20.45% and 13.63% respectively. (Table 8)

Table 8: Clinical feature.

Sign/symptom	Rekesh kumar et. al. ⁴	Present study
Swelling	100%	95%
Pain	20.4%	5%
Facial palsy	20.45%	0
Cervical lymph node	13.63%	0
Recurrent tumour	0	0
Deep lobe involvement	1.13%	0

Diagnostic accuracy of FNAC is comparable to Spiro RH. and Amit H Studies for benign tumours.⁹

In the present study PA is the most common benign tumour. These findings were similar to the previous studies. (Table 9)

Table 9: Histological types of tumor.

Series	A Renehan et. al. ⁸	A.V Jones et. al. ¹⁰	Present study
PA	64.9%	44%	80%
BCA	1.2%	5%	0
WT	13.3%	4.6%	0
MEC	3.1%	11.5%	0
AdCC	6.2%	8.4%	0
SCC	1.2%	0.1%	5%
CA Ex PA	0	3.2%	0
ACC	1.8%	2.6%	0
EMC	0.08%	0.4%	5%

Conclusion

Most of the salivary gland tumours occur in females. Most of the salivary gland tumours arise in parotid gland. Most of them are benign and most of the benign tumours are pleomorphic adenoma. Swelling is the commonest symptom of salivary gland tumours. In submandibular gland most of the tumours are benign. Most of the malignant tumours presented with pain. Most of the benign tumours exhibit a slow growth pattern and malignant tumours exhibit a rapid growth pattern.

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Declarations

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Conflict of interest: None

Ethical approval: Permission for the study was obtained from the College authorities prior to commencement.

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