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Clinical profile of patients with salivary gland tumours

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Abstract

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. Risk factors linked to the development of salivary gland neoplasia include: radiation exposure; familial or genetic predisposition; tobacco use: strong association between tobacco use and the development of Warthin's tumor; microorganisms: Epstein Barr virus linked lymphoepithelial carcinoma; exposure to industrial chemicals. Total 20 cases clinically presenting as salivary gland tumours during the study period were taken for study. Each case was examined clinically and properly in a systematic manner. The cases were treated on their individual merits. 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. 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.

Keywords: Salivary gland tumours, Warthin's tumor, fine needle aspiration biopsy

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.

Risk factors linked to the development of salivary gland neoplasia include: radiation exposure; familial or genetic predisposition; tobacco use: strong association between tobacco use and the development of Warthin's tumor; microorganisms: Epstein Barr virus linked lymphoepithelial carcinoma; exposure to industrial chemicals [3].

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% [4].

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.

Treatment of salivary gland tumours need good surgical skills, sound anatomical knowledge to avoid complication, as there are vital structures with both parotid and submandibular gland.

Prognostic factors in salivary gland tumors include: clinical staging, microscopic grading, tumor location, facial nerve involvement, demographics [5, 6].

Methodology

Total 20 cases clinically presenting as salivary gland tumours during the study period were taken for study. Each case was examined clinically and properly in a systematic manner. The cases were 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.

Results

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

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 tumours are common between 21 - 60 years. Mean age for benign tumour is 35 years and for malignant tumours 40 years.

Table 2: Tumour sex cross tabulation

Sex	Benign	Malignant	Total	Percentage
Male	6	1	7	35
Female	12	1	13	65
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.

Table 3: Tumour site cross tabulation

Salivary gland	Benign	Malignant	Total	Percentage
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

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 4: 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

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 5: 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

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 6: Duration of symptoms

Duration of symptoms	Benign	Malignant	Total
1month -1 year	11	1	12
1-5 years	6	1	7
6-10 years	0	0	0
11-20 years	1	0	1
Total	18	2	20

Duration of symptoms ranged from 1 months to 15 years. 95% of all cases presented within 5 years.

Discussion

Table 7: Average age distribution of salivary gland tumors in various studies

Series	Average age in year	
	Benign	Malignant
S Shashinder <i>et al.</i> [7]	52	52
Rekesh Kumar <i>et al.</i> [8]	44	50
Nitin M <i>et al.</i> [9]	49	49
Nasrollah Saghravanian <i>et al.</i> [10]	37	45
Present study	35	40

Analysis of the above data shows that, in most studies, benign tumor occurs at younger age group than malignant tumor.

Table 9: Site distribution in various studies

Series	Total	Parotid	Submandibular	Sublingual/Minor salivary gland
N. Saghravanian <i>et al.</i> [10]	165	10	15	140
Nitin M <i>et al.</i> [9]	36	24	3	9
Present study	20	18	1	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 10: Frequency of benign and malignant salivary gland tumors in various Studies

Series	No. of cases	Benign (%)	Malignant (%)
N Saghravanian <i>et al.</i> [10]	165	51.5%	48.5%
Nitin M <i>et al.</i> [9]	36	75%	25%
Present study	20	80%	10%

In this study, benign tumors are more common than malignant tumors, similar to other studies.

Table 11: Frequency of site distribution of malignant tumors

Series	Parotid	Submandibular	Sublingual/Minor salivary gland
Nitin M <i>et al.</i> [9]	13%	2.77%	8.33%
Present study	10%	0	0

In present study malignant tumours are reported only in parotid gland.

Table 12: Comparison of Clinical features

Sign/symptom	Rekesh Kumar <i>et al.</i> [8]	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

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.* reported that the incidence of pain, facial nerve, cervical lymph node in malignant tumours as 20.4%, 20.45% and 13.63% respectively.

Conclusion

- The salivary gland neoplasms more common in females M: F 0.5:1. So out of which 7 patients were male and 13 patients were female. M:F ratio for benign tumours 1:2. And malignancy 1:1.

Salivary gland malignancies present at an earlier age than most other malignancies.

Table 8: Sex distribution of salivary gland tumors in various studies

Series	Male	Female	Total	Ratio (M:F)
S Shashinder <i>et al.</i> [7]	29	47	76	1:1.5
Rekesh Kumar <i>et al.</i> [8]	57	31	88	2:1
Nitin M <i>et al.</i> [9]	19	17	36	2:1.5
Present study	7	13	20	0.5:1

Results of this study resembles the study by S Shashinder *et al.* 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.

- Parotid gland is the most common site for salivary gland tumours, accounting for 90% of all cases. Among parotid tumours 88.88% are benign and 11.11% are malignant.
- Swelling is the commonest mode of presentation of salivary gland tumours. Pain was the common symptom associated with malignancy, which occurred in 5% of all malignant tumours.

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