

ORIGINAL RESEARCH

Prospective study of patients presenting with salivary gland tumors

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ABSTRACT

Only 15% of sublingual glands are benign, while 85% are cancerous. Compared to parotid glands, submandibular gland tumors have a higher frequency of malignancy and a worse prognosis. Radiation exposure, genetic or familial predisposition, tobacco use (there is a strong correlation between tobacco use and the development of Warthin's tumor), microorganisms (the Epstein-Barr virus is linked to lymphoepithelial carcinoma), and exposure to industrial chemicals are risk factors associated with the development of salivary gland neoplasia. Twenty cases in total that showed clinical signs of salivary gland tumors during the study period were included in the analysis. Every case was appropriately and methodically addressed from a clinical perspective. Each case was evaluated according to its own merits. Every patient had swelling at the time of presentation. Rapid increase in size, presence of pain, tumor with hard consistency, presence of facial paralysis and nodal involvement were thought to be signs of malignant change. Twenty patients were included in the study and one of them had malignant swelling with pain. In this study, all patients had only swelling and no other symptoms.

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

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INTRODUCTION

There are 750 tiny salivary glands and three large salivary glands: the parotid, submandibular, and sublingual glands [1]. Less than 1% of all neoplasms of the head and neck are salivary gland tumors. Salivary gland tumors are more common in women than in men and peak in the sixth or seventh decades of life. However, the exact demographics depend on the type of tumor.

Less than 1% of head and neck tumors are salivary gland neoplasms, making them extremely uncommon. Pleomorphic adenomas account for 80% of benign and 20% of malignant salivary gland neoplasms, which affect the parotid gland. Twenty-two percent of tumors are submandibular gland tumors, and eight percent of all major salivary gland tumors are sublingual gland tumors. Half of the submandibular salivary glands are benign, while the remaining 50% are malignant [2].

Only 15% of sublingual glands are benign, while 85% are malignant. Compared to parotid glands, submandibular gland cancers have a higher frequency

of malignancy and a worse prognosis. Radiation exposure, genetic or familial predisposition, tobacco use (there is a strong correlation between tobacco use and the development of Warthin's tumor), microorganisms (the Epstein-Barr virus is linked to lymphoepithelial carcinoma), and exposure to industrial chemicals are risk factors associated with the development of salivary gland neoplasia [3].

Similar to the thyroid gland, fine needle aspiration biopsy (FNAB) is the first diagnostic modality used to determine the pathology of a salivary gland mass. FNAB is an efficient and economical method with reported sensitivity rates of 81-98%, specificity rates of 60-75%, false-positive rates of 0-6%, and false-negative rates of 5-10% [4].

Usually salivary gland neoplasms have distinctive light microscopic features that make immunohistochemistry test is unnecessary for making a diagnosis. Exceptions to this rule, sometimes immunohistochemical analysis may be necessary for the diagnosis and differential diagnosis of salivary gland neoplasms because the immunohistochemical

antigenic profile of these tumors frequently correlates with the histogenetic origin of the tumor.

Good surgical technique and a basic understanding of anatomy are essential for the treatment of salivary gland tumors since both the parotid and submandibular glands share important features. Clinical staging, microscopic grading, tumor location and involvement of the facial nerve are the prognostic variables for salivary gland cancers [5, 6].

METHODOLOGY

Twenty cases in total that showed clinical signs of salivary gland tumors during the study period were included in the analysis. Every case was appropriately and methodically addressed from a clinical perspective. Each case was evaluated according to its own merits.

INCLUSION CRITERIA

All patients admitted to surgical wards of KIMS Hubli (august 2012 to august 2014) with signs and symptoms of salivary gland tumours.

EXCLUSION CRITERIA

- Patients refusing for surgical treatment.
- Paediatric patients (less than 14 years)
- Recurrent salivary gland swellings

Every patient who was hospitalized was assessed by recording their medical history, doing a comprehensive clinical examination, running standard laboratory tests, and doing specialized tests. When reviewing the patient's medical history, consideration

was given to factors such as the lump's longevity, rapid increase in size of the swelling, accompanying symptoms of facial nerve involvement, prior surgical procedures, and any underlying medical issues. Specifics mentioned in the proforma were noted with regard to the physical examination. The location, size, deep lobe enlargement, fixation to surrounding structures, nerve involvement, and regional lymphadenopathy were all considered significant factors. On the guidance of the surgeon, related medical disorders such as diabetes, hypertension, and anemia were treated and controlled prior to surgery.

All patients will have a general work-up that includes a chest screening, microscopy, urine, sugar albumin, bleeding and clotting times, and hemoglobin levels before surgery. Serum creatinine, blood urea, RBS, and ECG were all estimated. All individuals included in the study group had specialized tests such as FNAC.

A surgical plan was developed following a clinical examination and targeted examinations to evaluate the tumor. The final decision was taken per operatively by the surgeon. After the surgery the specimen was sent for HPE.

RESULTS

The patients included in the study group had ages ranging from 15 to 60. In this series, the majority of the patients were in their second or third decade. Benign tumors are more prevalent in 20–30 years age group (Chart 1).

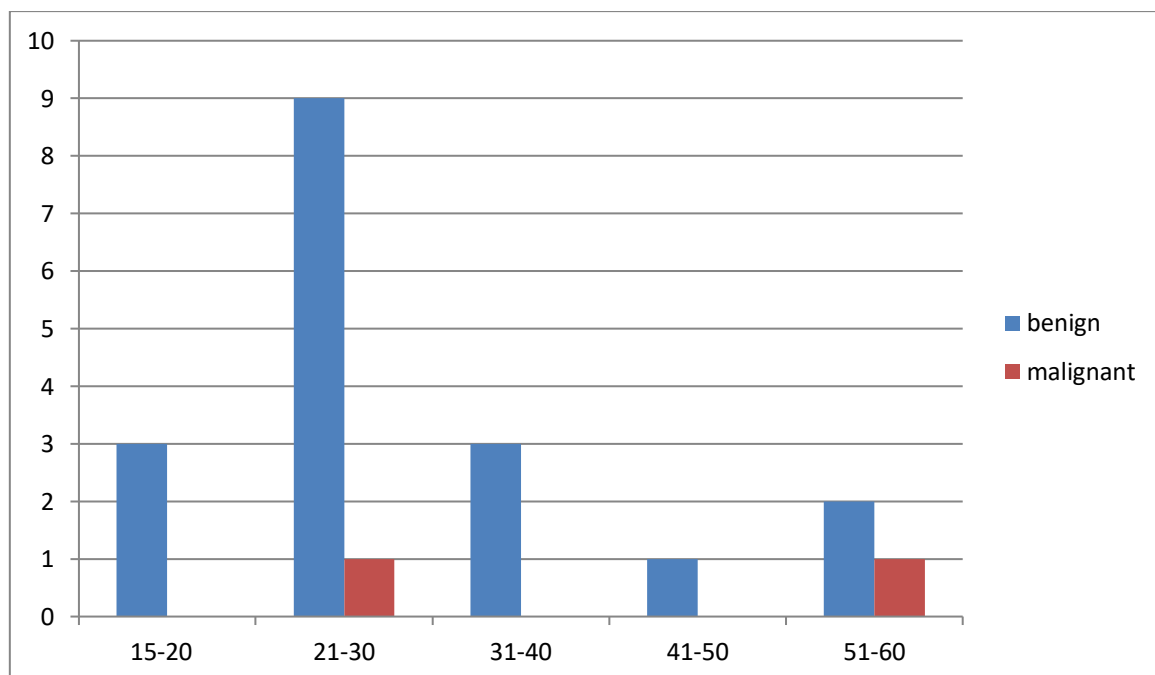


Chart 1: Age wise distribution of Benign and Malignant salivary gland tumors

Thirteen (65%) of the patients in this study (Chart 2) were female, and seven (35%) were male. The overall incidence of salivary gland tumors M:F ratio is 0.5 to 1. While for benign tumors, the M:F ratio is 1:2 and for malignant tumor the M:F ratio is 1:1.

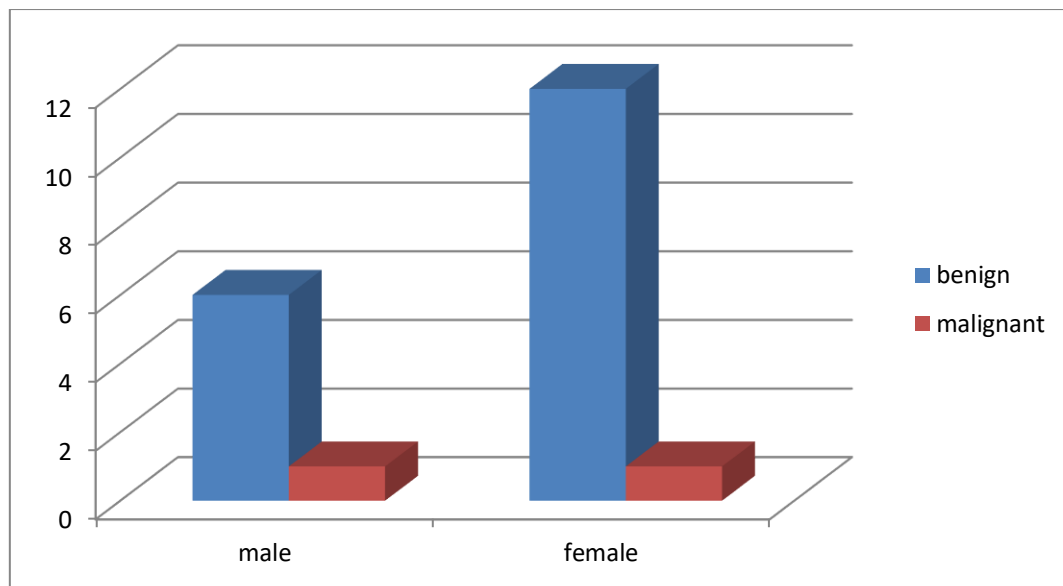


Chart 2: Benign and Malignant salivary gland tumors among different Sexes.

Table 1 shows that 90% of salivary gland tumors occur at the parotid gland, which is the most common location. Of parotid tumors, 11.11% are malignant and 88.88% are benign. There are just two documented occurrences of benign submandibular and minor salivary gland involvement.

Table 1: Site of salivary gland tumors

Site of tumor	Benign	Malignant	Total
Parotid	16	2	18
Submandibular	1	0	1
Sublingual	0	0	0
Other Minor salivary gland	1	0	1
Total	18	2	20

Every patient had swelling when they first arrived. One among the Twenty patients had swelling and pain. The symptoms and signs of malignant change like rapid growth, recent onset of pain, features of facial nerve paralysis, fixity to skin, hard swelling and nodal involvement were absent. In this study (Table 2), all patients had only edema and no other symptoms.

Table 2: clinical findings among different salivary gland tumors

Clinical findings		Benign tumor	Malignant tumor
Symptoms	Swelling	18	2
	Pain	0	1
	Facial palsy	0	0
	Parapharyngeal mass	0	0
	Neck swelling (nodal involvement)	0	0
Signs	Swelling	18	2
	Fixity to skin	0	0
	Deep lobe involvement	0	0
	Facial nerve palsy	0	0
	Nodal involvement	0	0
	Metastasis	0	0

DISCUSSION

Among the tissues in the human body, the salivary glands are likely the ones with the widest variety of pathologies. According to Barnes et al. (2005), there are several stromal types and at least 38 subtypes of epithelial tumors in the WHO salivary gland cancer classification[7]. Salivary gland tumors are uncommon despite this diversity; the majority of them (75–91%) arise in the main glands (Eveson and

Cawson, 1985). According to the research available to date, the majority of tumor sites are located in the parotid gland (approximately 80%) and submandibular gland (20%), with the sublingual gland seeing tumors only extremely infrequently. According to Eveson and Cawson (1985), minor salivary gland tumors of the lips, oral cavity, pharynx, larynx, trachea, nasal mucosa, and paranasal sinuses are rare (9–23%)[8]. Compared to benign tumors, malignant

salivary gland tumors are more common in smaller glands and are rarer overall.

This study, which examined 20 salivary gland tumors, found that, as compared to the other majority of previous studies[8,9], the majority of the tumors were benign (90%). The majority of research indicates that salivary gland tumors are more common in women, except in small number of studies showed male predominance [10,11]. Such higher incidence of tumors in females is observed by us.

According to Nasrollah Saghravanian et al [12] analysis, benign tumors tend to develop in younger age groups than malignant tumors. Our results are also show same observation of higher incidence of benign tumors at younger age (Mean age 35).

This study's site distribution, which favors parotid, is consistent with findings from other series. Small salivary gland tumors are incredibly uncommon; this study only reports one such occurrence (Table 3).

Table 3. Site distribution in other studies.

Study series	Total cases	Parotid tumor	Submandibular gland tumor	Sublingual or other minor salivary glands
Nitin M et al. [9]	36	24	3	9
Present study	20	18	1	1

According to research, the most prevalent symptom is swelling. A malignant tumor may be indicated by pain, facial palsy, involvement of lymph nodes, fixity, and deep lobe involvement. According to Rekesh Kumar et al [13], the incidence of cervical lymph node, facial nerve, and discomfort in malignant tumors were, respectively, 20.4%, 20.45%, and 13.63% (Table 4).

Table 4: Comparison of Clinical features

Clinical finding	Rekesh Kumar et al [13],	Present study
Swelling	100%	95%
Pain	20.4%	5%
Facial palsy	20.45%	0
Cervical lymph node	13.63%	0
Recurrent tumor	0	0
Deep lobe involvement	1.13 %	0

CONCLUSION

This study indicates that salivary gland neoplasms are more prevalent in females (M: F 0.5:1). Most of the salivary gland tumors are benign (90%) . The sex distribution for benign tumors is M:F ratio is 1:2. and malignant tumor is 1:1 ratio and this data needs further validation considering the small number (n=20) of patients in our study. 90% of salivary gland tumor instances occur in the parotid gland, making it the most prevalent location. Of parotid tumors, 11.11% are malignant and 88.88% are benign. Swelling is the most typical way that salivary gland tumors manifest themselves. With 5% of all malignant tumors, pain was the most prevalent symptom of malignancy.

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