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Original Research Article

Clinicopathological study of Salivary Gland Tumors

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Abstract

Background: The tumors of the salivary glands are uncommon head and neck neoplasms. The aim of this study was to evaluate the relative frequencies, types, site distribution and the histopathological features of salivary gland tumors.
Materials and Methods: This was a cross-sectional study of 50 patients of salivary gland tumors in the department of General Surgery in Victoria hospital attached to Bangalore Medical College and Research Institute, Bangalore. Tumors were analyzed based on demographics, anatomic location and histopathological type.
Results: Out of 50 cases, 39 (78 %) were benign and 11 (22 %) were malignant with M:F ratio of 1.5:1.Highest incidence of tumors were found in 3rd decade of life and next common age incidence have been noted in 2nd decade. Men were more prone to develop both benign and malignant parotid tumor than that of women. Pleomorphic adenoma was found to be the commonest benign tumor (52 %). The mucoepidermoid carcinoma was the most common malignant tumor (10 %). Parotid was the most common site for the location of tumors (70%) followed by submandibular (26%) and sublingual salivary glands (4 %).
Conclusion: Pleomorphic adenoma was the commonest salivary gland tumor observed in both sexes. Mucoepidermoid carcinoma was the most common malignant salivary gland tumor. The parotid gland was the most common site of origin in both benign and malignant tumors.
Keywords: tumors, neoplasms, salivary glands.

1. Introduction

Salivary gland tumors are relatively uncommon & account for approximately 3-6 % of all neoplasms of the head and neck [1-3]. Tumors commonly involve the major salivary glands; parotid gland accounts for 42.9 – 90 % and submandibular glands accounts for 8-19.5 % of salivary gland tumors [1-6]. Around 14-22 % of tumors affect minor salivary glands, mainly appearing in the palate.[1,2,6]

The majority of these neoplasms are benign and only 20% are malignant. In the parotid glands, 20-25% of the tumors are malignant. This rises to 40% for the submandibular gland and more than 90% for sublingual gland.[7,8]

The aim of this study is to describe the frequency of salivary tumors and characterizes them according to age, sex and anatomic location.

2. Methodology

A cross-sectional study was conducted for a period of one year in the department of General Surgery in Victoria hospital attached to Bangalore Medical College and Research Institute, Bangalore. A total of 50 patients of salivary gland swellings were included. Data collected include detailed history, physical examination, USG, cytological and histopathological investigations.

3. Results

In this series, 70% patients had parotid, 26% had submandibular and 4% had sublingual major salivary tumor. Highest incidence of tumors were found in 3rd decade of life and next common age incidence has been noted in 2nd decade. Men were more prone to develop both benign and malignant parotid tumor than that of women.

Table 1: Incidence of different tumors according to the site of origin:

Site of tumor	Frequency			Percentage (%)		
	Total	Male	Female	Total	Male	Female
Parotid gland	35	21	14	70	42	28
Submandibular gland	13	8	5	26	16	10
Sublingual gland	2	1	1	4	2	2
Total	50	30	20	100%	60%	40%

Table 2: Age wise distribution of salivary gland tumors

Age distribution (years)	Parotid	Submandibular	Sublingual	Total
11-20	1	0	1	2
21-30	10	2	1	13
31-40	11	5	0	16
41-50	8	3	0	11
51-60	0	2	0	2
61-70	5	1	0	6
Total	35	13	2	50

The most common presentation was swelling (100 %). Facial nerve paralysis was found in 1 patient in parotid gland malignancy.

4. Discussion

Salivary gland tumors comprise a morphologically diverse group of rare tumors. Their multifaceted clinical presentation, varied morphologic configuration & relatively unpredictable prognosis attract significant medical interest.[9]

The main complaint of patients with parotid gland tumors is swelling in the parotid region and below the ear lobe. In our study all patients had swelling. Salivary gland tumors most often present as painless enlarging mass. Most are located in parotid glands and most are benign. In both the major and minor salivary glands, the commonest type of benign tumor is pleomorphic adenoma.

In this series, 70% patients had parotid neoplasm, 26% had submandibular neoplasm and sublingual constituted the rest 4%. Among the parotid neoplasm, 28 cases were benign and 7 cases were malignant. Fiorella *et al* showed 79.8% and 13.8% of their patients had benign and malignant neoplasm in the parotid gland respectively.[10]

In the majority of case series, pleomorphic adenoma was the most common benign salivary gland tumor encountered in parotid and submandibular glands [11-15]. Similar findings were observed in the present study where pleomorphic adenoma was the most common benign salivary gland tumor at all location. Out of total 26 pleomorphic adenomas in our study, majority occurred in the parotid gland (20cases) followed by submandibular gland (6 cases).

Mucoepidermoid carcinoma was the most common malignant salivary gland tumor of parotid constituting 5 of all malignant salivary gland tumors in the present series. Mucoepidermoid carcinoma was reported to be the most common malignant salivary gland tumor of parotid by Richardson *et al*[13] and Spiro *et al*[16].

Table 3: Distribution according to Histopathological types

Parotid gland tumors	Total no of cases	Male	Female
Pleomorphic adenoma	20	11	9
Mucoepidermoid carcinoma	5	3	2
Acinar cell carcinoma	1	1	0
Parotid abscess	5	3	2
Parotid cyst	3	2	1
Carcinoma ex pleomorphic adenoma	1	1	
Total	35	21	14
Submandibular gland tumours			
Pleomorphic adenoma	6	4	2
Sialadenitis	5	3	2
Sialolithiasis	2	1	1
Total	13	8	5

Carcinoma ex pleomorphic adenoma is an infrequent aggressive malignancy that is believed to evolve from a pre-existing benign adenoma. It accounts for 3.6% of all salivary neoplasms and for 11.7% of salivary malignancies. We found only one case of carcinoma ex pleomorphic adenoma of the parotid gland. [17]

Table 4: Distribution of the patients by clinical features

Clinical features	Frequency	Percentage (%)
Swelling	50	100
Pain	8	16
Fever	4	8
Increased salivation	6	12
Ear lobe involvement	12	24
Deep lobe involvement	2	4
Facial nerve palsy	1	2
Palpable lymph nodes	7	14

Surgery is the mainstay of treatment for salivary gland tumors. In the case of parotid gland tumors, superficial parotidectomy with facial nerve dissection & preservation is the standard diagnostic procedure. This operation is also therapeutic in cases of benign or small malignant tumors limited to the superficial lobe of the gland. If the tumor involves the deep lobe of the parotid gland, a total parotidectomy is the procedure of choice to achieve adequate tumor clearance. In our study, 23 patients underwent superficial parotidectomy, 6 patients of parotid malignancy underwent total parotidectomy, 5 patients with parotid abscess underwent incision and drainage of abscess, one patient with carcinoma ex pleomorphic adenoma underwent superficial parotidectomy with extended supraomohyoid neck dissection.

Complete excision of the gland is the adequate treatment for submandibular gland tumors if the lesion is small, limited to the gland parenchyma, & also of benign or low grade malignant nature. More extensive tumors require excision of the gland bed and also adjacent soft tissues similar to a supraomohyoid neck dissection. In our study, all patients with submandibular gland tumors underwent excision of the tumor.

The complications of patients undergoing parotid surgery include damage to the facial nerve, bleeding, hematoma, seroma, sialocele, flap necrosis, fistula of the salivary gland, infection and frey's syndrome. In our study two patients had facial nerve palsy, one had marginal mandibular nerve injury and 6 patients had surgical wound infection.

5. Conclusion

Parotid gland was the most common site of origin of both benign and malignant tumors. Pleomorphic adenoma was the most common benign salivary gland tumor and mucoepidermoid carcinoma was the most frequent malignant neoplasm. Surgery forms the keystone in the management of salivary gland tumors since it serves both diagnostic and therapeutic purposes. The most important step is in the surgical planning & preoperative counselling.

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