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A STUDY ON SALIVARY GLAND TUMOURS

General Surgery

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ABSTRACT

Salivary gland neoplasms represent the most complex and diverse group of tumours encountered by the head and neck surgeons, their diagnosis and management are complicated by their relative infrequency, the limited amount of pre-treatment information available and wide range of biological behaviour seen. Salivary gland neoplasms are rare, constitute of 3-4% of head and neck tumours. The aim of the study was to determine the incidence and management of patients with salivary gland tumours. To know the incidence of major salivary gland tumors with respect to age, sex predilection, site distribution and their clinical modes of presentation. In this Two-year study, a series of 30 cases of salivary gland tumors, which were admitted to Government General Hospital, Kurnool during the period November 2016 to November 2018 were profiled for the study and patients were followed up postoperatively for a minimum period of 6 months, Most of the patients in this series (53.33%) were in the age group of 20-40 years, Male: Female ratio is 1:1.72. The parotid gland is the most common site accounting for 90% of all cases, followed by submandibular gland accounting for 10% of all salivary gland tumors. Superficial parotidectomy was the most commonly performed surgical procedure in 83.34% of cases. 6 patients developed facial palsy. Out of these, all were temporary and transient facial nerve weakness. In adults, the diagnosis of salivary neoplasm must be considered in any patient who presents with a salivary gland swelling. Salivary gland swellings most commonly occur in 20 – 40 years age group. Salivary gland tumors have a slight female preponderance. Most of the salivary gland tumors arise in the parotid gland. Most of them are benign, and most of the benign tumors are pleomorphic adenoma. MEC is the commonest malignant salivary gland tumor.

KEYWORDS

Superficial parotidectomy, submandibular, muco epidermoid cancer

INTRODUCTION

Salivary gland neoplasms represent the most complex and diverse group of tumours encountered by the head and neck surgeons, their diagnosis and management are complicated by their relative infrequency, the limited amount of pre-treatment information available and wide range of biological behaviour seen.

Salivary gland neoplasms are rare, constitute of 3-4% of head and neck tumours 70-80% of salivary gland neoplasms occur in the parotid gland, of which 80% are benign, 20% are malignant, out of 80% benign tumours are pleomorphic adenomas.[1] great deal of confusion existing in the proper management of salivary gland tumours. It is important to detect benign and malignant salivary gland tumours preoperatively to plan the treatment and to prepare the patient as well as a surgeon in order to have better surgery for malignant tumours. 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.

MATERIALS AND METHODS

All the patients with salivary gland tumors admitted to the Surgical Departments of Government General Hospital was included in this study. In this Two-year study, a series of 30 cases of salivary gland tumors, which were admitted to Government General Hospital, Kurnool during the period November 2016 to November 2018 were profiled for the study and patients were followed up postoperatively for a minimum period of 6 months, for recurrence and post-operative complications including recovery from nerve injuries

INCLUSION CRITERIA

- Patients with salivary glands swellings of Neoplastic Origin (Benign / Malignant).
- Patients with cardiopulmonary fitness for surgery.

EXCLUSION CRITERIA

- Salivary gland swellings due to inflammatory / non-inflammatory pathologies proved to be Non-neoplastic.
- Patients are refusing treatment.
- Pediatric patients (less than 12 years).
- Patients unfit for surgery, i.e. American Society of Anesthesiology (ASA) Grade V (Patient in imminent danger of death).

Each case was examined clinically and properly in a systematic manner. Data collected was recorded in a specifically designed Case Record Proforma pertaining to patient particulars, history details, clinical examinations, investigations, diagnosis, surgical procedures and follow-up. The patients were assessed pre-operatively for fitness for surgery. The cases were treated on their individual merits.

OBSERVATION AND RESULTS

1.Age incidence

Age in years	Benign tumors	Malignant tumors	Total no.of patients	% of total
13-20	03	00	03	10
21-30	06	00	06	20
31-40	10	00	10	33.33
41-50	03	00	03	10
51-60	05	00	05	16.67
61-70	01	02	03	10
TOTAL	28	02	30	100

Most of the patients in this series (53.33%) were in the age group of 20-40 years. Benign tumors were common in 20- 50 years. Malignant tumors are common after 40 years.

Tumor sex cross tabulation

In this series, 11 (36.7%) patients were males, and 19 (63.3%) were females. Male: Female ratio is 1:1.72.

SITE AND FREQUENCY DISTRIBUTION:

parotid gland is the most common site accounting for 90% of all cases, followed by submandibular gland accounting for 10% of all salivary gland tumors. No sublingual tumors were encountered in this study.

Salivary Gland	Benign	Malignant	Total	Percentage
Parotid	26	1	27	90
Submandibular	2	1	3	10
Sublingual	0	0		0
Total	28	2	30	100

Symptoms of salivary gland tumors

Symptom	No.of patients (per 30 pts)	Percentage

Swelling	30	100
Rapid growth in swelling	2	6.67
Pain	5	16.67
Facial palsy	0	0
Cervical lymph node swelling	1	3.34
Recurrent tumor	1	3.34
Para pharyngeal mass	0	0

All the patients presented with swelling. Features of rapid growth, pain, and associated facial paralysis were considered as signs of malignancy

DURATION OF SYMPTOMS

Duration of Symptoms	Benign	Malignant	Total
Within 1 year	1	1	2
1-5 years	15	0	15
5-10 years	10	0	10
10 yrs and more	2	1	3

Duration of symptoms ranged from 6 months to 11 years. 56.6% of all cases presented within 5 years. 6.67% of all cases presented within 1 year. 50% of malignancies presented within 1 year, while the remaining 50% presented 10 years or more later.

Types of Treatment modalities adopted in the study

Procedure	No of cases	Percentage
Superficial parotidectomy	25	83.34
Total conservative parotidectomy	2	6.67
Submandibular gland excision	2	6.67
ER+MRND	1	3.34

Superficial parotidectomy was the most commonly performed surgical procedure in 83.34% of cases. Total conservative parotidectomy was performed in 6.67% of the cases, and Submandibular gland Wide Excision in another 6.67% cases. 3.34% of patients with malignancy involving cervical node metastasis were treated by En-bloc resection and Modified Radical

Neck Dissection. Postoperatively, 6 patients developed facial palsy. Out of these, all were temporary and transient facial nerve weakness.

DISCUSSION

In this Two-year study, a series of 30 cases of salivary gland tumors, which were admitted to the surgical departments of Government General Hospital, Kurnool, during the period November 2016 to November 2018 were profiled for the study and patients were followed up postoperatively for a minimum period of 6 months. Detailed analysis has been done and has been compared with statistics available from Indian authors and other authoroftheworld.

- **Age distribution**

Analysis of the above data shows that, in most studies, benign tumor occurs at younger age group than a malignant tumor. Salivary gland malignancies present at an earlier age than most other malignancies. In our study, the mean age of presentation was 38.7 years for benign and 67 years for malignant tumors.

2. Sex distribution

Series	Male	Female	Total	Ratio (M:F)
Muhhamed Isa Kara et al.(2010)[104]	66	57	123	1.15:1
Silas OA et al.(2009)[105]	86	116	202	1:1.4
De Olivera et al.(2009)[111]	234	365	469	1:1.6
SunidaRewsuwan et al.(2006)[106]	76	104	180	1:1.37
Edda A.M Vuhahula et al (2004)[107]	113	148	268	1:1.31
Pablo Augustin Vagras et al (2002)[108]	50	74	124	1:1.48
Nitin M.Nagarkar et al.(2002)[112]	19	17	36	1.12:1
ShafkatAhrnad et al (2002)[109]	54	46	100	1.17:1
Present Study	11	19	30	1.1.72

Female preponderance is seen with overall male: female ratio in this study is 1:1.72, for benign tumors it is 1:2.1. This is in agreement in comparison with other studies by Silas et al., De Olivera et al., Sunida Rewsuwan et al. and Pablo Vargas Et Al.

3.Distribution of tumors:

In most studies, benign tumors of the salivary glands occur more frequently than the malignant tumors. Most studies have shown an average ratio between 3:1 between benign and malignant tumors.

Series	Average age in years	
	Benign	Malignant
Muhammed Isa Kara et al (2010)[104]	40	48
Silas OA et al. (2009)[105]	31	58
SunidaRewsuwan et al. (2006)[106]	49	49.9
Edda A.M. Vuhahula et al. (2004)[107]	33.5	43.1
Pablo Augustin Vagras et al. (2002)[108]	47.7	48.8
ShafkatAhrnad et al (2002)[109]	35.7	42.4
Renehan et al. (1996)[110]	55	59
Present study	38.78	67

Site distribution in various studies

Series	Parotid (%)	Submandibular (%)	Sublingual (%)	Total cases (%)
Muhhamed Isa Kara et al.(2010)[104]	61.6	16	0.8	125
SaedeAtarbashiMoghadam et al (2010)[113]	74.1	10.7	0.9	112
SunidaRewsuwan et al.(2006)[106]	80.1	15.4	1.1	180
Edda A.M Vuhahula et al (2004)[107]	34	33.2	0	268
Pablo Augustin Vagras et al (2002)[108]	70.9	24.2	0	124
Nitin M.Nagarkar et al.(2002)[112]	66.7	8.3	0	36
ShafkatAhrnad et al (2002)[109]	70	18	0	100
Present	90	10	0	30

Site distribution in the present study is in agreement with the results obtained in other series. Majority of salivary tumors originate from the parotid, followed by submandibular and minor salivary glands. Sublingual tumors are extremely rare, and no cases were reported in the present study.

5. Distribution of malignant tumors:

In keeping with statistics with most studies, the parotid malignancies contribute to 50% of all salivary gland malignancies.The submandibular salivary gland malignancies each contribute to 50% of salivary malignancies. No malignancies of sublingual glands were reported in this study, and their occurrence is extremely rare.**6.**

Series	Parotid no (%)	Submandibular no (%)	Sublingual no (%)	No of cases
Muhhamed Isa Kara et al.(2010)[104]	13 (43.3%)	4 (13.4%)	0 (0%)	30
SaedeAtarbashiMoghadam et al (2010)[113]	17 (60.7%)	3(10.7%)	1(3.6%)	28
SunidaRewsuwan et al.(2006)[106]	34 (70.8%)	8(16.7%)	2(4.1%)	48
Edda A.M Vuhahula et al (2004)[107]	49 (38.3%)	27(21.1%)	0 (0%)	128
Pablo Augustin Vagras et al (2002)[108]	15 (60%)	6(24%)	0 (0%)	25
Nitin M.Nagarkar et al.(2002)[112]	5 (55.5%)	1 (11.1%)	0 (0%)	9
ShafkatAhrnad et al (2002)[109]	7 (50%)	3 (21.4%)	0 (0%)	14
Present	1 (50%)	1(50%)	0 (0%)	2

6.Clinical features

Sign/symptom	Spiro RH[114] (1986)	Present study
Swelling	100%	100%
Pain – Malignant	10%	16.6%

Facial palsy	22%	0%
Cervical lymph node	23%	3.3%
Fixity to masseter/mandible	-	-
Deep lobe involvement	-	0%

As per data showed swelling is the commonest symptom. Pain, facial palsy, lymph node involvement, fixity and deep lobe involvement suggests malignancy.

MODALITIES OFTREATMENT:

Superficial parotidectomy is the commonest surgery done. Three patients each in our study underwent Total Conservative Parotidectomy and Wide Excision + neck dissection. Palliative radiotherapy was not

Treatment Modality	Pablo Augustin Vargas Et al. (2002)[108]	Present study
No of Patients	36	30
Superficial Parotidectomy	19	26
Total Conservative Parotidectomy	3	2
Radical Parotidectomy + RND	1	0
Wide Excision ± MRND	12	1
Palliative radiotherapy	1	0

given in our study.

9.Histological types oftumor

Series	Muhammed İsa Kara et al. (2010)[104]	Saede Atarbashi Moghadam et al. (2010)[113]	Sunida Rewsuwan et al. (2006)[106]	Pablo Augustin Vargas Et al. (2002)[108]	Present Study
Total Cases	125	112	180	124	30
PA	80	73	84	84	25
Warthin	6	10	38	13	3
Hemangioma	3	0	1	0	0
Lymphangioma	0	0	1	0	0
BCA	2	0	0	1	0
MEC	3	9	15	13	2
Ad CC	11	8	18	5	0
Adeno Carcinoma	5	2	1	1	0
Ca Ex PA	2	0	4	3	0
Oncocytoma	0	1	1	0	0
SCC	2	3	1	0	0

In this study, PA is the most common salivary neoplasm and accounts for Two- thirds of all salivary tumors, followed by Warthin's tumor. Among Malignancies, MEC is the most commonly occurring tumor. These findings were similar to the previous studies.

10. Complications of Surgery

Complication	ShashinderSet al117 (2009)	Owen ERTC et al118 (2005)	Nitin M. Nagarkar et al. (2002) 112	Present Study
Transient Facial Nerve Weakness	35%	38%	16.7%	23.3%
Permanent Facial Palsy	4%	9%	2.7%	0%
Wound Infection	5%	-	-	3.3%
Hematoma	1.3%	-		-
Recurrence	-	-	-	0%
Post gustatory sweating / Frey's Syndrome	-	11%	2.7%	-
Salivary fistula	-	2%	5.6%	-

The intimate relationship of the facial nerve to the parotid gland makes it vulnerable to injury at surgery, and hence, Postoperative facial nerve injury is the commonest complication of salivary (esp. parotid) gland surgery. Transient facial nerve weakness was the commonest complication in our study, which completely improved to normalcy over 4 to 6 weeks of follow-up.

CONCLUSION

Salivary gland swellings are rarely encountered in surgical practice. In adults, the diagnosis of salivary neoplasm must be considered in any patient who presents with a salivary gland swelling.Salivary gland swellings most commonly occur in 20 – 40 years age group.Salivary gland tumors have a slight female preponderance.Most of the salivary gland tumors arise in the parotid gland. Most of them are benign, and most of the benign tumors are pleomorphic adenoma.MEC is the commonest malignant salivary gland tumor.Swelling is the commonest symptom of salivary gland tumors.Most of the benign tumors exhibit a slow growth pattern.Features of rapid growth, pain, and associated facial paralysis are the common signs of malignancy.FNAC is a good tool in diagnosing salivary gland tumors.Surgery is the mainstay of treatment of salivary gland tumors, and Conservative Superficial parotidectomy is the most commonly performed surgery for benign parotid tumors. Most important complication of parotid surgery is facial palsy. In facial palsy, temporary facial palsy is the one encountered most.The rarity of these tumors and the need for long term follow-up were the constraints of this study.

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