A COMPREHENSIVE STUDY OF SALIVARY GLAND TUMOURS IN A TERTIARY CARE CENTRE OF CENTRAL INDIA

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ABSTRACT

BACKGROUND

Salivary gland tumours are very common in India. The present study has analysed the incidence, clinical profile and differential diagnosis of various salivary gland tumours.

The aims of this study are to know the incidence of various salivary gland tumours in different age groups and in both sexes to know the distribution of different benign and malignant tumours in each variety of salivary glands.

MATERIALS AND METHODS

This study was conducted in a prospective and retrospective ways covering the patients admitted with salivary gland tumours in a period of 6 years from 2000 to 2006. Total 59 patients were enrolled and their data was recorded.

RESULTS

Salivary gland tumours are most common in 4th and 5th decade of life. The incidence of salivary gland tumours is almost equal in both sexes with slight female preponderance. The salivary gland most commonly found involved is the parotid. Benign neoplasms are the most common swellings of salivary glands. The most common benign tumour of salivary gland is pleomorphic adenoma. The most common location of pleomorphic adenoma is the parotid gland. The most common malignant tumour of salivary glands is mucoepidermoid carcinoma.

CONCLUSION

The present study gives some important data about salivary gland tumours and emphasises the need for a more bigger study involving a larger number of patients.

KEYWORDS

Salivary Gland Tumours, Parotid, Submandibular, Pleomorphic Adenoma.

HOW TO CITE THIS ARTICLE: Jain R, Kansal A. A comprehensive study of salivary gland tumours in a tertiary care centre of Central India. J. Evolution Med. Dent. Sci. 2017;6(15):1200-1203, DOI: 10.14260/Jemds/2017/261

BACKGROUND

It is astonishing to consider how little is known of the pathological processes that affect any organ that is so near the surface, so accessible for clinical examination, so easy biopsies, so simple to obtain secretions for analysis and that organ is salivary gland.

Controversies surrounding the diagnosis and management of salivary gland masses often involve the limits of our technology. The primary controversy often lies not in how to treat a given disease, but by what means the diagnosis can be established without doubt. The present study is a modest attempt to find out the reasonable solutions of existing controversies.

The major salivary glands include parotid glands, submandibular glands and sublingual glands. There are also approximately 750 minor salivary glands scattered throughout the submucosa of the oral cavity, oropharynx, hypopharynx, larynx, parapharyngeal space and nasopharynx.

Financial or Other, Competing Interest: None.

Submission 08-01-2017, Peer Review 04-02-2017,

Acceptance 10-02-2017, Published 20-02-2017.

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DOI: 10.14260/Jemds/2017/261

Salivary gland neoplasms are relatively uncommon constituting 3 to 4% of all head and neck neoplasms. The incidence of salivary gland tumours is 1 to 2 cases per 100,000 people. Majority of them arise in parotid gland (70%), whereas tumours of submandibular glands (22%) and sublingual and minor salivary glands (8%) are less common. Salivary gland neoplasms most often present as slow growing, well-circumscribed masses. Symptoms such as pain, rapid growth, nerve weakness and paraesthesias and signs of cervical lymphadenopathy and fixation to skin or underlying muscles suggest malignancy.

Present study is to know the occurrence and incidence of various types of salivary gland tumours in patients presenting to M. Y. Hospital. The clinical presentation of these tumours is analysed. The differential diagnosis of these tumours is discussed. The histopathological examination reports of all cases are followed and the results analysed.

MATERIALS AND METHODS

M. Y. Hospital is a big tertiary care hospital covering a wide area with large number of admission of patients of various surgical disorders. The study was carried out in the Department of Surgery, M. G. M Medical College and M. Y Hospital, Indore.

Time Period

The total duration of the study was 6 years, 3 years retrospective and 3 years prospective.

- A. Retrospective study - Including the patients admitted between the years from 2000 to 2003.
- B. Prospective study - Including the patients admitted between the years from 2004 to 2006.

For prospective study, the patients of salivary gland tumours admitted in the Department of Surgery were included. For retrospective study, 3-year data of patients of salivary gland tumours was reviewed.

Inclusion Criteria

1. Patients with swelling in parotid, submandibular, sublingual and minor salivary glands.
2. Those patients who were willing to take part in the study.
3. Patients who have taken complete treatment in the hospital.

Exclusion Criteria

1. The patients who were not willing to take part in the study.
2. The patients who have not taken complete treatment due to financial/social constraints.
3. The pregnant females.
4. The patients with immunodeficiency diseases.

Protocol for Workup

1. Clinical symptoms and signs.
2. Lab investigations like Hb, T and D, Serum Urea, Creatinine, RBS.
3. F. N. A. Cytology/Biopsy of the salivary gland swelling.
4. Imaging studies - X-ray, USG, CT-Scan, Sialography, MRI etc. as per the need.
5. Treatment Modalities.
6. Histopathological Examination report.

Retrospective Study

In this study, case records of the patient admitted in the surgery wards from 2000 to 2003 were studied and their details were carefully recorded.

Prospective Study

In this part of the study, patients of salivary gland tumours admitted in Surgery Wards from 2004 to 2006 were examined clinically, investigated, followed during operative procedure and followed till their discharge and at followup visits.

RESULTS

This present study on salivary gland tumours was carried out in the admitted patients of M. Y. Hospital, Indore.

Total no. of cases was 59 (n). Total no. of cases in the retrospective study were 30 and the total no. of cases in the prospective study were 29. The following observations were made.

Sex	Male	Female
Retrospective Study	17	13
Prospective Study	12	17
Total	29 (49.15%)	30 (50.85%)

Table 1. Table showing Sex Distribution of Cases

Age Groups	Retrospective Study	Prospective Study	Total
00 - 15	2	4	6 (10.17%)
16 - 30	3	6	9 (15.25%)
31 - 45	13	12	25 (42.37%)
46 - 60	7	3	10 (16.25%)
61 - 75	5	2	7 (11.86%)
> 75	-	2	2 (3.39%)
Total	30	29	59

Table 2. Table showing Age Distribution of Cases

Salivary Gland	Retrospective Study	Prospective Study	Total
Parotid	20	20	40 (67.79%)
Submandibular	8	8	16 (27.12%)
Sublingual	-	1	1 (1.69%)
Minor Salivary Glands	2	-	2 (3.39%)
Total	30	29	59

Table 3. Table showing the Distribution of Salivary Gland Involved

	Benign Neoplasm	Malignant Neoplasm
Retrospective	24	6
Prospective	21	8
Total	45 (76.27%)	14 (23.72%)

Table 4. Table showing the Diagnosis of Cases

Pathological Variety	Parotid Gland	Sub-mandibular Gland	Sublingual Gland	Minor Salivary Glands	Total
Pleomorphic Adenoma	28 [71.79%]	10 [25.64%]	0	1 [2.56%]	39
Warthin's Tumour	4 [100%]	0 [0.00%]	0	0 [0.00%]	4
Basal Cell Adenoma	1 [100%]	0 [0.00%]	0	0 [0.00%]	1
Myo-epithelioma	1 [100%]	0 [0.00%]	0	0 [0.00%]	1
Total	34	10	0	1	45

Table 5. Table showing the Location of 45 Benign Salivary Gland Tumours [Retrospective and Prospective]

Pathological Variety	Parotid Gland	Sub-mandibular Gland	Sub-lingual Gland	Minor Salivary Glands	Total
Muco-epidermoid Carcinoma	5 [83.33%]	1 [16.66%]	0	0	6
Adenoid Cystic Carcinoma	0	2 [100.00%]	0	0	2
Carcinoma Ex-Pleomorphic Adenoma	1 [33.33%]	1 [33.33%]	0	1 [33.33%]	3
Acinic Cell Carcinoma	0	1 [50.00%]	1 [50%]	0 [0.00%]	2
Adeno-carcinoma NOS	0	1 [100%]	0	0	1
Epithelial-Myoepithelial Carcinoma	0	0	0	0	0
Papillary Cystadenocarcinoma	0	0	0	0	0
Total	6	6	1	1	14

Table 6. Table showing the Location of 14 Malignant Salivary Gland Tumours [Retrospective and Prospective]

DISCUSSION

The retrospective study was done from the year 2001 to 2003 and the prospective study was done from 2004 to 2006. In the retrospective group 30 cases were included and in the prospective group 29 cases were included. Thus, total 59 cases were studied.

In the retrospective group males predominated with 56.6% of the total cases, whereas females were 43.3%. In the prospective group females predominated with 58% of the total cases, whereas males were 42%. However, in the comprehensive study, the sex ratio was found to be almost equal with female comprising 51% and male 49%. Thus, the sex ratio was 0.96 with slight female preponderance. In a similar study done by Pablo Augustin et al, they have found a higher prevalence of salivary gland tumours in females [60%].¹ In contrast, Frade Gonzalez et al² observed a predominance of salivary gland tumours in the male group (58.75%).

The incidence of salivary gland neoplasms was most common in the 4th and 5th decade with 42.4% of cases belonging to age group 31 - 45 years, which is similar to the finding observed by Pablo Augustin et al,¹ while Frade Gonzalez et al² found highest incidence in the 7th decade of age.

Next high incidence was found in the age group 46 - 60 years with 16.3% of cases. The incidence was least common in the age group > 75 years with only 2 cases (3.4%). The incidence in paediatric age group (00 - 15 years) was also less with only 6 cases (10.2%).

In our study, the most common salivary gland involved was the parotid gland. It was involved in total 40 cases (67.8%). The next common salivary gland in the frequency of involvement was submandibular gland, which was involved in 27.1% of cases. The sublingual and minor salivary gland involvement was very rare. They were involved only in 1.7% and 3.4% of cases respectively. Similar observation was made in a study conducted by Eveson JW et al³ and Pinkston JA et al.⁴

In this study, the benign neoplasms of salivary gland were found to have higher incidence as compared to malignant neoplasm and non-neoplastic swellings; 28 cases i.e. 47.5% were benign neoplasms of salivary glands, whereas malignant neoplasms comprised 18.6% of cases. We found the similar findings in the histopathological analysis done at the Armed Forces Institute of Pathology.⁵

The incidence of malignancy was found to increase in the extremes of the age groups, i.e. in the paediatric and the geriatric age groups. Out of the total 6 no. of cases in the paediatric age group, 2 were malignant (33%). Out of the total 9 no. of cases in the age group > 60 years, 6 were malignant (66%). Similar findings were observed in a study conducted by Narala Srivani et al.⁶

Also, the incidence of malignancy was more in the sublingual and minor salivary glands as compared to parotid and submandibular salivary glands. Out of the 2 cases of minor salivary gland tumours, 1 was malignant (Incidence 50%). Only 1 case of sublingual gland tumour was noticed in our study and it was malignant (Incidence 100%). Out of the 40 cases of parotid tumours, 6 were malignant (15%). Out of the 16 cases of submandibular tumours, 6 were malignant (37.5%). The preponderance of malignant tumours in

sublingual and minor salivary glands was also observed in the study conducted by Narala Srivani et al.⁶

The most common benign major and minor salivary gland tumour was the pleomorphic adenoma, which constituted 66% of the total cases studied (39 cases out of 59 studied). In our study, we found that the most common location of pleomorphic adenoma was the parotid gland (71.7%) followed by the submandibular gland (25%). We found 1 case of pleomorphic adenoma in minor salivary gland, but we did not find any case of pleomorphic adenoma in sublingual glands.

In our study, the most common malignant salivary gland tumour was Mucoepidermoid Carcinoma, which was found in 6 cases [42.85%] out of total 14 cases of malignant tumours. Similar observation was made in the study conducted by Pinkston JA et al,⁴ who observed that Mucoepidermoid carcinoma was the most frequent malignant tumour (51.3%). This observation is in contrast to the study conducted by Nagler et al,⁷ in which they have found that the most commonly encountered malignant tumour was adenocarcinoma [including the acinic-cell and low-grade polymorphous subtypes] [27.7%]. In the study conducted by Narala Srivani et al,⁶ they have found that the most common malignant tumour was adenoid cystic carcinoma followed by carcinoma, ex-pleomorphic adenoma and polymorphous low-grade adenocarcinoma.

CONCLUSION

The main Results of our Study are -

1. Salivary gland neoplasms are relatively uncommon constituting 3 to 4% of all head and neck neoplasms. The incidence of salivary gland tumours is 1 to 2 cases per 100,000 people.
2. The incidence of salivary gland tumours is almost equal in both sexes with slight female preponderance.
3. Salivary gland tumours are most common in 4th and 5th decade of life. Incidence is rare in extremes of life, i.e. in the childhood and the old age.
4. The salivary gland most commonly found involved is the parotid followed by submandibular gland. Frequency in minor salivary gland is very less, while the sublingual gland tumours are rare.
5. Benign neoplasms are the most common swellings of salivary glands. Malignant neoplasms and non-neoplastic swellings are less frequently seen.
6. Incidence of malignant tumours is high in the paediatric and old age patients. Most of the neoplasms in the middle age group are benign.
7. Most of the parotid and submandibular gland tumours are benign, while the majority of sublingual and minor salivary gland tumours are malignant.
8. The most common benign tumour of salivary glands is pleomorphic adenoma. The most common location of pleomorphic adenoma is the parotid gland.
9. The most common malignant tumour of salivary glands is mucoepidermoid carcinoma.
10. In this study, we have done a modest attempt to solve some unresolved issues regarding salivary gland tumours. We believe that there is a need for further study on this subject.

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