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Original Articles

Malignant Salivary Gland Neoplasm-clinicopathological Study

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Abstract:

Salivary gland neoplasm constitute about 10% of all head & neck neoplasm which represent 3% of all neoplasm of the body. In this study 50 patients of salivary gland neoplasm were studied to observe the frequency & clinicopathological pattern. Among 50 cases, 39(78%) were parotid neoplasm, 4 (8%) were submandibular neoplasm and 7 (14%) were minor salivary gland neoplasms. Among the parotid neoplasms, 13 (33.33%) were malignant neoplasms. Whereas in the submandibular neoplasm 2 (50%) were malignant neoplasms and for minor salivary glands tumour 4 (57.14%) were malignant neoplasms.

Forty nine cases undergone some form of surgery. Most of them were treated by superficial or total conservative parotidectomy or radical parotidectomy/ submandibular gland excision with or without block dissection.

Key word: *Salivary gland neoplasm, Adenoid cystic carcinoma, Facial nerve.*

Introduction

Cancer is one of the few disease still unconquered inspite of relentless efforts of the scientists all over the world. It causes about 12% deaths throughout the world.[1]

Neoplasm of the salivary gland is an ancient disease. It was first described by kareka in 1952. Throughout the world salivary gland neoplasm constitute about 10% of all head and neck neoplasms which represents 3% of all neoplasm in the body.[2,3]

Among the salivary gland neoplasms, parotid gland is the commonest site (about 75%)[4], of these almost 80% are benign and 80% of benign tumours are plemoriphic adenomas.[5] Submandibular gland is the second most common site of neoplasm constituting about 10 to 19%.[6] Tumours of the sublingual and minor salivary glands are uncommon representing about one-tenth of all neoplasm of salivary glands.[7]

It is important to have a proper broad based study of neoplasm of salivary gland to find out incidence of malignancy among salivary neoplasms. There are several histological types of malignancy affecting the salivary glands, of which being relatively lower in the parotid gland. Malignancy is far more frequent in the submandibular, sublingual and minor salivary glands.

So far it is known, a complete study for frequency of malignancy in salivary gland neoplasm was not carried out previously in our country. This study was carried out to find the frequency of malignancy among salivary gland neoplasms, their histological types, age and sex distribution of the patient, probable aetiological factors, symptoms, specific site of malignancy and compare the findings with those of previous studies carried out in our country and abroad.

Materials and Method :

This was a cross sectional study carried out in the department of Otolaryngology-Head & Neck Surgery of BSMMU & DMCH during the period of September, 2006 to March, 2007. Study has been carried out on a total number of 50 patients of salivary neoplasm of different age group. Data were collected by taking history, physical examination & necessary investigation.

Aims and Objectives

1. To see the frequency of malignancy among salivary gland neoplasms,
2. To see the demographic features of the cases.

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3. To observe the clinical presentation, specific site of origin, histological types of the malignancy, frequency of lymphatic metastasis.

Results

The present series of 50 cases included the varieties of salivary gland tumours both benign and malignant. But no tumour of sublingual gland was found at that time and likewise does not included in this series. Out of all cases, parotid tumours (both benign and malignant) was 39 (78%), submandibular tumour was 4 (8%) and minor salivary gland was 7 (14%) in numbers.

Carcinoma was common in older age groups and rare in children but benign neoplasm in children and adolescent was not so uncommon. Highest incidence of tumours were found in 5th decade (50-60 yrs) of life as found in 26% of cases. Next common age incidence have been noted in 3rd decade of life 22%.

Out of total 39 parotid tumours, 26(66.67%) were benign and 13(33.33%) were malignant tumours and minor salivary gland shows 3(42.86%) benign and 4(57.14%) malignant tumours whereas submandibular gland shows 2(50%) benign and 2(50%) malignant tumours.

Out of 13 malignant parotid tumours, 10 (25.64%) were mucoepidermoid carcinoma, and 3 (7.70%) were carcinoma in pleomorphic adenoma. In case of submandibular gland tumour, out of 2 benign tumours all were pleomorphic adenoma (50%) and out of 2 malignant tumours all were adenoid cystic carcinoma.

Out of 7 minor salivary gland tumours 3 were benign (42.86%) and 4 were malignant (57.14%). The malignant being 2 (28.57%) adenoid cystic carcinoma and 2 (28.5%) adenocarcinoma.

Most of patients (n= 24) were admitted in hospital within 4-8 years of their first symptoms. The second largest group of patients (n= 13) were admitted within 2-4 years of appearance of 1st symptoms.

The most common and constant presentation was swelling. It was found in all of the cases i.e.100%. Pain was important symptom of malignancy. Overall 13 patients had pain, out of which 9 in parotid gland malignancy, 1 in submandibular and 3 in minor salivary gland malignancy. Facial nerve paralysis was found in 3 cases, all were in parotid gland malignancy. There were 5 cases who showed lymphatic metastasis 3in parotid malignancy and 2 in submandibular gland malignancy.

Most of the tumours of parotid malignancy were in stage-3 (61.54%) and all submandibular gland malignancy (2) were in stage-3. Minor salivary gland presented equal number in stage-2 (50%) and stage-3 (50%).

Table-I

Age distribution (n = 50)

Age in years	No of case	Percentage
10-20 yrs.	2	4%
21-30 yrs.	10	20%
31-40 yrs.	11	22%
41-50 yrs.	10	20%
51-60 yrs.	13	26%
61-70 yrs.	2	4%
71-80 yrs.	2	4%
Total	50	100%

Table – II

Frequency of location of different tumour (n = 50)

Incidence of tumour	No of cases	Percentage
Parotid gland	39	78%
Submandibular gland	4	8%
Minor salivary gland	7	14%
Sublingual gland	-	-

Table-III

Frequency of benign and malignant tumours

Gland of origin	Type of tumour	No. of cases	Percentage
Parotid gland	Benign	26	66%
	Malignant	13	33.33%
Submandibular gland	Benign	2	50%
	Malignant	2	50%
Minor salivary gland	Benign	3	42.86%
	Malignant	4	57.14%

Table-IV

Histopathological Types

Tumour Type	Parotid gland N(%)	Submandibular gland N(%)	Minor salivary gland N(%)
Benign tumour :			
Pleomorphic adenoma	22(56.41%)	2(50.0%)	3(42.86%)
Warthin tumour	2(5.2%)	-	-
Haemangioma	2(5.12%)	-	-
Total	26	-	-
Malignant tumour :			
Mucoepidermoid carcinoma	10(25.64%)	-	-
Adenoid cystic carcinoma	-	2(50.0%)	2(28.57%)
Carcinoma in pleomorphic adenoma	3(7.70%)	-	-
Adenocarcinoma	-	-	2(26.57%)

Table-V

Duration of symptom before admission into Hospital

Duration of symptom	Pleomorphic adenoma		Haeman-gioma		Warthin's tumours		Adenoid cystic carcinoma		Mucoepid-ermoid carcinoma		Carcinoma in pleomorphic		adenoma Adeno carcinoma	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1-2 yrs.	1	4.55	1	50			1	50						
2-4 yrs.	4	18.18	1	50	1	50	1	50	2	20	2	66.69	2	100
4-8 yrs.	16	72.72			1	50			6	60	1	33.33		
8-12 yrs.	1	4.55							2	20				

Table-VI

Symptoms on admission

	No. of Cases	Parotid gland		Submandibular gland		Minor Salivary Gland	
		Benign	Malignant	Benign	Malignant	Benign	Malignant
1. Swelling	50	26	13	2	2	3	4
2. Pain	13	-	9	-	1	-	3
3.Facial nerve paralysis	3	-	3	-	-	-	-
4. Skin involvement	2	-	1	-	1	-	-
5. Trismus	2	-	2	-	-	-	-
6. Palpable lymph mode	5	-	3	-	2	-	-

Table-VII

Staging of carcinoma of salivary gland

	Parotidgland		Submandibular gland		Minor salivary gland	
	No.	%	No.	%	No.	%
Stage-1	-	-	-	-	-	-
Stage-2	4	30.77	-	-	-	50
Stage-3	8	61.54	2	100	2	50
Stage-4	1	7.79	-	-	-	-
Total	13	100	2	100	4	100

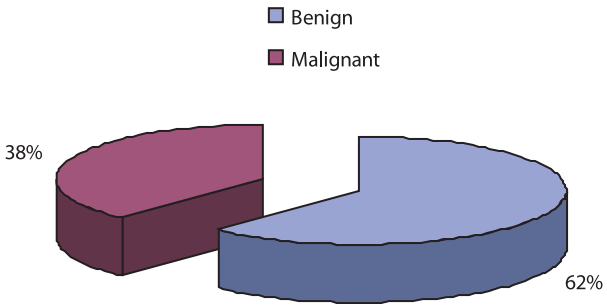

Fig.-I: *Overall malignancy rate among salivary gland neoplasm*

Discussion

In the present series, out of 50 cases, there were 39 (78%) parotid neoplasm, 4 (8%) submandibular neoplasm and 7 (14%) minor salivary gland neoplasm. Among the parotid neoplasms, 13 (33.33%) cases were malignant neoplasms. Among submandibular neoplasms 2 (50%) cases were malignant while in minor salivary glands tumour 4 (57.14%) cases were malignant. Among the benign parotid tumours 56.41% was pleomorphic adenoma which corresponds with the higher incidence in the different western series.[6,18] Incidence of haemagnioma of parotid is relatively higher in this study 2(5.12%).

Among the submandibular salivary gland neoplasms benign tumour was 2 (50%) in this series compared to 48.2% in Evans and Cruickshank (1970). Benign tumours of minor salivary gland in this study 3 (42.86%) and malignant was 4 (57.14%) compared to that of other study which shows malignancy rate as 55.0%.[7] Fifty percent of submandibular gland neoplasm was malignant & that for parotid gland was 33.33%. Incidence of malignancy was higher in submandibular gland which conforms with other studies.[2,19]

Among the parotid malignancy, 10(25.64%) were mucoepidermoid carcinoma & 3(7.70%) were carcinoma in pleomorphic adenoma. Mucoepidermoid tumours in this study was the commonest malignant tumour although other studies revealed it as the second most common malignant tumour.[2,18]

Neoplasm of salivary gland may occur at any age, Marshall and Miles (1974) showed malignant tumours usually appear in later age group but may be seen in the adolescents. In this study highest number of patients were in the 5th decade (26%) which correlate with other studies.[2,7]

Regarding the sex distribution of different neoplasms, benign parotid tumours was more common in male (M:F= 1.8:1). Malignant parotid neoplasms was also more common in male (M:F= 1.8:1). All of benign submandibular salivary gland neoplasms were male. Among the malignant submandibular neoplasms, 50% were in male. Among the benign minor salivary gland tumour, 2 (66.67%) were male and 1(33.33%) was female. Out of 4 malignant tumours of the minor salivary gland 50% was male. In this study for both benign and malignant neoplasm, male was the predominant sex although other studies experienced slight female preponderance.[2,5,7]

The benign tumour generally have no pain or other distressing symptoms for which they do not care for it. Moreover they fear for the operative treatment. In under developed countries like us, due to poor socio-economic conditions and non availability of modernized hospital facilities nearby- patient often report to local quackes and village doctors for their treatment before attend to a concerned specialist, for this reasons patient often reports late and sometimes with complication of the disease. In present series, most patients reported-within to 4 to 8 years of the disease.

In present series, all the cases presented with swelling. Size of the swelling in most pleomorphic adenoma were more than 2 cm and malignant tumours varied between 2 to 4cm. Patient with longer duration & larger swelling presented in more advanced stage. Most of the patient of malignant tumours admitted in the hospital at stage-3 is supported by others.[18]

Regarding investigation in present series, FNAC was done in all 50 cases (100%), out of which 44(88%) was positive, 3 cases (6%) was false positive and 3 cases (6%) was doubtful results. Post operatively 49(98%) cases were confirmed by histopathological examination.

Forty- nine patients in this series were subjected to treat by some forms of surgery. Most of them were treated by superficial or total parotidectomy/ submandibular gland excision ± block dissection, partial maxillectomy (in minor salivary gland tumour) + radiotherapy. Only one case was inoperable and was treated by radiotherapy.

References

1. WHO, Technical Report (1979), No-632, Cancer,In Park's Text Book of Preventive and Social Medicine, M/s Banarisas Bhanot publishers 1997, Page:281-9.
2. Gleeson M. Malignant Salivary tumours. In Scott Brown's Otolaryngology, 6th edition, Butterworth-Heinemann, Oxford 1997 Page-5/21/1-13.
3. Arotiba GT. Salivary Gland neoplasm in Lagos, Nigeria, West African Journal of Medicine, 1996; 15 (1) : 11-17.
4. Reneton R, Gleave EN, Hancock BD. Follow up of over 1000 patients with salivary gland tumours treated in a single centre. Br. J Surg, 1996; 83 (17): 50-4.
5. Ever JM, Cawjon RA. Salivary Gland Tumour; a review of 2410 cases with particular reference to histological types, site, age, and sex distribution, Archives of Otololaryngology, 1995; 146 : 51-8.
6. Shaheen OH. Benign Salivary Gland Tumours; Scott-Brown's Otolaryngology. 6th edition, Butterworth-Heinemann, Oxford 1997 Page- 5/ 20/1-18.
7. Bal MS, Prabhakar BR, Kapue K. Tumours of Minor Salivary Glands- A report of 154 cases. Indian Journal of otolaryngology and Head and Neck Surgery, 1993; 2(4): 226-9.
8. Peter L, Williams: The Alimentary system, In Gray's Anatomy; 37th edition, Churchill Livingstone, Edinburgh 1989, page-1286-98.
9. Romanes JG. The parotid region and submandibular region, In: Cunninghum's Manual of Practical Anatomy, vol. 3: Head & Neck & Brain; 15th edition, ELBS, Oxford University press, page: 115-35.
10. Datta A K. Salivary glands, in Essential of human anatomy, Head & Neck, 3rd edition, Current book international, Unik Graphic, Page: 143-52.
11. Arthus C, Guyton MD. Secretory function of the Alimentary tract, In Text book of Medical Physiology, 9th edition, W.B. Saunders Company-1998, Philadelphia, page: 709-24.
12. Ganong WF. Regulation of Gastrointestinal function, In Review of Medical Physiology; 20th edition, Prentice-Hall International, Page: 459-86.
13. William PS, John DL. Disorder of salivary gland neoplasm; In: Baily and Love's; Short Practice of Surgery, 24th edition; Arnold, London, Page: 718-38.
14. Robins SL, Cortan RS, Kumar V. Deseases of Head and Neck, In: Pathologic basis of disease, 5th edition, WB Saunders Company, Page: 756-73.
15. Watkinson JC, Gaze MN. Tumours of major salivary gland. In: Stell and Maran's Head and Neck Surgery, 4th edition, Butter Worth/ Heinemann, Page: 441-57.
16. Browse N, The parotid gland- Symptoms and signs of surgical disease, In: clinical surgery, 2nd edition, ELBS, Page 92-5.
17. Takeichi N, Hirose F. Salivary gland tumour in atomic bomb survivors, Hiroshima, Japan, Cancer, 1976; 38: 4262-8.
18. Obaid MA, Yusuf A. Surgical management of epithelial parotid tumours. JCPSP, 2004; 14 (7): 394-9.
19. Rahman SH, Ahmed K, Haroon AA. Squamous cell carcinoma of submandibular gland in a young man. Bangladesh Journal of Otolaryngology, 1996; 2: 75-7.