

Clinicopathological study of benign and malignant head and neck tumours

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Abstract


Background: Head and neck cancer are amongst the commonest malignancy in India, accounting for around 20% cancer burden in India. Swelling is the frequently found presentation of patients seen in clinical practice. A spectrum of pathological lesions can be presented in this form. It ranges from simple benign lesions to highly malignant manifestations. **Aim:** An attempt has been made to correlate clinical presentation and histopathological diagnosis. **Method:** A study of 121 cases has been carried out at MIMSR Medical College, Latur, during two year duration [July 2011 to June 2013]. Patients were thoroughly examined at various clinical departments and their biopsies were sent to and processed at the histopathology section, Pathology department. **Observations:** Out of these 121 cases, 86 were males and 35 were females. In our study, tumours of oral cavity constituted the maximum no. followed by soft tissues of neck, skin and salivary glands in decreasing order of frequency. Benign tumours comprised 52% while malignant tumours also had a significant rate of 48%. **Conclusion:** The most common malignant tumour is squamous cell carcinoma at oral cavity followed by skin. Malignant tumours are common in elderly and benign tumours are common in middle aged. It is thus of advantage if routine check-ups could be instituted to patients age >40 years will benefit from this avenue for early detection of the disease, as early diagnosis significantly lowers the fatality rate of head and neck carcinoma. **Keywords:** Head and neck cancer, squamous cell carcinoma.

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INTRODUCTION

Pathology of head and neck is an easy sounding title for complex subject matter. From an anatomic and pathologic perspective the region of the head and neck is one of the most complex areas of the body with a variety of different organ system and tissue type within it's domain. Generally, cancer of the head and neck are considered to include all lesions of the mucosal surface from the internal nose and nasopharynx to thoracic inlet level of the trachea and esophagus. The salivary glands are routinely added, and less regularly the thyroid and

parathyroid glands. Cancer of central nervous system and the eye are typically excluded.¹ Globally, head and neck cancer ranks as the sixth most common cancer. It is evident that head and neck cancer which carries an overall death risk of 54% represents a major health problem. More than 90% of all Upper aerodigestive tract cancers are squamous cell carcinoma occurring in 5th - 6th decades of life, rates increasing with age.² Mouth and tongue cancers are more common in the Indian subcontinent.³ The outlook for an incidence, morbidity and mortality of Upper aerodigestive tract, lung and other tobacco associated malignancies are tightly linked to the trends of marketing and consumption of tobacco and smoking. Alcohol is another recognized risk factor for development of invasive Squamous cell carcinoma of Upper aerodigestive tract with evidenced to document a synergistic effect when two risk factors are combined.¹

MATERIAL AND METHODS

The present study was undertaken to correlate the histomorphological type of head and neck tumours with clinical parameters of patient in Latur area. Total 121 cases of head and neck tumours recorded at the

Department of Pathology over a period of 2 years [July 2011 – June 2013]. The tumours of head and neck region were selected on basis of clinical history, examination findings and clinical diagnosis; which were then subjected to biopsy, curative surgery and detail gross and

histopathological examination. For the purpose of this study, head and neck tumours were broadly divided into seven main categories according to the site of involvement in the head and neck region. Thyroid, CNS and Eye tumours were excluded from this study.

RESULTS

Table 1: Distribution of head and neck tumours according to site

| SN | Site of tumours | Frequency (No. of cases) | Percentage (%) |
|----|---|--------------------------|----------------|
| 1. | Oral cavity and oropharynx | 39 | 32.2 |
| 2. | Nose, paranasal sinuses and nasopharynx | 04 | 3.3 |
| 3. | Hypopharynx and larynx | 04 | 3.3 |
| 4. | Salivary glands | 17 | 14.1 |
| 5. | Odontogenic apparatus | 04 | 3.3 |
| 6. | Skin | 20 | 16.5 |
| 7. | Soft tissue | 33 | 27.3 |
| | Total | 121 | 100 |

Table 2: Distribution of head and neck tumour according to clinical presentation

| Complaints | Number of cases | Percentage (%) |
|-------------------|-----------------|----------------|
| Swelling | 65 | 53.7 |
| Ulcer | 37 | 30.5 |
| Ulcerous growth | 10 | 8.2 |
| Change in voice | 04 | 3.3 |
| Nasal obstruction | 05 | 4.1 |
| Total | 121 | 100 |

Table 3: Histopathological distribution of benign and malignant tumours

| SN | Site | Name of benign Tumours | No. | (%) | Name of malignant Tumours | No. | (%) |
|----|---|-----------------------------------|-----------|------------|--|-----------|------------|
| 1 | Oral cavity and oropharynx | • Papilloma | 02 | 3.2 | • SCC (tongue, buccal mucosa, soft palate) | 37 | 63.8 |
| 2. | Nose, paranasal sinuses and nasopharynx | • Papilloma | 04 | 6.3 | - | - | - |
| 3. | Hypopharynx and larynx | - | 00 | - | • SCC | 4 | 6.8 |
| 4. | Salivary glands | • Pleomorphic adenoma | 11 | 17.5 | • Mucoepidermoid carcinoma. | 2 | 3.4 |
| | | • Basal cell adenoma | 01 | 1.5 | • Epithelial myoepithelial carcinoma | 1 | 1.7 |
| | | • Warthins tumor | 01 | 1.5 | • Salivary duct carcinoma | 1 | 1.7 |
| 5. | Odontogenic apparatus | • Ameloblastoma | 03 | 4.8 | - | - | - |
| | | • Odontogenic myxoma | 01 | 1.5 | | | |
| | | • Seborrheic keratosis | 05 | 7.9 | • BCC | 4 | 6.8 |
| | | • Syringocystadenoma papilliferum | 01 | 1.5 | • SCC | 7 | 12.1 |
| 6. | Skin | • Eccrine spiradenoma | 01 | 1.5 | • Proliferating trichilemmal tumor | 1 | 1.7 |
| | | • Syringoma | 01 | 1.5 | | | |
| | | • Lipoma | 09 | 14.3 | | | |
| | | • Capillary hemangioma | 14 | 22.2 | | | |
| 7. | Soft tissue | • Lymphangioma | 02 | 3.2 | • Dermatofibrosarcoma protuberance | 1 | 1.7 |
| | | • Schwannoma | 04 | 6.3 | | | |
| | | • Neurofibroma | 03 | 4.8 | | | |
| | Total | | 63 | 100 | | 58 | 100 |

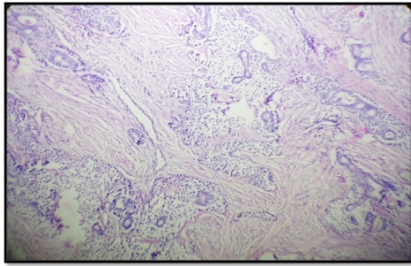


Figure 1

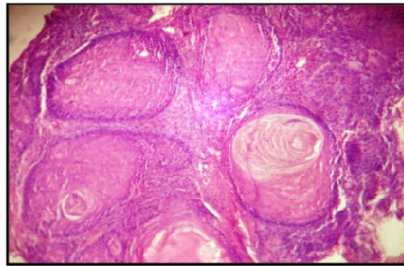


Figure 2

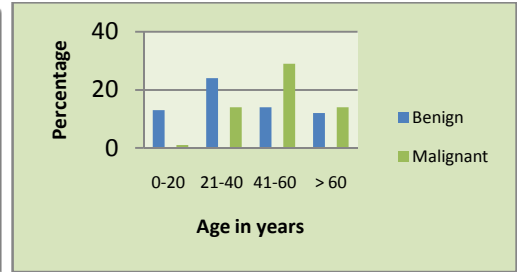


Figure 3

Legend

Figure 1: Epithelial-myoepithelial carcinoma of parotid gland – Microphotograph showing biphasic pattern of ductal formations with inner layer of cuboidal epithelial cells and proliferation of polygonal myoepithelial cells. (H and E: 40x)

Figure 2: Squamous cell carcinoma of larynx - Microphotograph showing moderately differentiated SCC in which keratin pearls are formed. (H and E: 40x)

Figure 3: Age wise distribution of benign and malignant tumours

The study included interpretation of all the biopsies and specimens of the head and neck region received in Histopathology Section. Table 1 shows the site distribution of head and neck tumours according to site of involvement in the head and neck region. Total 448 tumours were reported during July 2011 to June 2013 in the department of Pathology, out of which 121 cases belonged to head and neck region. Head and neck tumours accounted for 27% of all tumours. Maximum number of cases were in the age group 41-60 years (45 cases i.e. 37.1%) followed by 40 cases i.e. 33.1% cases in the age group 21-40 years and minimum number were in the age group 0-20 years (12 cases i.e. 9.9%). Number of head and neck tumours were seen more commonly in males (86 cases) than in females (35 cases) contributing 71% and 29% respectively with M:F ratio of 2.4:1. □ The commonest complaint was swelling, which was present in 65 cases (53.7%), followed by ulcer in 37 cases (30.5%). [Table 2] All tumours of head and neck were classified according to histological classification by World Health Organisation. Frequency of head and neck tumours were maximum in oral cavity [39 cases (32.2%)]. [Table 3] History of tobacco chewing was noted in 60% cases and history of alcohol intake was noted in 30% of squamous cell carcinoma of oral cavity. Rare tumours like Basal cell adenoma, EMC, Salivary Duct Carcinoma, plexiform neurofibroma and diffuse neurofibroma were also noted in present study.

DISCUSSION

Diverse histological types of tumours are found in the head and neck region. More than 90% of head and neck cancers are of epithelial origin, of which squamous cell carcinoma constitutes the greatest majority.⁴ Salivary gland malignancies are an important but rare group constituting about 1% of all head and neck cancer.⁵ The clinical presentation of head and neck cancer depends on the site of origin of the tumor as well as the stage of

disease. The early-stage cancer of the head and neck region often presents with vague signs and symptoms. Cancer of the oral cavity may present with indolent ulcer, erythroplakia, leukoplakia or ill-fitting dentures.⁶ There is a greater risk of developing head and neck cancer with an increase in age. It is thus of advantage if routine check-ups could be instituted such that patients age >40 years (who constitute about 60% of cases) will benefit from this avenue for early detection of the disease, as early diagnosis significantly lowers the fatality rate of head and neck carcinoma.⁷ Head and neck malignancies are common in several regions of the world where tobacco use and alcohol consumption is high. While mouth and tongue cancers are more common in the Indian sub-continent, nasopharyngeal cancer is more common in Hong Kong and pharyngeal and/or laryngeal cancers are more common in other populations.⁸ In our study, of total 121 tumours, 63 (52.1%) were benign and 58 (47.9%) were malignant tumours. Benign tumours of head and neck occurred in all age groups with peak distribution in the age group of 21-40 years [24 cases (38%)]. Mean age was 38.85 years. Malignant head and neck tumours occurred in all age groups, most commonly in age group of 41-60 years [29 cases (50%)] and 74.1% of cases were above 40 years. The mean age was 51.31 years. In the present study, Males outnumbered females with M:F ratio of 2.2:1 which is similar to Siddiqui MS *et al* (2012)³ with M:F ratio 2.1:1. There was slight females preponderance in a study by Popat VC *et al* (2010)⁹ with M:F ratio of 1:1.1. Majority of our patients presented with a painless mass. We got 68 patients who had swelling. Other common presentations included ulcer, ulcerous growth, hoarseness (change of voice), etc. In our study, we found that oral cavity was the most common site for malignancy. On histopathological examination capillary haemangioma was the most common benign tumour [14 cases (22.2%)], followed by pleomorphic adenoma of salivary gland [11 cases (17.5%)]. Squamous cell

carcinoma of oral cavity was the most common malignancy observed, [37 cases (63.8%)] followed by squamous cell carcinoma of skin [7 cases (12.1%)]. From 37 cases of SCC of oral cavity, history of tobacco chewing was noted in 22 cases i.e. 60% and alcohol intake was noted in 11 cases i.e. 30%. In Gupta *et al* (1986)¹⁰ study, history of tobacco chewing was present in 3 cases i.e. 50% of squamous cell carcinoma of oral cavity which correlate to our study. We got 11 cases of pleomorphic adenoma and one case each of Warthin's Tumor and basal cell adenoma. Thus Pleomorphic adenoma proved to be the most common of salivary gland tumours (64.7%). Several large studies have shown that they represent 45-74% of all salivary gland tumours.⁹ Asymptomatic mass of long duration was the most common presentation. Women are more likely to be affected than men but in our series, 6 cases were found in males and 5 in females. The most common malignant tumour in our study was Mucoepidermoid carcinoma (11.8%) which is consistent with Morais ML *et al* (2011)¹¹ study (13.9%), Mohammad SI *et al* (2013)¹² study (11.3%) and Vuhahula EA *et al* (2004)¹³ study (9.3%). Salivary duct carcinoma which is uncommon and constitutes 0.5-3.9% of salivary gland carcinomas. The peak incidence is in sixth and seventh decades of life, found commonly in men. We found a case of salivary duct carcinoma in 65 years male presenting with neck swelling. In our studies only 4 cases odontogenic tumour of was detected. The frequency of ameloblastoma in our study (75%) was comparable with Ladeinde *et al* (2005)¹⁴ study (63%) and Mullapudi *et al* (2011)¹⁵ study (71.4%). A wide variety of skin and soft tissue tumours were noted in the head and neck region. The most common benign skin tumour was seborrheic keratosis [5 cases (25%)] and the most common malignant tumour was squamous cell carcinoma [7 cases (35%)]. In our study, the most common benign tumour was haemangioma where as the only one malignant soft tissue tumour detected was dermatofibrosarcoma protuberance.

CONCLUSION

To conclude majority of head and neck tumours are benign, with cure after surgical excision. The most common benign tumour is capillary haemangioma and then followed by pleomorphic adenoma of salivary gland. The most common malignant tumour is squamous cell carcinoma at oral cavity followed by skin. Association of tobacco and alcohol intake is significant in cases of squamous cell carcinoma of oral cavity. Head and neck tumours are common in males than females. Malignant

tumours are common in elderly and benign tumours are common in middle aged. It is thus of advantage if routine check-ups could be instituted to patients age >40 years will benefit from this avenue for early detection of the disease, as early diagnosis significantly lowers the fatality rate of head and neck carcinoma.

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