

**Spectrum of Neoplastic and Non-Neoplastic Lesions of Head and Neck: An Observational Study**Vandana<sup>1</sup>, Roushini Kumari<sup>2</sup>, Swarnim Kumari<sup>3</sup>, C. P. Jaiswal<sup>4</sup><sup>1</sup>Tutor, Department of Pathology, Nalanda Medical College and Hospital, Patna, Bihar, India<sup>2</sup>Tutor, Department of Pathology, Nalanda Medical College and Hospital, Patna, Bihar, India<sup>3</sup>Tutor, Department of Pathology, Nalanda Medical College and Hospital, Patna, Bihar, India<sup>4</sup>Professor and HOD, Department of Pathology, Nalanda Medical College and Hospital, Patna, Bihar, India

Received: 17-06-2023 / Revised 26-07-2023 / Accepted: 29-08-2023

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Conflict of interest: Nil

**Abstract****Aim:** The aim of the present study was to assess the neoplastic and non-neoplastic lesions of head and neck.**Methods:** The present study was a prospective study carried out in the Department of Pathology, Patients with oral cavity and oropharynx lesions were included in the study. Total 100 biopsies and resected specimens were received during study period of 12 Months.**Results:** Maximum patients with head and neck lesions belonged to 21-30 years age group (29.6%), followed by 31-40 years age group (23.2%). In our study, 65 patients were males (65%) and 35 patients were females (35%). Oral cavity accounted for majority of lesions (35 patients- 35%). Out of total of 35 of these biopsies, 10 were inflammatory, 5 cystic, 4 benign, 8 dysplastic and 8 malignant. These lesions were from tongue, gingival, buccal mucosa, upper and lower lip and palate. The next most frequent lesions were found in scalp/ head region (25 patients/25%). Among these lesions 2 were inflammatory, 12 cystic, 7 benign and 4 were malignant. The most common cystic lesion of scalp was sebaceous cyst. Otolgic and neck lesions were the next most common lesions, 9 cases each. Lesions in the tonsil and face included 6 cases each (6%). Lesions from nose were 5 in number (5%). 4 lesions were from forehead region (4%). Lesions from thyroid were 3 in number (3%). Laryngeal lesions were 2 in number (2%). Two salivary gland lesions were noted (2%).**Conclusion:** It was concluded that among head and neck lesions, majority of patients have presented with inflammatory, dysplastic and malignant lesions of the oral cavity whereas the cystic lesions were most commonly encountered in the scalp. Benign lesions are most commonly manifested as skin and soft tissue lesions of scalp/head.**Keywords:** Head and neck lesions, Benign, Malignant, Dysplasia, Cystic, Buccal mucosaThis is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

According to World Health Organization, carcinoma of oral cavity in males in developing countries, is the sixth commonest cancer, while in females, it is the tenth commonest site of cancer. [1] It typically occurs in elderly men during the fifth through eighth decade of life and is rarely seen in young people. In India, head and neck cancers (HNCA) account for 30-40% cancers at all sites, out of which 9.4% being oral cancers. Oral cancers are the most common among head and neck malignancies. [2,3] It is the sixth most common cause of death in males and seventh in females. [3] Although globally oral cancer represents an incidence of 3% males and 2% females of all malignant neoplasms, it has one of the lowest survival rates – 50% within a 5 year period. [4]

Many studies have shown that several factors lead to increase in the relative incidence of oral cancer. These include [5,6] Age and gender, Habits (Tobacco and alcohol) – dose response relations were observed for the frequency and duration of smoking and alcohol. [7] Oro-dental factors (Poor oral hygiene, improperly fitting dental prostheses, defective dental restorations and mal-aligned or sharp teeth) and Viruses like Human Papilloma Virus, Herpes Simplex Virus, Epstein-Barr Virus. WHO classification of tumours of oral cavity and oropharynx [8] (2005) includes major tumours like, Surface epithelial tumours (Squamous cell carcinoma Lymphoepithelioma like carcinoma), salivary gland tumours (Salivary gland carcinomas and adenomas), Soft tissue tumours,

Haematolymphoid tumours And Mucosal malignant melanoma.

FNAC is particularly relevant in head and neck location because of easy accessibility, rapidity, minimally invasive, accurate and cost effective procedure which is accepted by majority of the patients. It may help in triage of neoplastic and non-neoplastic lesions and thus helps to avoid unnecessary surgeries in non-neoplastic lesions thus editing the process of management of malignant lesions. [9,10] It causes minimal trauma to the patient and carries virtually no risk and complications. Swellings within the region of head and neck, especially salivary gland and thyroid gland lesions can be readily diagnosed using this technique. [11,12] Spectrum of lesions of head and neck comprises of developmental, inflammatory and neoplastic conditions. The most common sites which are encountered for FNAC in head and neck region are lymph nodes, thyroid, salivary gland, skin and soft tissue swellings. Lesions like carotid body tumours, branchial cyst, thyroglossal cyst, cystic hygroma, pharyngeal pouch and lump of skin appendages are less commonly encountered. [10]

The aim of the present study was to assess the neoplastic and non-neoplastic lesions of head and neck in Nalanda medical College, Patna, Bihar.

#### Materials and Methods

The present study was a prospective study carried out in the Department of Pathology, Nalanda Medical College and Hospital, Patna, Bihar, India. Patients with oral cavity and oropharynx lesions were included in the study. Total 100 biopsies and resected specimens were received during study period of 12 months

#### Inclusion Criteria

Patients with lesion in oral cavity and oropharynx, undergoing biopsy or surgical treatment

#### Exclusion Criteria

1. All lesions involving teeth
2. The patients not willing to participate in the study was approved by ethical committee of the institute. A valid written consent was taken from patients after explaining study to them. Data was collected with pre tested questionnaire. Data included sociodemographic data of the patient, clinical history. A through clinical examination was done. All biopsies and resected specimens were received in 10% formalin. Gross findings were noted. Tissue processed and stained with Haematoxylin and Eosin.

Haematoxylin and Eosin staining method

1. Sections deparaffinised by putting in xylene
2. Hydrated by using descending grades of alcohol (100%, 90%, 70%) for 1 minute each
3. Washed with distilled water Stained 4-8 minutes in Harris hematoxylin solution
4. Washed in running tap water for 1 hour until the blue colour developed
5. Stained in eosin for 25 to 45 seconds
6. Dehydrated using ascending grades of alcohol (70%, 90%, 100% for 1 minute each
7. Cleared with xylene Sections then mounted in DPX Histopathological diagnosis was made. Patients with tumor and tumor like lesions were studied. Data was analyzed with appropriate statistical tests.

#### Results

**Table 1: Age and gender distribution**

Age	Number of cases	Percentage
0-10	3	3
11-20	17	17
21-30	30	30
31-40	24	24
41-50	12	12
51-60	9	9
61-70	3	3
71-80	1	1
81-90	1	1
<b>Gender</b>		
Male	65	65
Female	35	35

Maximum patients with head and neck lesions belonged to 21-30 years age group (29.6%) followed by 31-40 years age group (23.2%). In our study, 65 patients were males (65%) and 35 patients were females (35%).

**Table 2: Distribution of head and neck lesions at various anatomic sites**

Site	Inflam- matory	Cystic	Benign	Dysplas- tic	Malignant Verrucousca	Malignant Squamous cell ca	Malign- ant others
Oral cavity	10	5	4	8	1	7	00
Scalp/ Head	2	12	7	00	00	01	3
Otologic	6	1	00	1	00	1	00
Neck	3	2	4	00	00	00	00
Tonsil	6	00	00	00	00	00	00
Face	1	2	2	00	00	1	00
Nose	4	00	1	00	00	00	01
Forehead	00	01	3	00	00	00	00
Thyroid	00	00	3	00	00	00	00
Larynx	1	00	00	00	00	1	00
Salivary gland	1	00	1	00	00	00	00

Oral cavity accounted for majority of lesions (35 patients- 35%). Out of total of 35 of these biopsies, 10 were inflammatory, 5 cystic, 4 benign, 8 dysplastic and 8 malignant. These lesions were from tongue, gingival, buccal mucosa, upper and lower lip and palate. The next most frequent lesions were found in scalp/ head region (25 patients/25%). Among these lesions 2 were inflammatory, 12 cystic, 7 benign and 4 were malignant. The most common cystic lesion of scalp was sebaceous cyst. Otologic and neck lesions were the next most common lesions, 9 cases each. Lesions in the tonsil and face included 6 cases each (6%). Lesions from nose were 5 in number (5%). 4 lesions were from forehead region (4%). Lesions from thyroid were 3 in number (3%). Laryngeal lesions were 2 in number (2%). Two salivary gland lesions were noted (2%).

### Discussion

Head and neck lesions are common among all age group of patients. [13] These lesions include a variety of inflammatory, cystic, benign, dysplastic and malignant conditions. The malignancies of head and neck region are more common in Indian males which are attributed to tobacco use, alcohol, poor oral hygiene, viral infections and low socio-economic status. [14] Anatomical site of origin of these lesions are forehead, scalp, face, neck, larynx, oral cavity, nose, salivary glands, otologic, thyroid and tonsil. [15] The spectrum of head and neck neoplasias may vary from one place to another within the country depending on the etiological factors. [16] There are numerous methods available for diagnosing these lesions but histopathological examination of the tissue biopsy is the gold standard. [17] Benign lesions may progress to severe dysplasia, carcinoma in situ and/or squamous cell carcinoma. Therefore, early diagnosis is very important and can be life saving especially in oral lesions. [18]

Maximum patients with head and neck lesions belonged to 21-30 years age group (29.6%), followed by 31-40 years age group (23.2%). In our

study, 65 patients were males (65%) and 35 patients were females (35%). The benign lesions were more prevalent in 21-50 years age group while higher number of malignant lesions was seen in age group 51 years and above. These observations are consistent with findings of Sharma et al [13] and Popat et al. [19] Oral cavity accounted for majority of lesions (35 patients- 35%). Out of total of 35 of these biopsies, 10 were inflammatory, 5 cystic, 4 benign, 8 dysplastic and 8 malignant. These lesions were from tongue, gingival, buccal mucosa, upper and lower lip and palate. Most common site of cases in our study belonged to the oral cavity (33%). These lesions were more common in males. The most common site was buccal mucosa followed by lip and tongue. This was in agreement with findings by Kosam and Kujur [18] and Sharma et al. [13] The next most frequent lesions were found in scalp/ head region (25 patients/25%). Among these lesions 2 were inflammatory, 12 cystic, 7 benign and 4 were malignant. The most common cystic lesion of scalp was sebaceous cyst. Many authors like Sharma et al have designated the lesions of scalp/ head as skin and soft tissue lesions and have reported a similar variety of lesions. [13]

The next most common lesions Otologic and neck lesions were the next most common lesions, 9 cases each which was similar to the study of neck lesions by Popat et al. [19] Lesions in the tonsil and face included 6 cases each (6%). Singhal et al [14] reported 4 cases of chronic tonsillitis and one tonsillar cancer. Lesions from nose were 5 in number (5%). Study by Siddiqui et al [20] reported that nose and PNS presented most cases of benign lesions (mainly polyps) which were similar to our study. 4 lesions were from forehead region (4%). Lesions from thyroid were 3 in number (3%). Sharma et al [13] also reported colloid goitre as the most frequent non-neoplastic entity. Laryngeal lesions were 2 in number (2%). Studies implicate an association with asbestos, nitrogen mustard, wood dust, tea, smoking, zinc etc. [21] Popat et al [19] reported larynx as the most common site of

malignancy unlike our study in which oral cavity was the most common site. Two salivary gland lesions were noted (2%). No malignant lesion was reported in salivary gland. Popat et al [19] also reported pleomorphic adenoma as the commonest salivary gland tumor. Parotid gland was the commonest site of tumor in study by Sharma M et al [13] unlike our study in which submandibular gland was the most common salivary gland involved.

### Conclusion

It was concluded that among head and neck lesions, majority of patients have presented with inflammatory, dysplastic and malignant lesions of the oral cavity whereas the cystic lesions were most commonly encountered in the scalp. Benign lesions are most commonly manifested as skin and soft tissue lesions of scalp/head.

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