

Spectrum of head and neck lesions in a teaching hospital

Sandhya Panjeta Gulia^{1*}, Lavanya M², S P Arun Kumar³, V Prabhu⁴

{¹Associate Professor, ²Assistant Professor, ³Professor, Department of Pathology} {⁴Professor, Department of ENT}
Sri Venkateshwaraa Medical College Hospital and Research Centre, Ariyur 605102, Pondicherry, INDIA.

Email: sandhya_path@yahoo.com

Abstract

Aims: to study the spectrum of lesions of head and neck and their histopathology. **Materials and Methods:** Total of 208 cases from January 2012- August 2015 were studied from the database of the pathology department. Hand E sections were reviewed and special studies were done wherever required. **Results:** Out of total 208 cases studied, 183 (87.98%) were benign and 25 (12.01%) were malignant cases. Majority of the cases 78 (38.05%) were reported in pharynx, followed by skin and soft tissue 44 (21.15%), 38 (18.27%) thyroid, 25 (12.01%) external auditory canal and middle ear, 23 (11.06 %) lymph nodes, 3 (1.44 %) brain and meninges. The benign lesions in the pharynx reported were chronic tonsillitis in 19 (9.13%), 5(2.40%) cases each of vocal cord polyp; the other lesions being lobular capillary hemangioma, pleomorphic adenoma, leukoplakia, neurofibroma, dysplasia, sinusoidal hemangioma, benign fibrous histiocytoma, inverted papilloma, antrochoanal polyp. The most common malignant lesion of pharynx was squamous cell carcinoma in 11 cases (5.29%). In thyroid gland 31 (14.90%) benign and 7 (3.36%) malignant lesions were reported with multinodular goiter being the commonest. The lymph nodes showed majority of the cases of 16 (7.69%) of caseating tubercular lymphadenitis and reactive lymphoid hyperplasia. Benign lesions of the head and neck involving external auditory canal, middle ear, skin and soft tissues were seen in 69 cases (33.17%). **Conclusion:** Among the head and neck lesions the commonest site was oropharynx; chronic adenotonsillar hypertrophy was the commonest benign lesion and squamous cell carcinoma was the most common malignant lesion.

Keywords: Histopathology, Head and neck, Oropharynx, Squamous cell carcinoma.

*Address for Correspondence:

Dr. Sandhya Panjeta Gulia, Associate Professor, Department of Pathology, Sri Venkateshwaraa Medical College Hospital and Research Centre, Ariyur 605102, Pondicherry, INDIA.

Email: sandhya_path@yahoo.com

Received Date: 12/11/2015 Revised Date: 20/12/2015 Accepted Date: 10/01/2016

Access this article online

Quick Response Code:	Website: www.statperson.com
	DOI: 12 January 2015

INTRODUCTION

Cancer of the oral cavity is one of the most common malignancies especially in developing countries accounting for around 20% cancer burden in India.¹ The annual incidence for oral cancers is estimated to be 275,000 cases and 130,000 cases for pharyngeal cancers excluding nasopharynx². In the head and neck region the other common lesions include thyroid gland pathology,

lesions of the lymph nodes and soft tissue lesions. The lesions of the thyroid gland are important since most of them can be effectively treated by surgical or medical treatment. They range from congenital lesions, goitre (hyperplastic/metabolic), inflammatory to neoplastic lesions.³ Hence this study aims to study the spectrum of lesions in the head and neck region and find out the lesions more prevalent in the study area.

MATERIALS AND METHODS

It is a cross sectional study conducted on the patients attending the outpatient department of ENT department at Sri Venkateshwaraa Medical College Hospital and Research center. The study period taken is from January 2012- August 2015. The diagnosis was based on clinical presentation, general physical examination of the patient and histopathological examination of the biopsy sample processed. The slides were stained with Hand E for each case. Depending on the clinical suspicion, special stains

like PAS, Acid fast stain and Fitefaraco stain and IHC were performed on the tissue sections.

RESULTS

A total of 208 cases were studied during the study period out of which 63 (30.29%) were males and 145 (69.71 %) were females. Male to female ratio was 0.43:1 Table 1 shows sex distribution of cases during the study period

Table 1: Sex distribution of cases

Year	Males	Females	Total
2012	10	48	58
2013	16	27	43
2014	19	43	62
2015	18	27	45
Total	63	145	208

The following figure (fig.1.) shows the distribution of benign and malignant lesions in the study conducted – 183 (87.98%) benign cases and 25 (12.01%) malignant cases.

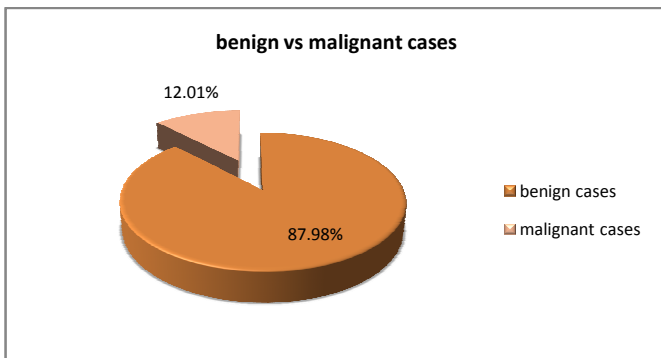


Figure 1: Shows percentage of benign versus malignant cases

According to the site distribution (fig.2.) of the cases, the majority of the cases 78 (38.05%) were reported in pharynx, followed by skin and soft tissue 44 (21.15%), 38 (18.27%) thyroid, 25 (12.01%) external auditory canal

and middle ear, 23 (11.06 %) lymph nodes, 3 (1.44 %) brain and meninges.

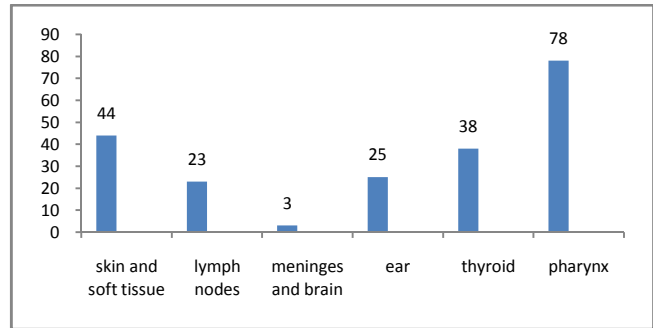


Figure 2: Shows sitewise distribution of number of cases

In pharynx majority of the cases were found in oropharynx followed by nasopharynx and laryngopharynx. The most common benign lesion reported in pharynx was chronic tonsillitis in 19(9.13%). The other most common lesion was squamous cell carcinoma (SCC), 11 cases (5.29%), of various grades (3 cases in pyriformfossa, 2 cases in vocal cord, 6 cases in oral cavity). The other lesions reported were 12 cases (5.76%) chronic inflammatory pathology, 6 cases (2.88%) granulation tissue, 5 (2.40%)cases each of vocal cord polyp, lobular capillary hemangioma and mucus retention cyst, 2 cases each of pleomorphic adenoma and leukoplakia, and other lesions were – epulis, traumatic fibroma, neurofibroma, dysplasia, sinusoidal hemangioma, benign fibrous histiocytoma, inverted papilloma, antrochoanal polyp ; one case of basal cell adenocarcinoma of parotid gland in 49 years female. Out of total 208 cases, thyroid gland accounted for 38 cases (as shown in fig.3.) (18.27%) with 31 cases (14.90%) of benign and 7(3.36%) cases of malignant lesions. the lesions reported were multinodulargoitre, hashimotos thyroiditis, thyroglossal cyst, follicular adenoma, papillary carcinoma and follicular carcinoma.

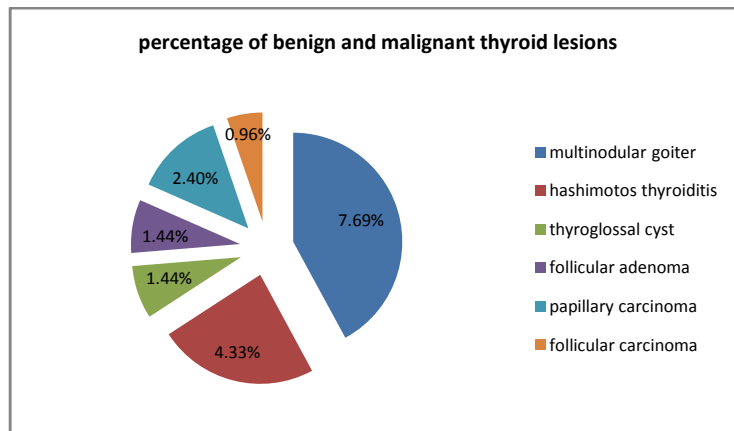


Figure 3: Shows distribution of thyroid lesions

The lymph nodes were involved in 23 cases (11.05%) with majority of the cases, 16(7.69%)of caseating tubercular lymphadenitis and reactive lymphoid hyperplasia, followed by 5(2.40%) chronic non specific

lymphadenitis, 1(0.48%) kikuchisnecrotizing lymphadenitis disease in cervical lymph node in 38 years female and 1(0.48%) case of lymphoma in cervical lymph node in 74 years male

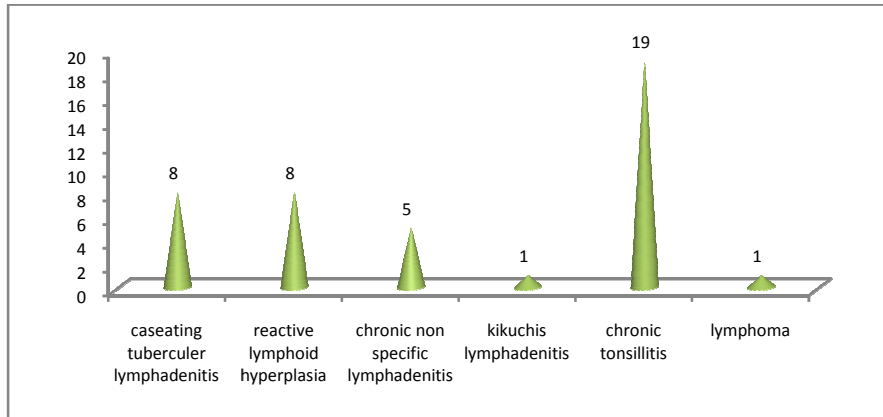


Figure 4: Shows distribution of lesions of lymphoid tissue on histopathology

Benign lesions of the head and neck involving external auditory canal, middle ear, skin and soft tissues were seen in 69 cases (33.17%). The various lesions reported were cholesteatoma, chronic suppurative otitis media, tubercular abscess, granulation tissue, epidermal cyst, lipoma, squamous papilloma, sebaceous cyst, verruca vulgaris, xanthogranuloma, alopecia areata, interface dermatitis, seiborrhoeic keratosis, fibroepithelial polyp, Nevus sebaceous of Jaddosohn. The malignant lesions were squamous cell carcinoma and basal cell carcinoma

(adenoid and pigmented type). The lesions in the brain reported were two cases of pyogenic meningitis and one case of diffuse astrocytoma. The following (fig.5.) shows the percentage of malignant lesions in the study conducted – 12 (5.77%) cases of SCC of the pharynx and skin, 5 (2.40%) papillary carcinoma thyroid, 2 (0.96%) follicular carcinoma thyroid, 3 (1.44%) basal cell carcinoma, 1 (0.48%) basal cell adenocarcinoma, 1 (0.48%) lymphoma, 1 (0.48%) diffuse astrocytoma.

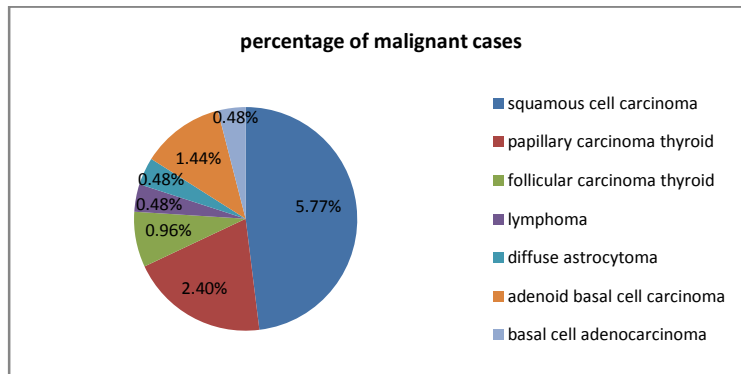


Figure 5: Malignant cases in the study period

DISCUSSION

The study conducted in the tertiary care hospital for a period of four years on the various head and neck lesions showed a higher number of the cases in females than males, M: F 0.43:1. The studies by Lei *et al*⁴, Mehrotra⁵, Thakur⁶ and Manjari *et al*⁷ showed a higher M: F ratio in their respective studies as only the malignant lesions were included in the study group. Male to female ratio is higher in oral cancers in various studies Mehrotra *et al.*, 2005,⁵

Thakur *et al.*, 2001⁶, Manjari *et al.*, 1996⁷, Shubha P Bhat⁸. These findings are similar to our study which also snowed a higher incidence of oral cancers in males as compared to females. Majority of patients were in the age group of 30-39 years followed by 40-49 years. Malignant lesions were more common in the elderly age group beyond 60 years except a case of lymphoma arising in cervical lymph node in 25 years male. These findings are

comparable to the study done by Lei *et al* in 2014 and Shubha P Bhat⁸. The proportion of SCC in patients less than 40 years of age was about 11% in the study by Elango JK⁹; however oral cancer been documented in younger age in the studies from Scotland¹⁰ and the UK¹¹. The clinical presentation of the patients with lesions of the oral cavity were ulcerative lesions, white patch (leukoplakia), erythematous plaques (erythroplasia), ulceroproliferative growth, and soft tissue swelling. The highest number of lesions was noted by Lei *et al* in his study was in the epithelial subgroup, in which SCC predominated (82.0%), followed by verrucous carcinoma (6.5% with second highest number of lesions in the salivary gland subgroup, with mucoepidermoid carcinoma and adenoid cystic carcinoma, comprising about 77.0% of all lesions.⁴ The second greatest number of lesions, 31.8%, by Lei *et al* was noted in the inflammatory/infective group⁴ which is similar to the findings of our study; which was in contrast to the findings of Franklin and Jones¹² and Ali and Sundaram¹³, in which fibrous hyperplasia (14.7% and 20.7% respectively) was the most common lesion, as well as different to the findings of Bhasker¹⁴ and Tay¹⁵, in which dental granuloma (11.1%) and fibrous epulis (10.3%) were respectively the most frequent lesions. Most of the oral epithelial malignant lesions in the study by Lei *et al*⁴ were located in the buccal mucosa, similar to the findings of Shubha P Bhat⁸ and similar to findings of our study which was different to the results of Hernandez-Guerrero *et al.*¹⁶ from Mexico, in which tongue cancer was the most commonly documented malignant lesion. The common etiologies implicated in most of the epithelial malignancies of the oral cavity is attributed to betel quid chewing, use of tobacco in various forms, consumption of alcohol and low socioeconomic condition related to poor hygiene, poor diet or infections of viral origin^{17,18,19,20,6,7,8}. Pleomorphic adenoma (67.0%) and Warthin's tumor (12.5%) were the two most common lesions in the salivary gland subgroup⁴, which was compatible with the results of Jaafari-Ashkavandi *et al.* (80.2% and 10.5%, respectively)²¹ and Wang *et al.* (52.7% and 17.4%, respectively)²². Most pleomorphic adenomas in the study by Lei *et al*⁴ were located in the palate (60.0%), followed by the parotid gland (30.0%), which was different to the studies of Jaafari-Ashkavandi *et al*²¹ and Wang *et al*²², in which most cases were located in the parotid gland (52.2% and 52.7%, respectively). In our study both the cases of pleomorphic adenomas were seen in parotid gland. Basal cell adenocarcinoma (BCAC) is a rare, low grade malignant tumor that occurs primarily in the parotid gland (89%) of older individuals without gender predilection. Most arise de novo but some arise from preexisting basal cell adenomas. Although local

recurrences are common, regional lymph node and distant metastasis are rare²³. Our case was seen in 49 years female in the parotid gland. The histological diagnosis of lesion with features of bulging in the soft palate is extremely important due to the macroscopic similarity between benign and malignant lesions²⁴. The overall incidence of non neoplastic lesions of thyroid in our study was 31 (14.90%) cases of benign and 7 (3.36%) cases of malignant lesions; similar to the studies by ChampaSushel²⁵ who also reported predominantly non neoplastic lesions (89% as compared to 11% of neoplastic lesions) as were reported in studies from Yemen²⁶ and East Africa²⁷. Goiter was the most common lesion encountered in our study which is consistent with studies in which multinodular goiter and diffuse adenomatous goiters were found to be the commonest pathologies of the thyroid lesions^{28,29,30,31,32}. The most common malignancy of thyroid gland in our study was papillary carcinoma which is similar to the findings of other studies^{26,27,28,29,30} followed by follicular carcinoma. It has been reported by several authors that tuberculosis is one of the predominant cause of lymph node enlargement in adults in tropics like India^{33,34}. Umer MF *et al*³⁵ found tuberculosis in 55.4%. Our study also shows that out of 11.06% of cases of lymphadenitis, 3.84% were tuberculous lymphadenitis and 3.84% were reactive lymphoid hyperplasia. The diagnosis was confirmed by acid fast stain and culture. Non-specific reactive hyperplasia of lymph node tissue was second most common lesion (20%) seen in the study by Panchal J³⁶. In our study males were more commonly affected than females³⁶ with similar observation found in study by Khan³⁷ which is similar to the findings of the present study. Cervical group of lymph nodes was the most common group involved in our study. Maximum number of lymph node biopsies were from cervical group of lymph nodes followed by axillary and the least common group of superficial lymph node involved was inguinal lymph nodes³⁶, studies by Khan *et al*³⁷ and Rahman *et al*³⁸ also found cervical group of lymph node as the most commonly involved nodes. KFD is a benign histiocytic necrotising lymphadenitis. Its etiology has not yet been fully determined, however it is believed it may have viral origin (EBV, HHV6 and 8) or autoimmune etiology³⁹. The differential diagnosis of fever and cervical lymphadenopathy requires an extensive work up for tuberculosis, Epstein-Barr virus, cytomegalovirus, HIV, toxoplasmosis, and syphilis⁴⁰. Our case was 38/F with extensive necrosis of the cervical lymph node, infiltration by histiocytes, macrophages and lymphocytes. Immunohistochemical studies of the case revealed strong positivity for CD 68 and predominant CD 8 lymphocytes. Patient was evaluated for autoimmune etiology and

showed high ANA titres. A case of Lymphoma was reported in 74/M with generalized lymphadenopathy and the cervical lymph node biopsy showed diffuse effacement of lymph node architecture. Diagnosis of non hodgkins lymphoma was made with positive CD²⁰. The most common clinical presentation of the lesions of the nasal cavity in the present study were found to be nasal airway obstruction, postnasal drainage, dull headaches, snoring, and rhinorrhea, hyposmia or anosmia, epistaxis. The most common lesion in nasopharynx was chronic adenotonsillitis in 19 (9.13%) cases with majority of the cases under the age of 10 years which is similar to the study done by Garg Dinesh⁴¹. Among the nasopharyngeal masses majority comprised of 52 (98.11%) cases of adenotonsillar hypertrophy in the patients of age group of 0-10 years⁴¹. Study by Shaila Shah⁴² on histopathology of lesions of nasal cavity, paranasal sinuses and nasopharynx showed majority of lesions occur in nasal cavity (69%) followed by paranasal sinuses (25%) and nasopharynx (6%)⁴². Lobular capillary haemangioma was the most common benign tumor (48.43%) while squamous cell carcinoma was the most common malignant tumor (36.37%) followed by undifferentiated carcinoma (18.19%)⁴². Study by Seema B reported 76% non neoplastic lesions with inflammatory polyp being the commonest type seen in 55.3% of cases followed by allergic polyp, rhinoscleroma, rhinosporidiosis, lepromatous leprosy, granulation tissue and rhinolith [43]. Non-neoplastic lesions made 81.6% of the total cases of nasal cavity, paranasal sinuses and nasopharynx in study by Dinesh Garg, with total 91 nasal and paranasal sinus masses, 67 (73.6%) were non-neoplastic and 24 (26.4%) neoplastic lesions⁴¹. Inflammatory polyp was the commonest - 60 cases (89.5%) followed by fungal infection in 5 (7.5%), rhinosporidiosis 1 (1.5%) and one case of glioma (1.5%)⁴¹. Squamous cell carcinoma constituted 46.15%⁴¹ comparable to Modh *et al.*,⁴⁴ and Panchal *et al.*⁴⁵. Various lesions that can be arise on the external ear are include benign-seborrheic wart, sebaceous cyst, granuloma fissuratum ; premalignant-actinic keratosis, cutaneous Horn, squamous intraepidermoidneoplasia ; malignant - basal cell carcinoma, squamous cell carcinoma, Melanoma ; inflammatory lesions - Winkler Disease, Lymphocytoma; Infectious lesions - auricular chondritis and perichondritis, lupus vulgaris, rare lesions- adnexal tumours, cylindroma, blue nevus⁴⁶. In our study a case of moderately differentiated squamous cell carcinoma of the external ear was reported in 55/F who presented as an ulcerative lesion on the ear. Predisposing factors can be - Sun exposure, fair complexion, cold injury, radiation exposure and chronic infection, association with HPV^{47,48}. SCC lesions on the nose and ear have the highest rates

of recurrence which might be due to an association with embryonic fusion planes⁴⁹. The most common clinical presentation of disorders of larynx with which the patients presented in the outpatient department were hoarseness of voice, difficulty in breathing, dysphagia, dysphonia, and foreign body sensation. Our study reported 5 (2.40%) cases of vocal cord polyp as the most common benign lesion. In the study by Sridhar Reddy *et al* the most common benign lesion reported was also vocal cord polyp in 24 (48%) cases followed by vocal nodule, laryngeal papilloma, vocal cyst, tuberculosis larynx and fungal laryngitis⁵⁰. Among the malignant lesions in the larynx 5 (2.40%) cases of moderately differentiated squamous cell carcinoma were reported with two cases arising in vocal cord and 3 cases in pyriform fossa. Of these, 3 cases were seen in females between 40-60 years. The most important factors which define the prognosis in laryngeal cancers are the place of primer lesion, the size of lesion, whether or not there is a cervical metastasis, and cellular differentiation⁵¹.

CONCLUSION

A total of 208 cases of head and neck lesions were studied of which 87.98% were reported benign and 12.02% were malignant lesions. The most common site involved was oropharynx. The common benign lesions reported were chronic adenotonsillar hypertrophy, caseating tubercular lymphadenitis and reactive lymphoid hyperplasia, multinodular goitre, vocal cord polyp, epidermal cyst, lobular capillary hemangioma and cholesteatoma. Squamous cell carcinoma was the most common malignancy reported in 12 (5.76%) cases with pharynx as the most common site.

REFERENCES

1. MdSalahuddin Siddiqui, Rajeev Chandra, Abdul Aziz, Saurav Suman. Epidemiology and Histopathological Spectrum of Head and Neck Cancers in Bihar, a state of Eastern India. *Asia Pacific Journal of Cancer Prevention* 2012;13:3949-3953
2. Sankarnarayanan R, Ramdas K, Thomas G, Muwaong R, Thara S, Mathew B. Effect of screening on oral cancer mortality in Kerala, India: a cluster-randomised control trial. *Lancet* 2005;365:1927-33
3. Raphael Solomon, Yawale Iliyasul, A. Z. Mohammed. Histopathological pattern of thyroid lesions in Kano, Nigeria: A 10-year retrospective review (2002-2011) (DOI: 10.4103/0331-8540.150474)
4. Lei et al. Retrospective studies of biopsied head and neck lesions in a cohort of referral Taiwanese patients. *Head and Face Medicine* 2014;10:28 (<http://www.head-face-med.com/content/10/1/28>)
5. Mehrotra Ravi, Singh Mamata, Gupta Raj Kishore, Singh Manish, Kapoor Anil K. Trends of prevalence and pathological spectrum of head and neck cancers in North India. *Indian J Cancer* 2005;42:89-93

6. Thakur S,Chaturvedi V, Singh AK, Puttewar MP, Raizada MP.Pattern of ear, nose, pharynx, larynx and oesophagus (ENPLO). *Ind J Otolaryngol Head Neck Surg* 2001;53:93-9
7. Manjari M, Popli R, Paul S, Gupta VP, Kaholon SK. Prevalence of oral cavity, pharynx, larynx and nasal cavity malignancies in Amritsar, Punjab. *Indian J Otolaryngol Head Neck Surg* 1999;48:191-5
8. Shubha P Bhat, Vadisha Bhat, Harish Permi, Jayaprakash Shetty K, Rajeshwari Aroor, Satheesh Kumar Bhandary B. Oral and oropharyngeal malignancy – a clinicopathological study. *IJPLM* 2015;1(1):OA1
9. Elango JK, Gangadharan P, Sumithra S, Kuriakose MA. Trends of head and neck cancers in urban and rural India. *Asian Pac J Cancer Prev* 2006, 7:108-112.
10. Robinson KL, Macfarlane GJ. Oropharyngeal cancer incidence and mortality in Scotland;are rates still increasing? *Oral Oncol* 2003, 39:31-35.
11. Wamakulasuriya S, MakV, Moller H.Oral cancer survival in young people in South East England. *Oral Oncol* 2007, 43:982-986.
12. Franklin CD, Jones AV.A survey of oral and maxillofacial pathology specimens submitted by general dental practitioners over a 30-year period. *Br Dent J* 2006; 200:447-450.
13. Ali M,Sundaram D. Biopsied oral soft tissue lesions in Kuwait:a six –year retrospective analysis. *Ann Afr Med* 2012; 21:569-575.
14. BhaskarSN.Oral pathology in the dental office:survey of 20,575 biopsy specimens. *J AmDentAssoc* 1968, 76:76-766.
15. Tay AB. A 5-year survey of oral biopsies in an oral surgical unit in Singapore. *Ann Acad Med Singapore* 1999, 28:665-671.
16. Hernandez-Guerrero JC,Jacinto-Aleman LF,Jimenez-FarfanMD,Macario-Hernandez A, Hernandez-Flores F,Alcantara-Vazquez A. Prevalence trends of oral squamous cell carcinoma:MexicocitysGeneral Hospital experience. *Med Oral Pathol Oral Cir Bucal* 2013, 18:e306-e311.
17. Chung CH,YangYH,WangTY,SheihTY,Wamakulasuriya S. Oral precancerous disorders associated with areca quid chewing,smoking and alcohol drinking in southern Taiwan. *J Oral Pathol Med* 2005, 34:460-466.
18. RamachandraNB.The hierarchy of oral cancers in India. *Int J Head Neck Surg* 2012,3:143-146.
19. Travasso C. Betel quid chewing is responsible for half of oral cancer cases in India,finds study. *BMJ* 2013, 347:f7536.
20. Mehrotra R, Singh M, Kumar D, Pandey AN, Gupta RK, Sinha US. Age specific incidence rate and pathological spectrum of oral cancer in Allahabad. *Indian J Med Sci* 2003;57:400-4
21. Manjula K, C.S.B.R.Prasad, Gayathri B.N, Harendra Kumar. Cytomorphological study of lateral neck swellings. *Journal of Clinical and Diagnostic Research* 2011;5(5):1016-101
22. Wang YL et al. Clinicopathologic study of 1176 salivary gland tumors in a chinese population:experience of one cancer centre 1997-2007. *ActaOtolaryngol* 2012, 132; 879-886.
23. Muller S, Barnes L. Basal Cell Adenocarcinoma of the salivary glands.Report of seven cases and review of literature. *Cancer* 1996,15;78:2471-7
24. Arthur Jorge Padilha de Brito et al. Clinical and histopathological aspects of Soft plate tumors.*Intl Arch Otorhinolaryngol,Sai Paulo* 2208,12(2):179-182
25. ChampaSushel, Tariq WahabKhanzada, ImranaZulfikar, Abdul Samad. Histopathological pattern of diagnoses in patients undergoing Thyroid Operations.
26. Al-Hureibi KA, Abdulmughni YA, Al-Hureibi MA. The epidemiology,pathology and management of goitre in Yemen. *Ann Saudi Med* 2004, 24:119-23.
27. Tsegaye B, Ergete W. Histopathological pattern of thyroid disease. *East Afr Med J* 2003; 80:525-8.
28. Elahi S, Manzoor-ul-Hassan A, Syed Z, Nazeer L, Nagra SA, Hyder SW. A study of goiter among female adolescents referred to centre for nuclear medicine, Lahore. *Pak J Med Sci* 2005; 21:56-61.
29. Niazi S, Arshad M, Muneer M. A histopathological audit of thyroid surgical specimens. *Annals King Edward Med Coll* 2007; 13:51-6.
30. Imran AA, Majid A, Khan SA. Diagnosis of Enlarged thyroid-an analysis of 250 cases. *Ann King Edward Med Coll* 2005; 11:203-4.
31. Sarfraz T, Khalilullah M, Muzaffar M. The frequency and histological types of thyroid carcinoma in northern Pakistan. *Pak Armed Forces Med J* 2000; 50:98-101.
32. Ahmed M, Malik Z, Janjua SA. Surgical audit of solitary thyroid nodule. *Pak Armed Forces Med J* 2001; 51:106-10.
33. Manjula K, C.S.B.R.Prasad, Gayathri B.N, Harendra Kumar. Cytomorphological study of lateral neck swellings. *Journal of Clinical and Diagnostic Research* 2011;5(5):1016-101
34. Jindal U, Singh K, Baghla A, Kochhar. Spectrum of Head and Neck Swellings in the Rural Population of India based on Fine Aspiration Findings. *The Internet Journal of Head and Neck Surgery*,2012;5(2)
35. Umer MF, Mehdi SH, Muttaqi AE, Hussain SA. Presentation and aetiological aspects of cervical lymphadenopathy at Jinnah Medical College Hospital Korangi, Karachi.*Pak J Surg* 2009;25(4):224-226
36. PanchalJaimin, PushpalathaPai. Spectrum of pathologic lesions in superficial lymph node biopsies-A one and half year study.*IJBAR* 2014,5(9):435-438
37. Khan AU, Nawaz G, KhanAR, Raza. An audit of 75 cases of cervical lymphadenopathy. *J Med Sci* 2011,19:95-97
38. RahmanMD, BiswasMd, SiddikaA.Histomorphological pattern of cervical lymphadenopathy.*JEnam Med Col* 2013,3(1):13-17
39. Sonnalfeacho, TheingiAung and MojisolaAkinsola. Kikuchi Fujimoto Disease :A case report and review of literature.*Cases Journal* 2008,1:187 (<http://www.casesjournal.com/content/1/1/187>)
40. Tina Mahajan, MD, Richard C. Merriman, MD, and Marvin J. Stone. Kikuchi-Fujimoto disease (histiocytic necrotizing lymphadenitis): report of a case with other autoimmune manifestations.*Proc (BaylUniv Med Cent)* 2007;20:149–151
41. Dinesh Garg, KusumMathur. Clinicopathologic study of space occupying lesions of nasacavity, paranasal sinuses

- and nasopharynx. JCDR 2014;8(11):FC04-FC07 (DOI:10.7860/JCDR/201410662.5150)
42. Shaila N Shah, Yatish Goswami. Study of lesions of nasal cavity, nasopharynx and paranasal sinuses by histopathological examination. GMJ 2012;67(2):70-72.
 43. Seema Bijjaragi, Vardendra G. Kulkarni, Japji Singh. Histomorphological study of polypoidal lesions of nose and paranasal sinuses. IJBAMR 2015;4(3):435-439
 44. Modh SK, Delwadia KN, Gonsai RN. Histopathological spectrum of sinonasal masses- A study of 162 cases. Int J Cur Res Rev. 2013;5(03):83-91.
 45. Panchal L, Vaideeswar P, et al. Sinonasal epithelial tumours: A pathological study of 69 cases. J Postgrad Med. 2005;1(1):30-34.
 46. Michael Sand, Daniel Sand, Dominik Brors, Peter Altmeyer, Benno Mann, Falk G Bechara. Cutaneous lesions of the external ear. Head and Face Medicine 2008, 4:2 (doi:10.1186/1746-160X-4-2)
 47. Hyams VJ, Batsakis JG, Michaels L: Tumors of the upper respiratory tract and ear. In Atlas of tumour pathology Volume 25. Edited by: Hartmann WH, Sobin LH. Washington, DC: Armed Forces Institute of Pathology; 1988:343.
 48. Molho-Pessach V, Lotem M: Viral carcinogenesis in skin cancer. Curr Probl Dermatol 2007, 35:39-51.
 49. Panje WR, Ceilley RI: The influence of embryology of the midspace on the spread of epithelial malignancies. Laryngoscope 1979, 89:1914-20.
 50. D Sridhar Reddy et al. Benign Lesions of Larynx-A Clinical Study of 50 Cases. J Evid Based Med Healthc 2016,3(2):72-77
 51. Basut O. Malignant Tumors of the Larynx. <http://kbb.uludag.edu.tr>

Source of Support: None Declared
Conflict of Interest: None Declared