

A study of prevalence of malignant and non-malignant swellings of neck at tertiary health care center

Satish Gopal Sankpal^{1*}, Satish Pawar²

^{1,2}Lecturer, Vasantdada Patil Dental College and Hospital Kavlapur, Sangli, Maharashtra, INDIA.

Email: deeksha.palus@gmail.com

Abstract

Background: The cause of neck masses can range from an innocuous reactive lesion to tuberculosis and malignancy. **Aims and Objectives:** To study of prevalence of malignant and non-malignant swellings of neck at tertiary health care center. **Methodology:** It was a cross-sectional study of 210 cases of palpable neck lesions from March 2015 to October 2016 at Chhatrapati Shivaji Maharaj general hospital and Dr.V.M. Medical College, Solapur. Any patients with palpable lesion of neck referred is selected and the aspiration is done in central clinical laboratory of pathology department. The cytological smears are categorized as under, Benign lesions, Malignant lesions, Haemorrhagic aspirates, Inadequate aspirates. **Result:** The maximum number of cases were with lymphnode involvement i.e., consisting of 131 cases (62.38%) while the cases with thyroid gland swelling were 67(31.90%). In lymph node swellings tuberculous lymphadenitis was the common i.e. 30% of all study cases while the least number were lymphoma category i.e. 1.43%. In the group of thyroid gland maximum number of cases were 25.71% and the minimum number of cases were of hashimotos thyroiditis and papillary carcinoma i.e. up to 0.48% each of the total study cases. In the group of salivary gland The maximum number of cases were of pleomorphic adenoma i.e. 3.33% of total study cases. The maximum number of cases were in the age group of 21 to 30 years i.e. 56 cases (26.66%) while the minimum number of cases were in the age group of 61 to 70 years i.e. 2 cases forming 0.95%. In lymphnode swelling there was male preponderance in the group of thyroid swelling there was female preponderance. The salivary gland swellings were seen with slight male preponderance. **Conclusion:** It can be concluded from our study that the maximum number of cases were with lymphnode involvement in that tuberculous lymphadenitis was the common in thyroid gland maximum number of cases were hashimotos thyroiditis, In the group of salivary gland The maximum number of cases were pleomorphic adenoma. In lymph node swelling there was male preponderance, In the group of thyroid swelling there was female preponderance. The salivary gland swellings were seen with slight male preponderance.

Key Words: Malignant and non-malignant swellings of neck, FNAC (Fine Needle Aspiration Cytology).

*Address for Correspondence:

Dr. Satish Gopal Sankpal, Lecturer, Vasantdada Patil Dental College and Hospital Kavlapur, Sangli, Maharashtra, INDIA.

Email: deeksha.palus@gmail.com

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INTRODUCTION

The cause of neck masses can range from an innocuous reactive lesion to tuberculosis and malignancy. The management of these various lesions is very different and

hence the determination of the etiology is of paramount importance. A quick, inexpensive, and reliable investigative tool is therefore required. For many decades, pathologists have employed needles to obtain cell and tissue fragments to diagnose an underlying pathology. FNAC has emerged as a sensitive, specific, and cost-effective tool to diagnose cervical lymphadenitis.¹ Evaluation of a patient with neck mass should always begin with a thorough history, followed by a complete head and neck examination. If the physical examination does not explain the neck mass, a fine needle aspiration (FNA) of the mass may be performed. The role of FNAC in the investigation of lymphadenopathy has previously been established by a number of studies.²⁻⁶ The most common cause of peripheral lymphadenopathy in our setting is an inflammatory reaction to a microbial

challenge, followed by malignant metastatic deposits and lymphomas. The etiological factors for these lesions make a large list. Broadly speaking, they tend to be considered as reactive, tuberculous, or malignant metastases. Overall, infective conditions (reactive and tuberculous) are responsible for the majority of lesions. M. tuberculosis is the most common cause of granulomatous lymphadenitis in India.⁷⁻⁹

MATERIAL AND METHODS

It was a cross-sectional study of 210 cases of palpable neck lesions from March 2015 to October 2016 at Chhatrapati Shivaji Majaraj General Hospital and Dr.V.M Medical College, Solapur. Any patients with palpable lesion of neck referred is selected and the aspiration is done in central clinical laboratory of pathology department. The procedure was first explained to the patient. Once the patients confidence was gained, the patient was made to assume a suitable position, depending upon the site of the swelling. The clinical findings were used in selection of the swellings. Labeled glass and the fixative were kept ready. The procedure of fine needle aspiration was performed using the technique described by A. John webb (1982).The material used in performing the FNAC were Sterile disposable needles 22 to 23 gauge and 1.5 inches long, 10 C.C. plastic Disposable syringes were used. Standard, clean dry grease free slides (75mm x 25mm) were used along with standard size cover slips (22Sq.Mm). The fixative was made up of equal amounts of ether and alcohol. The aspirated material was spread on slide with the help of another slide and then clipped in to the fixative immediately to avoid air drying. Minimum three slides were prepared. The smears were allowed to fix for at least 30 minutes and that stained by papanicoloau’s staining method (George N. papanicoloau, 1945) or by H and E method (L.G. Koss *et al* 1992).One was kept aside without staining wherever possible in order to perform stains like ziehl-neelson stain or any special stain, if required. After aspiration with needle few specimens are surgically removed whenever necessary. The cytological smears are categorized as under, Benign lesions, Malignant lesions, Haemorrhagic aspirates, Inadequate aspirates.

RESULTS

Table 1: Organ wise distribution of cases from neck swellings

Organ	No. of cases	Percentage
Lymph nodes	131	62.38
Thyroid gland	067	31.99
Salivary gland	010	04.77
Miscellaneous	00	00.95
Total	210	100.00

The maximum number of cases with neck swelling were with lymphnode involvement i.e., consisting of 131 cases (62.38%) while the cases with thyroid gland swelling were 67 (31.90%) the cases with salivary gland swellings were 10 (4.77%) and the cases with neck swellings not involving any specific organ were minimum in number in number i.e. 2 (0.95%) which were included in miscellaneous.

Table 2: Distribution of various lesions on FNAC of neck swellings in relation to organs

Organ	Cytological diagnosis	No. of cases	%
Lymphnode	Tuberculous lymphadenitis	131	62.38
	Reactive lymphadenitis	063	30.00
	Acute suppurative lymphadenitis is	037	17.61
	Metastatic tumours	012	05.71
	Non-Hodgkins lymphoma	010	04.76
	Hodgkins lymphoma	002	00.95
	Inadequate for opinion	001	00.48
	Suspicious of malignancy	005	02.38
	Thyroid gland	001	00.48
Thyroid gland	Colloid goiter	067	31.90
	Thyroid cyst	054	25.71
	Hashimotos thyroiditis	004	25.71
	Papillary carcinoma	001	01.90
	Benign thyroid lesion	001	00.48
	Inadequate for opinion	003	01.43
	Salivary gland	004	01.90
Salivary gland	Pleomorphic adenoma	010	04.77
	Acute sialadenitis	007	03.33
	Chronic sialadenitis	002	00.95
	Miscellaneous	001	00.48
Miscellaneous	Lipoma	002	00.95
	Branchial cyst	001	00.48

From above table, it can be seen that in the group with lymphnode swellings tuberculous lymphadenitis was the common lesion having 63 cases making up 30% of all study cases. The least number of cases in Lymph node group were in lymphoma category i.e. 3 cases making up 1.43% of study population. In the group of thyroid gland aspirates the maximum number of cases seen were of colloid goiter i.e. 54 cases making up 25.71% of all study cases. The minimum number of cases were of hashimotos thyroiditis and papillary carcinoma i.e. of case of making up 0.48% each of the total study cases. In the group of salivary gland aspirates the total cases were 10 in number. The maximum number of cases were of pleomorphic adenoma i.e. 7 cases forming 3.33% of total study cases and the least number of cases were of chronic sialadenitis i.e. 1 case forming 0.48% of study population and of acute sialadenitis were 2, forming 0.95% of total neck swelling cases. The cases seen under the heading of “miscellaneous” showed 1 case of lipoma making up

0.48% and 1 case of branchial cyst making up 0.48% of total study population.

Table 3: Age and sex distribution of cases

Sr. no	Age Group (yrs)	Number of cases				Total	
		Male	%	Female	%	No.	%
1	00-20	11	5.24	11	5.24	22	10.48
2	11-20	28	13.81	24	10.95	52	24.76
3	21-30	28	13.33	28	13.33	56	26.66
4	31-40	18	08.57	27	12.85	45	21.42
5	41-50	08	03.81	14	06.66	22	10.47
6	51-60	06	02.85	05	02.38	11	05.23
7	61-70	00	00.00	02	00.95	02	00.95

The maximum number of cases were in the age group of 21 to 30 years i.e. 56 cases (26.66%) while the minimum number of cases were in the age group of 61 to 70 years i.e. 2 cases forming 0.95% of the total cases in study group. The youngest patients was 5 years old while the oldest patients was 68 years old. There were 100 males in study group forming 47.62% of total cases while the remaining 110 cases were females constituting 52.38% if the cases in the study group. The male to female ratio was 0.92:1. So it was observed that maximum cases were seen in 21 to 30 years age group and minimum in 61 to 70 years age group. Also, were frequently affected and female to male ratio was 1:0.91.

Table 4: Age and sex distribution of cases in neck region in relation to organs

Age Gr (year)	Lymph node			Thyroid gland			Salivary gland			Miscellaneous			No
	M	F	T	M	F	T	M	F	T	M	F	T	
	00-10	11	9	20	0	2	2	0	0	0	0	0	
11-20	26	17	43	1	6	7	1	1	2	0	0	0	52
21-30	23	11	34	2	16	18	1	1	2	2	0	2	56
31-40	12	8	20	3	17	20	3	2	5	0	0	0	45
41-50	4	4	8	2	11	13	1	0	1	0	0	0	22
51-60	5	1	6	1	4	5	0	0	0	0	0	0	11
61-70	0	0	0	0	2	2	0	0	0	0	0	0	2
Total	81	50	131	9	58	67	6	4	10	2	0	2	210

From the table no. 4 we can see that in the group of lymphnode swelling there was male preponderance with male: female ratio of 1.62:1 the maximum number of cases were in age group of 11 to 20 years i.e. 43 cases followed by 34 cases in age group of 21 to 30 years. In the group of thyroid swelling there was female preponderance with male: female ratio of 1: 5.7. the maximum cases were in third decade. In male lesion are common in third and fourth decades. The salivary gland swellings were seen with slight male preponderance giving male: female ratio of 1.5:1 the maximum number were in the age group of 31 to 40 years.

DISCUSSION

Fine Needle Aspiration (FNA) technique was first introduced by Martin and Ellis (1930) in diagnosis of various organs lesions.¹⁰ Virtually any superficial organ or tissue can be sampled through this procedure. Easily targeted organs include thyroid, breast, or lymph nodes. Whereas deep organs like lungs, liver, kidney, mediastinum, and retroperitoneum are aspirated with the guidance of ultrasound or computed tomography, swellings in head and neck region can arise from various structures like, lymph node, salivary gland, thyroid, soft tissues, vessels and nerves and being easily accessible, the swellings can be aspirated without difficulty. FNAC is now a prerequisite for various neck swellings as the procedure is non-traumatic, easily accessible, inexpensive, excellent compliance and avoids the anaesthetic complications and requirement of open surgical biopsy.^{11,12} FNAC has been found to be highly accurate in head and neck region in various studies.¹⁴⁻¹⁷ FNAC can easily differentiate non neoplastic conditions from neoplastic conditions thus eliminating the need for surgical intervention in those cases which can be managed conservatively and also guide clinicians for the next best step in work up. In our study we have found that The maximum number of cases with neck swelling were with lymphnode involvement i.e., group (1) consisting of 131 cases (62.38%) while the cases with the group (2) thyrod gland swelling were 67(31.90%) the cases with salivary gland swellings i.e. group (3) were 10 (4.77%) Total the cases with neck swellings not involving any specific organ were minimum in number in number i.e. 2(0.95%) which were included in miscellaneous group. 19.48 group with lymph node swellings tuberculous lymphadenitis was the common lesion having 63 cases making up 30% of all study cases. The least number of cases in Lymph node group were in lymphoma category i.e. 3 cases making up 1.43% of study population. In the group of thyroid gland aspirates the maximum number of cases seen were of colloid goiter i.e. 54 cases making up 25.71% of all study cases. The minimum number of cases were of hashimotos thyroiditis and papillary carcinoma i.e. of case of making up 0.48% each of the total study cases. In the group of salivary gland aspirates the total cases were 10 in number. The maximum number of cases were of pleomorphic adenoma i.e. 7 cases forming 3.33% of total study cases and the least number of cases were of chronic sialadenitis i.e. 1 case forming 0.48% of study population and of acute sialadenitis were 2, forming 0.95% of total neck swelling cases. The cases seen under the heading of “miscellaneous” showed 1 case of lipoma making up 0.48% and 1 case of branchial cyst making up 0.48% of total study population. The maximum number of cases were in the age group of 21 to 30 years i.e. 56

cases (26.66%) while the minimum number of cases were in the age group of 61 to 70 years i.e. 2 cases forming 0.95% of the total cases in study group. The youngest patients was 5 years old while the oldest patients was 68 years old. There were 100 males in study group forming 47.62% of total cases while the remaining 110 cases were females constituting 52.38% if the cases in the study group. The male to female ratio was 0.92:1. So it was observed that maximum cases were seen in 21 to 30 years age group and minimum in 61 to 70 years age group. Also, were frequently affected and female to male ratio was 1:0.91. In the group of lymphnode swelling there was male preponderance with male: female ratio of 1.62:1 the maximum number of cases were in age group of 11 to 20 years i.e. 43 cases followed by 34 cases in age group of 21 to 30 years. In the group of thyroid swelling there was female preponderance with male: female ratio of 1: 5.7. the maximum cases were in third decade. In male lesion are common in third and fourth decades. The salivary gland swellings were seen with slight male preponderance giving male: female ratio of 1.5:1 the maximum number were in the age group of 31 to 40 years.

CONCLUSION

It can be concluded from our study that the maximum number of cases were with lymph node involvement in that tuberculous lymphadenitis was the common in thyroid gland maximum number of cases were hashimotos thyroiditis, In the group of salivary gland The maximum number of cases were pleomorphic adenoma. In lymph node swelling there was male preponderance, In the group of thyroid swelling there was female preponderance. The salivary gland swellings were seen with slight male preponderance.

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