

FNAC: Epidemiology and Cytopathological Spectrum of Lesions Involving the Head and Neck Region at a Tertiary Care Hospital

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ABSTRACT

Aim: To analyze the cytopathological spectrum of lesions in head and neck area with respect to age groups, gender and specific sites.

Methodology: This descriptive case series was conducted in Pathology Department of Pakistan Employees Social Security Hospital. Total 240 patients were taken. FNACs were performed in pathology department of tertiary care hospital by 22-23 gauge needle and 10 cc syringe. Data regarding age of patient, gender, site of swelling and nature of swelling (benign /malignant) was collected on proforma.

Results: Out of total 240 smears, there were 192 benign lesions and 48 malignant lesions. The most common were cervical lymph node (177), followed by 39(16.2%) thyroid lesions and 24(10%) salivary gland lesions. Maximum palpable swellings were seen in age group of 21-40 years 92 (38.3%) cases. Pathological swellings were more predominant in females (146 cases) as compared to males (94 cases). Tuberculous lesions (Granulomatous lymphadenitis) were the most common of all cytological findings.

Conclusion: This study concludes that FNAC is a very simple, easily accessible, cost effective and rapid initial diagnostic tool for evaluation of palpable head and neck lesions.

Keywords: FNAC, Histopathology, Lymph Node, Neoplastic lesions, Epidemiology

INTRODUCTION

Fine Needle Aspiration Cytology (FNAC) serves as an important tool in early diagnosis of head and neck palpable swellings (lesions) that persists more than 4 weeks and is not subsiding after conservative antibiotic management¹. Frequently sampled palpable head and neck lesion are lymph node, thyroid and salivary gland². Common pathologies encountered in lymph node are reactive lymphadenopathy, granulomatous inflammation (tuberculosis), metastatic carcinoma and lymphomas; in thyroid swellings are (thyroiditis, colloid nodule and thyroid carcinoma); In salivary gland are (sialadenitis, pleomorphic adenoma and carcinoma)^{3,4,5}. 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 further work up⁶. It is a rapid, inexpensive and safe diagnostic procedure with minimal equipments required⁷. The success rate of FNAC in primary diagnosis of swellings has markedly increased in last three decades⁸. The objective of our study is to analyze the spectrum of lesions involving head and neck area.

MATERIALS AND METHODS

This descriptive case series was conducted in the Pathology department of Pakistan Employees social security institute, Multan road, Lahore. Using Non probability purposive sampling, 240 patients with superficial, palpable swellings in head and neck area irrespective of

gender and age were enrolled. Patients with deeper swelling and lesions less than 1cm in size were excluded.

Patients and Methods: The target population of this study was patients that presented as head and neck masses in a tertiary care hospital. FNAC was done by using 10 cc syringe and 22-23 gauge needle. After taking history, consent for the procedure was taken and the area of interest was properly exposed. The site was first cleaned using spirit, fixed between index finger and thumb and then needle was introduced with vigorous to and fro motion for few seconds along with continuous negative pressure. After that the pressure was released and needle was withdrawn. Smears were prepared. Air dried smears were stained with Giemsa stain and smears fixed in 95% alcohol were stained with haematoxylin and eosin. The reports of smears were interpreted by histopathologist.

Statistical Analysis: The data was entered in SPSS version 20.0 and was analyzed accordingly. Data regarding patient's age, site of swelling, cytological analysis of the swelling (benign/malignant) was stratified and presented in the form of tables and graphs.

RESULTS

Out of total 240 smears, there were 192 benign lesions and 48 malignant lesions. There were 146 (60.8%) females and 94(39.2%) males (F:M ratio of 1.6:1). According to age, patients were divided into groups as 1-20 years, 21-40 years, 41-60 years and >60 years. Highest number of lesions was observed in age group of 21-40 years with 92 (38.3%) cases.

Out of total 240 cases, largest number of aspirates was from lymph nodes 177(73.8%) followed by thyroid lesions 39(16.2%), salivary gland lesions 24(10%). Among the lymph node aspirates tuberculosis (granulomatous lymph adenitis) was the most common cytological findings

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in 105 (54.7%) cases, following reactive lymphadenitis 42(17.5%), lymphoma 22(45.8%) and metastatic carcinoma 08(20.8%). Colloid goiter was the common cytological diagnosis reported in our study. Out of total 39 thyroid

lesions colloid goiter was reported in 24 cases. Among the 24 salivary gland lesions, pleomorphic adenoma was the commonest lesion with 21 cases.

Table 1: Distribution of Lesions and its various Sites with Respect to Age (years) Groups

				Nature		Total		
				Benign	Malignant			
0-20 years	Site involved	Cervical lymph node	Count	54	5	59		
			% within Nature	98.2%	100.0%	98.3%		
		Salivary gland	Count	1	0	1		
			% within Nature	1.8%	.0%	1.7%		
		Total			Count	55	5	60
		21-40 years	Site involved	Cervical lymph node	Count	52	12	64
% within Nature	67.5%				80.0%	69.6%		
Salivary gland	Count			9	2	11		
	% within Nature			11.7%	13.3%	12.0%		
Thyroid gland	Count			16	1	17		
	% within Nature			20.8%	6.7%	18.5%		
Total			Count	77	15	92		
41-60 years	Site involved	Cervical lymph node	Count	21	9	30		
			% within Nature	56.8%	60.0%	57.7%		
		Salivary gland	Count	6	0	6		
			% within Nature	16.2%	.0%	11.5%		
		Thyroid gland	Count	10	6	16		
			% within Nature	27.0%	40.0%	30.8%		
Total			Count	37	15	52		
> 60 years	Site involved	Cervical lymph node	Count	15	9	24		
			% within Nature	65.2%	69.2%	66.7%		
		Salivary gland	Count	6	0	6		
			% within Nature	26.1%	.0%	16.7%		
		Thyroid gland	Count	2	4	6		
			% within Nature	8.7%	30.8%	16.7%		
Total			Count	23	13	36		

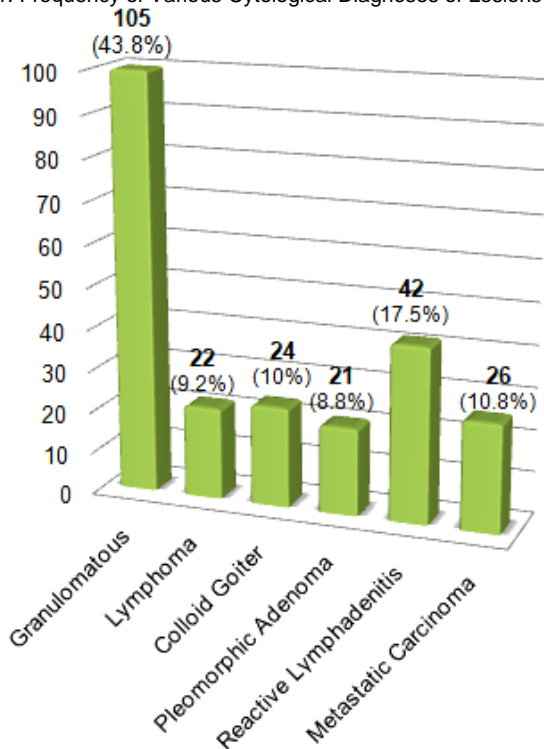
Table2: Distribution of Lesions and its various Sites with Respect to Gender

				Nature		Total
				Benign	Malignant	
Male	Site involved	Cervical lymph node	Count	49	22	71
			% within Nature	74.2%	78.6%	75.5%
		Salivary gland	Count	11	0	11
			% within Nature	16.7%	.0%	11.7%
		Thyroid gland	Count	6	6	12
			% within Nature	9.1%	21.4%	12.8%
Total			Count	66	28	94
Female	Site involved	Cervical lymph node	Count	93	13	106
			% within Nature	73.8%	65.0%	72.6%
		Salivary gland	Count	11	2	13
			% within Nature	8.7%	10.0%	8.9%
		Thyroid gland	Count	22	5	27
			% within Nature	17.5%	25.0%	18.5%
Total			Count	126	20	146

Table3: Distribution of Head & Neck Lesions according to Cytological diagnosis

	Frequency n=240
Lymph node n(%)	177 (73.8%)
Tuberculosis (Granulomatous)	105 (43.8%)
Reactive Lymphadenitis	42 (17.5%)
Lymphoma	22 (9.2%)
Metastatic Carcinoma	08 (3.3%)
Thyroid n (%)	39 (16.2%)
Colloid Goiter	24 (10%)
Carcinoma	15 (6.2%)
Salivary gland n(%)	24 (10%)
Pleomorphic Adenoma	21 (8.8%)
Carcinoma	03 (1.3%)

Fig.1: Frequency of Various Cytological Diagnoses of Lesions



DISCUSSION

Fine needle aspiration cytology is a valuable diagnostic test in the initial assessment of patients presenting with palpable head and neck swellings. This study was done to assess the frequency and nature of various head and neck swellings by FNAC. FNAC results from 240 patients with head and neck masses were reviewed and analyzed. The results were analyzed according to age, gender, site of origin and nature of swelling. In the present study the peak age group was third and fourth decade (21-40years) constituting 92 (38.3%) cases followed by first and second decade (1-20years) constituting 25% (60 cases) of all patients with head and neck lesions. Study conducted by Thakur et al and Singal et al observed that head and neck lesions were relatively common in second to fourth decade, age ranging from 1 to 70 years.^{9, 10} Similar observation was also seen by Huqet al and Uddin et al^{11,12}.

Predominant site of FNAC was lymph node lesions 177(73.8%) followed by thyroid gland 39(16.2%)cases. Similar results were reported by Bhagat et al¹³ (53.50% were of lymph node origin), Patel et al³ (64%lymph node origin) and Savitri et al⁴ (67.8%lymph node origin), however studies done by Rathod et al² show thyroid preponderance (52% were thyroid lesion). Metastasis to lymph node is low in our study 10(20.8%), which is in concordance with studies showing low percentage of metastasis to lymph node (3.5% by Kishor et al¹⁴, 7% by Chauhan et al¹⁵ and 8% by Bhagat et al¹³).

In our study thyroid lesions were more common in females than males (12 cases of males and 27 cases were of female) which is in consistent with the findings of Pateletal³ and Rathod et al². Hyperplastic colloid nodule / benign nodular goiter was the predominant thyroid lesion(24 out of 192 Benign cases)in our study. Similar findings were found in studies done by Rathod et al², Kishor et al¹⁴, Modietal¹⁶ and Chauhan et al¹⁵ who also demonstrated similar predominance of thyroid lesions. Among malignant thyroid lesions, papillary carcinoma was the highest (9 cases out of total 11 malignant thyroid lesions) in our study which is comparable to Rathod et al² and Kishor et al.¹⁴ Thus FNAC guides the surgeon to avoid surgical intervention for diagnostic purpose in majority of thyroid lesions.

In salivary gland lesions of present study, benign neoplasm pleomorphic adenoma was the predominant diagnosis (21 out of 24 cases). These findings are consistent with the studies done by Bhagat et al¹³, Patel et al³ and Chauhan et al¹⁵ who also found benign neoplasm as the predominant salivary gland lesion in their studies while Kishor et al¹⁴ and Rathod et al² found inflammatory lesions as the commonest findings followed by benign neoplasm.

CONCLUSION

Fine needle aspiration cytology is a simple, cost effective diagnostic technique in which diagnosis of patient can be made and treatment can be started with minimal physical and psychological trauma to the patient. It guides the surgeon to modify surgical treatment in patients requiring surgery.

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