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FINE NEEDLE ASPIRATION CYTOLOGY (FNAC); ROLE IN NECK SWELLINGS PATIENT REPORTED IN SURGICAL OPD

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ABSTRACT… Objectives: The objective of this study was role of fine needle aspiration cytology (FNAC) and neck swellings. **Study Design:** Observational study. **Place and Duration of Study:** This study was conducted at surgical department of multiple hospitals and compares the results, JPMC, Civil Hospital Karachi, Naushahro Feroze and Jamshoro, from January 2015 to October 2015. **Methodology:** This study consisted of 145 patients. All patients presenting with multiple neck swellings attended as outdoor patient at a tertiary care hospital. Before FNAC, patients were screened, which included the recording of clinical history and clinical findings are important. The proper investigations were carried out according to the needs. After a brief description of the procedure, the patient's informed consent was obtained. **Results:** 83(57.24%) males and 62(42.75%) females. Ratio between the male and female is 1.33:1. Mean age was found to be 41.57+4.54 years (25 to 60 years). Patients presented in OPD for multiple neck swelling likely lymph nodes were involved in 70(48.27%) cases, followed by Salivary Gland in 26(17.93%) cases and thyroid in 35(24.16%) cases. Soft tissue and other were involved in 8(5.51%) cases and 6(4.13%) cases respectively. Fine needle aspiration cytology results showed Lymph node mostly involved in tuberculous 42(28.96%) cases while metastatic involved in 4(2.75%) cases. Thyroid FNAC showed mostlygoitre 21(14.48%) cases and rarely involved malignant disease like papillary carcinoma 1(0.68%) case and medullary carcinoma in 2(1.37%) cases. Salivary Gland results showed pleomorphic adenoma in 14(9.65%) cases and sialadenitis in 8(5.51%) cases were involved. Lipoma in 5(3.44%) cases. **Conclusion:** We conclude that fine needle aspiration cytology is a rapid, simple and accurate diagnosis of tissues that can be made from outside the patient. FNAC provides a simple method of diagnosis of neoplastic and non-neoplastic lesions of head and neck.

Key words: Fine needle aspiration cytology, neck swelling, neoplastic neck swelling, non-neoplastic neck swelling.

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INTRODUCTION

Superficial head and neck lesions are increasingly becoming a commonly encountered problem by many healthcare professionals on the out-patient department (OPD) basis.[1] The diagnostic evaluation of swollen tissue of the head or neck region on an out-patient basis is considered an obstacle faced by clinicians routinely.[2,6] Head and neck lesions range from being benign to malignant with the involvement of developmental, inflammatory and neoplastic conditions.[4]

The pathologies frequently associated with the neck appearing as a lump can be a variety of diagnoses such as lymphadenopathies, metastatic carcinoma, lymphoma, thyroid swellings, such asgoitre, nodules and cysts, and salivary gland swellings.[1] The rarely encountered abnormalities presenting as swelling in the neck are usually diagnosed as carotid body tumour, bronchial cyst, thyroglossal cyst, pharyngeal pouch and lumps of skin appendages.[1] To address the obstacle of examining head and neck swellings in an out-patient department setting, the use of Fine-Needle Aspiration Cytology (FNAC) has gained popularity as a suitable diagnostic test used in clinical practice for many reasons.

FNAC is a clinically appropriate procedure associated with minimal trauma and complications for patients for analysis of head and neck swellings because of factors such as

easy approachability of the target site, increased compliance, and helping to avoid surgery in non-neoplastic lesions, inflammatory conditions and also some tumors.[4] FNAC plays a major role as a diagnostic tool in metastatic disease as well as assisting in providing hints to the nature of the primary tumor.[4] According to Howlett et al, high sensitivity of 81% and specificity of 100% are reported for FNAC, letting the healthcare professional to be certain of malignancy in a clinically skeptical lesion, but lower specificity percentages (57%) have also been found.[7] Balm et al noted if no primary tumor is identified of a suspicious necklesion, the next diagnostic step is the FNAC of the node by a qualified cytologist or surgeon. If the lesion is more difficult to approach or cytology is non-diagnostic, ultrasound-guided fine needle aspiration cytology (USFNAC) has to be performed.[8] The primary objective of the study was to investigate the variety of suspicious neck masses that present on a surgical out-patient basis through the utilization of the fine needle aspiration cytology.

MATERIAL & METHODS

This study was conducted at surgical department of multiple hospitals and compares the results, JPMC, Civil Hospital Karachi, Naushahro Feroze and Jamshoro, from January 2015 to October 2015. All patients presenting with multiple neck swellings attended as outdoor patient at a tertiary care hospital. Before FNAC, patients were screened, which included the recording of clinical history and clinical findings are important. The proper investigations were carried out according to the needs. After a brief description of the procedure, the patient's informed consent was obtained

RESULTS

Out of the 145 patients, the majority was found to be male. 83(57.24%) males and 62(42.75%) females. Ratio between the male and female is 1.33:1. Mean age was found to be 41.57±4.54 years (25 to 60 years). Patients presented in OPD for multiple neck swelling likely lymph nodes were involved in 70(48.27%) cases, followed by Salivary Gland in 26(17.93%) cases and thyroid in 35(24.16%) cases. Soft tissue and other were involved in 8(5.51%) cases and 6(4.13%) cases respectively (Table-I).

Fine needle aspiration cytology results showed Lymph node mostly involved in tuberculous 42(28.96%) cases while metastatic involved in 4(2.75%) cases. Thyroid FNAC showed mostlygoitre 21(14.48%) cases and rarely involved malignant disease like papillary carcinoma 1(0.68%) case and medullary carcinoma in 2(1.37%) cases. Salivary Gland results showed pleomorphic adenoma in 14(9.65%) cases and sialadenitis in 8(5.51%) cases were involved. Lipoma in 5(3.44%) cases (Table-II).

Variable	No. Patients	Percentage
Gender		
Male	83	57.24%
Female	62	42.75%
Age		
25-35 years	49	21.25%
36-45 years	59	51.25%
46-60 years	37	27.50%
Neck Site involved		
Lymph node	70	48.27%
Thyroid	35	24.16%
Salivary Gland	26	17.93%
Soft tissue	8	5.51%
Other	6	4.13%

Table-I. Demographic Variable N=146

Variable	No. Patients	Percentage
Lymph node (n=70)		
Reactive	23	15.86%
Tuberculous	42	28.96%
Lymphoma	1	0.68%
Metastatic	4	2.75%
Thyroid (n=35)		
Goitre	21	14.48%
Inflammatory	7	4.82%
Thyroglossal cyst	3	2.06%
Papillary carcinoma	1	0.68%
Medullary carcinoma	2	1.37%
Anaplastic carcinoma	1	0.68%
Salivary Gland (n=26)		
Sialadenitis	8	5.51%

Pleomorphic adenoma	14	9.65%
WarthinsTumour	3	2.06%
Mucoepidermoid Carcinoma	1	0.68%
Soft tissue and other (n=14)		
Lipoma	5	3.44%
Benign cystic lesion	8	5.51%
Ameloblastoma	1	0.68%
Total	**145**	**100%**

Table-II. Results of fine needle aspiration cytology (n=145)

DISCUSSION

Various swellings that originate in the head and neck are commonly seen conditions by general physicians in the out-patient clinic. Without proper examination and assessment of the mysterious lesion, the correct medical management protocol cannot be followed if the differential diagnostic is not undertaken of the head and neck swellings.[9] It is important to assess the region and presenting condition thoroughly for the correct management as the differential diagnosis of head and neck swellings consists of a wide range of possible diseases.[9] With the use of FNAC, the pathologist is able to analyze the cells aspirated from the suspicious mass, although the clinician is unable to evaluate the morphology.[10] As a result, FNAC can yield false-negative and false-positive outcomes.[10] Raj Bhandari et al concluded that fine needle aspiration cytology should be regarded as the first diagnostic analysis choice as it is a fast, useful method in the exploration of head and neck lesions.[9]

The FNAC study was conducted on a sample population of 145 patients that presented to the surgical out-patient clinic with clinical presentations of an unidentified, palpable mass in the head or neck region. Majority of the patients were male and between the age range of 36 to 45 years. The majority of the neck regions analyzed with FNAC comprised of lymph node, thyroid gland, salivary gland, soft tissue and other miscellaneous sites. Of all the neck regions investigated, majority of the aspirates were of the lymph node, consisting of 70 out of the total patients included in this study, followed by 35 aspirate neck cases from the thyroid, along with 26 from salivary gland, and 14 fine-needle aspirates comprising of various other soft tissue.

Of the 70 aspirate analyzed from the lymph node from the neck region, a majority 28.96% of the aspirate cases were identified by FNAC as Tuberculous, followed secondly by 15.86% as being reactive, with a minor percentage of less than 5% of the aspirate cases being diagnosed as lymphoma or metastatic. Out of the 35 fine-needle aspirate cases involving the thyroid region, a majority 21 cases or 14.48% were identified to be a goiter, and less than 5% noted as being inflammatory or as a thyroglossal cyst. A minuscule amount of one or two cases of the thyroid region were identified as malignancies with diagnoses of papillary, medullary, or anaplastic carcinoma. Handa et al emphasized the importance of using FNAC as a part of the standard practice in the evaluation of thyroid nodules and its use has decreased the amount of patients subjected to thyroidectomy for benign diseases of the thyroid.[5] FNAC of the salivary gland region included a total of 26 cases of which majorities 9.65% were revealed malignant in the form of pleomorphic adenoma, followed closely by over 5% of the salivary cases diagnosed as sialadenitis. As noted in the thyroid cases, FNAC of the salivary gland also revealed a minor percentage of cases being of malignant origin with diagnoses of Warthinstumour or Mucoepidermoid carcinoma. According to Gupta et al, FNAC is useful for the diagnosis of salivary gland tumours where it can differentiate with an accuracy rate of over 90% between a malignant and a benign tumour.[11] Fine needle aspirates involving the soft tissue and other various sites of the neck region diagnostically presented as benign cystic lesion in a majority of over 5% of the total 14 cases. FNAC serves dual benefits as a diagnostic and therapeutic intervention for cystic swellings.[11] Less than 5% of the cases also presented as a lipoma and an ameloblastoma in the various soft tissue aspirates.

Many studies have concluded FNAC as being a fast and convenient outpatient diagnostic tool used for evaluation of unknown masses of the

head or neck region, with high patient compliance and minor complications as compared to other diagnostic surgical techniques. FNAC helps in providing an early distinction between benign and malignant pathology of suspicious masses, which influences the type of treatment plan to implement, and ultimately benefits the patient due to the promptness in medically managing the patient.[11]

CONCLUSION

Fine Needle Aspiration Cytology is a rapid, simple and accurate diagnosis of tissues that can be made from outside the patient. FNAC provides a simple method of diagnosis of neoplastic and non-neoplastic lesions of head and neck. The process is safe and free of complications and well tolerated by patients.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

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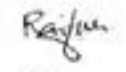
3	Dr. M. Rafique Pathan	Drafting of the article	
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