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Original Article

Fine Needle Aspiration Cytology of Palpable Head and Neck Masses: A Descriptive Cross-sectional Study

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ABSTRACT

Introduction: Fine needle aspiration cytology is a quick and safe technique done for the initial diagnosis of head and neck region masses. The aim of this study is to assess the utility of fine needle aspiration cytology in head and neck palpable masses.

Materials & Methods: A descriptive cross-sectional study was done in the Pathology Department of Kathmandu Medical College from 1st February 2023 to 31st December 2023. All the patients with palpable head and neck lumps were included in the study. Convenience sampling method was used. The data was entered and analyzed using the statistical Package for Social Science (SPSS) version 22.0

Results: Among 650 fine needle aspiration cytology done during the study period, 184 were from head and neck lesions (28.30%). The mean age of the patient was 35.4 years with female predominance. The most common site was lymph node 85 (46.19%) followed by thyroid 39 (21.19%). Reactive lymphadenitis was the most common cause of lymphadenopathy seen in 41(22.2%) patient and colloid goitre was the most common cause of thyroid swelling seen in 26(14.13%) patients.

Conclusions: Fine needle aspiration cytology is a useful and reliable technique for the diagnosis of head and neck mass. It helps to avoid unnecessary surgeries and is recommended and guides the clinician for the general clinical management.

Keywords: Fine needle aspiration cytology; Mass

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INTRODUCTION

Fine needle aspiration cytology (FNAC) is a minimally invasive technique used in the initial diagnosis of different types of lesions located in head and neck region.[1] It is quick, easy, safe and cheap technique in the diagnosis and is now being considered as a valuable diagnostic aid because of the early availability of results, simplicity, minimal trauma and absence of complications such as in the thyroid, lymph nodes, major salivary glands and other neoplasm.[2]

Martin and Ellis introduced a modern method of FNAC in 1930 and now it has become a popular procedure in the evaluation of various palpable lumps.[1] FNAC is of great value in the head and neck regions because it can be done easily in the accessible organs and divergent pathologies experienced in that area.[3]

Due to the close proximity of various types of tissues and a wide range of primary and metastatic neoplasms encountered, FNAC

diagnosis is most interesting and challenging at this site.[4,5] This technique is an outpatient department procedure and causes minimal trauma and no risk of complication.[2]

MATERIALS AND METHODS

This was a descriptive cross-sectional study conducted among patient visiting Kathmandu medical college Public Limited, Sinamangal, Nepal between 1stFebruary 2023 to 31st December 2023. The ethical approval was taken from the Institutional review committee of Kathmandu Medical college teaching hospital (Reference number:13012023/03). Informed written consent was taken for the study. All the patient with palpable head and neck lumps were included in the study. Convenience sampling method was used.

FNAC was performed by the standard protocol and dry as well as 95% alcohol fixed smears were prepared. Giemsa stain was performed in air dried slides and papanicolaou stain was performed in alcohol fixed smears. Ziehl-Neelsen stain was also performed whenever required. The slides were evaluated and cytological diagnosis was made. The data was entered and analyzed using the statistical Package for Social Science (SPSS) version 22.0.

RESULTS

Among total 650 FNACs done during the study period, 184 were from head and neck lesions (28.30%). There were 108 (58.7%) female and 76(41.3%) male, with a female to male ratio of 1.4:1. The mean age of patient were 35.4 years with an age range of six years to 82 years. The most common site was lymph node seen in 85 patients (46.19%) followed by thyroid seen in 39 patients (21.19%) and skin seen in 21 patients (11.41%) (Table 1). Among lesions of lymph node, Reactive lymphadenitis was the most common cause seen in 41 (22.2%) patient followed by tubercular lymphadenitis seen in in 24 (13.04%) patient. Among thyroid lesions, the most common diagnosis was colloid goitre seen in 26(14.13%) patient followed by papillary carcinoma seen in 8(4.34%) patient (Table 2).

Table 1: Site wise distribution of patient with head and neck lump (n=184)

Site	n(%)
Lymphnode	85 (46.19)
Thyroid	39 (21.19)
Skin	21 (11.41)
Salivary gland	19 (10.32)
Others	20(10.86)

Table 2: Diagnosis of head and neck lumps (n=184)

Site	Diagnosis	n(%)	Site	Diagnosis	n(%)
Lymph node	Reactive lymphadenitis	41 (22.2)	Thyroid	Colloid goitre	26 (14.13)
	Tubercular lymphadenitis	24 (13.04)		Medullary carcinoma	1 (0.5)
	Acute suppurative lymphadenitis	12 (6.5)		Follicular neoplasm	2 (1.08)
	NonHodgkin lymphoma	3(1.63)		Papillary carcinoma	8 (4.34)
	Hodgkin lymphoma	1(0.5)		Inconclusive	2 (1.08)
	Metastatic squamous cell carcinoma	2(1.08)	Skin	Epidermal inclusion cyst	14 (8.69)
	Metastatic adenocarcinoma	1 (0.5)		Benign adenexal neoplasm	5 (2.7)
	Metastatic small cell carcinoma	1 (0.5)		Inconclusive	2 (1.08)
Salivary gland	Chronic sialadenitis	8 (4.34)	Others	Lipoma	10 (5.43)
	Pleomorphic adenoma	3 (1.63)		Abscess	6(3.26)
	Mucoepidermoid carcinoma	2 (1.08)		Spindle cell neoplasm	3 (1.63)
	Warthin tumor	2 (1.08)		Ectopic thyroid	1 (0.5)
	Adenoid cystic carcinoma	1 (0.5)			
	Inconclusive	3 (1.63)			

DISCUSSION

FNAC procedure is performed in outpatient clinic with or without local anesthesia. The complications of this procedure are bruising, bleeding, infection and swelling.[6] The most common advantage of FNAC is a preoperative diagnosis and low risk of tissue damage.[7] In this study, FNAC was done on outpatient basis without local anesthesia and we didn't observe any complications during and after procedure. Inconclusive result can be obtained when FNAC was done from the lesion with necrosis, desmoplastic stroma and high blood content.[8] We found 2(1.08%) inconclusive result from FNAC of thyroid lesion, 2(1.08%) from FNAC of skin lesion and 3 (1.63%) from FNAC of salivary gland lesion and the reason may be the same.

The prevalence of head and neck lumps in our study was 184 (28.30%) which is higher as compared to the previous study done at Tanzania[5] however the result is similar to the study done at Maharastra, India.[2] In the present study, the prevalence of head and neck lumps was higher in female (58.7%)as compared to male (41.3%) which is in coherence with the study done at Nepal, India and Pakistan[8-10] however in contrast to our study, male predominance was observed in the study done at some tertiary center at India.[4,11] Our study showed mean age of 35.4 years which was similar to the study done at Nepal and India.[2,8]

The most common cause of head and neck lump in our study is due to lymphadenopathy (46.19%) followed by thyroid swelling (21.19%) which was comparable to another study conducted

in Nepal in which the common cause of head and neck lump was lymphadenopathy (55.6%) followed by thyroid swelling (30.7%).[8]The study done at India and Saudi Arabia also found lymphadenopathy as a commonest cause of head and neck lump.[7,10] However this finding differs from the study done at Pondicherry, India in which the common cause of head and neck lump was Thyroid (52%).[11]

Reactive lymphadenitis is the most common cause of lymphadenopathy as well as overall head and neck lump followed by Tubercular lymphadenitis in this study and other studies done at Nepal, India and Saudiarabia.[1,4,12,13] In contrast to the current study, other similar studies show Tubercular lymphadenitis as a commonest cause followed by reactive lymphadenitis.[6,9]

Metastasis was observed in 4 (2.17%) of cases in this study and the most common tumor in order include metastatic squamous cell carcinoma in 2(1.08%), metastatic adenocarcinoma in 1 (0.5%) and metastatic small cell carcinoma in 1(0.5%) of cases. This observation is lower as compared to the study done at different centers of India, Pakistan and Aukland.[14-17] This variation is readily explained as those studies are carried out in referral centers and number of cases are high as compared to ours.

In accordance with the other studies done at different center from Nepal and India, our study also shows colloid goiter as a commonest cause of thyroid swelling seen in 26(14.13) of cases followed by Papillary carcinoma seen in 8(4.34%) of cases.[1,8,18] Epidermal inclusion cyst is a most common skin lesion and this finding is comparable to the other study.[1,19]

In this study, chronic sialadenitis was most common cause of salivary gland lesion found in 8(4.34%) of cases followed by Pleomorphic adenoma seen in 3(1.63%) and Mucoepidermoid carcinoma as well as Warthin tumor seen in 2(1.08%) of cases. These findings are similar to the studies done at Nepal and india.[1,2,11]

CONCLUSIONS

FNAC is safe, quick and reliable technique done in different type of head and neck swelling. It helps to categorize the cause of lesions into neoplastic and non-neoplastic lesions avoiding the need for trucut/excisional biopsies and thus is recommended as a first line investigation to avoid unnecessary surgeries.

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