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Original Research Article

Diagnostic Role of FNAC in Evaluation of Head and Neck Lesions

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Abstract

Background*: Head and neck lesions encompass a multitude of congenital, inflammatory or neoplastic lesions including several anatomic sites and originating in different tissues and organs. Fine needle aspiration cytology (FNAC) is a simple, quick, feasible, cost effective and repeatable outpatient procedure with minimum risk of complications.*

Aim: *1. To evaluate the role of FNAC and its utility in the diagnosis of palpable head neck masses.*
2. To study the spectrum of head neck lesions in rural population.

Material and methods *The study included 304 patients presented with palpable head and neck swellings from January 2015 to December 2015. Detailed clinical history of the patient was noted. Aspirations were done by using 10 ml syringe and 22/23 gauge needles. Smears were stained with Haematoxylin and eosin and Leishman stain. Cytomorphological diagnosis was given.*

Results: *Out of 304 patients of head and neck lesions studied, lymph node (50.32%) was the predominant site aspirated with reactive lymphadenitis being the commonest lesion. Thyroid lesions constituted 44.07% followed by salivary gland (3.28%), and soft tissue 2.30% lesions.*

Conclusion: *The head and neck lesions are very common conditions encountered, with most of them being on OPD basis. Our study found that FNAC is simple, quick, inexpensive and minimally invasive technique to diagnose different types of head and neck swellings. It could differentiate the infective process from neoplastic one and avoids unnecessary surgeries. Thus, FNAC can be recommended as a first line of investigation in the diagnosis of head and neck swellings.*

Keywords: *FNAC, head and neck, diagnostic.*

I. Introduction

FNAC is relatively painless, produces speedy results and cheap. FNAC is highly suitable for debilitated patients, is repeatable, useful for multiple lesions and has low risk of complications. FNAC is applicable to easily palpable lesions of thyroid, breast, salivary glands, superficial lymph nodes, superficial growth of skin & soft tissue. With the help of newer radiological techniques FNAC of deeper structures is easily possible.[1]
Palpable head and neck swellings include various non-neoplastic and neoplastic lesions of lymph node, salivary gland, thyroid gland and soft tissues. Proximity of tissues of various types and wide range of primary and metastatic neoplasms are responsible for this site being the most common in FNAC diagnosis.[1]

Head and neck neoplasms are a major form of cancer in India accounting for 23 % of all cancer in males and 6 % in females.[2,3] FNAC of head and neck region is a generally well accepted technique with high specificity.[4]

FNAC is a prerequisite for various neck swellings as the procedure is non-traumatic, easily accessible, inexpensive, excellent compliance, avoids anaesthetic complications and requirement of open surgical biopsy. FNAC differentiates non neoplastic lesions from neoplastic lesions thus eliminating the need of surgical intervention in these lesions which can be treated conservatively.[5]

II. Material And Methods

The present study was conducted on 304 patients with palpable head and neck swellings over a period of 1 year . From all the patients the detailed clinical history related to the swelling was taken. The past and family history of tuberculosis, and other relevant diseases was obtained. After explanation of the procedure and taking informed consent of patient, FNAC was done using 10 cc disposable syringe and 22/23 gauge needle taking all aseptic precautions. Both aspiration and non-aspiration technique was used wherever required. Three or four smears were prepared by the cytopathologist following standard guidelines. Wet fixed smears in 95% alcohol were stained with Haematoxylin-Eosin stain while air dried smears were stained with Leishman stain.

Aspirations taken from various sites include lymph node, thyroid, salivary gland and soft tissues. Cytomorphological diagnosis was given depending upon the pathology.

III. Results

The present study included 304 cases of the age ranging from 1 to 80 years. Maximum number of patients were in the age group of 21-30 years(25.32%) followed by 31-40 years(19.40%) and the least number of patients were seen in the age group of above 70 years. out of which 68.09% were females and 31.9% were males. Among the diagnostic outcome, higher incidence of lesions are in the neck region than in the head region. Site wise and gender distribution of head and neck FNAC [Table-1] shows lymph nodal lesion as the predominant site of FNAC followed by thyroid lesions (44.07%), salivary glands (3.28%) and soft tissues (2.3%).

Out of 153(50.32%) cases of lymph node lesions, reactive lymphadenitis (51.63%) was the predominant cause of lymphadenopathy followed by tubercular lymphadenitis in 42 (27.4%) cases. Metastatic lesions and lymphomas constitute 9 cases(5.88%) each. [Table-2]

Out of 134 cases of thyroid lesions 125(93.28%) cases were females and 9 cases (6.71%) were males.62 cases (46.26%) were of nodular goiters, 18 cases (13.4%) were of colloid goiter with cysic change. 26 cases (19.4%) were of Hashimoto's thyroiditis, and 10 cases (7.4%) were of lymphocytic thyroiditis. Follicular neoplasms constitute 12 cases (8.9%) and 6 cases (4.4%) were of papillary carcinoma.[Table-3]

In salivary gland lesions sialadenitis was observed in 5(50%) cases. Benign neoplasms include pleomorphic adenoma were of 4 (40%) cases and 1 case (10%) of basal cell adenoma. Malignant salivary gland lesions were not observed in our study. FNAC of soft tissue lesions include 5 cases (71.42%) of lipomas and 2 cases (28.58%) of epidermal cyst.

IV. Discussion

In 1930, Martin and Ellis described and first introduced the technique of FNAC for diagnosis of organ lesions.[6]

The two fundamental requirements on which success of FNA depends are representative sample and high quality of preparation .These two prerequisites will always remain a sine qua non, no matter how sophisticated are the supplementary techniques.[1] Head and neck neoplasms constitute a major form of cancer in India accounting for 23% of all cancers in males and 6% in females[2,3,7] and approximately 5% all childhood neoplasms.[8] Increased prevalence of malignancies may be due to use of various forms tobacco in our country. Palpable lesions of head and neck include variety of developmental, inflammatory and neoplastic lesions.

The present study was carried out over a period of 1 year to find out the frequency of a variety of pathological conditions and to find out the accuracy of FNAC as a rapid diagnostic tool in outdoor patients. The present study also compares its findings with various national and international studies published in the literature.[Table-4] The study included patients from all age groups. Majority of patients were females with male to female ratio of 1:2.1.Similar results of female preponderance were also reported by Kishor.H.et.al[2] and Muddegowda et al [9]. Predominant site of FNAC was lymph nodal lesions (50.32%) followed by thyroid gland. Similar results reported by various studies. [Table-4] In lymph nodal lesions reactive lymphadenitis was the most common pathological findings followed by tuberculous lymphadenitis.

FNAC of thyroid lesions was the next common site in our study. Nodular goiter (46.26%) was the predominant finding in benign lesion followed by inflammatory lesions consisting of Hashimoto's thyroiditis. Muddegowda et al [9] also found thyroid lesions as the predominant site of FNAC in their study with colloid goiter as the predominant finding. Female preponderance was observed in FNAC of thyroid lesion in our study with similar findings reported by Muddegowda et al. [9] In salivary gland lesions chronic sialadenitis comprised 50% followed by pleomorphic adenoma in 5 (50%) cases.

In soft tissue lesions benign lesions were the commonest finding including 2 cases (28.58%) of epidermal cyst and 5 (71.42%) cases of lipoma. Bhagat et al [10] reported neoplastic lesions in 63% cases with lipoma as the predominant benign tumor.

V. Conclusion

It was concluded from the present study, that reactive lymphadenitis is the commonest problem in patients presenting with neck swellings in our set-up. Our study found that FNAC is a simple, quick, inexpensive, and minimally invasive technique to diagnose different types of head and neck swellings. It could differentiate the infective process from neoplastic one and avoids unnecessary surgeries. Thus, FNAC can be recommended as a first line of investigation in the diagnosis of head and neck swellings. Moreover, nowadays, with increasing cost of medical facilities, any technique which speeds up the process of diagnosis, limits the physical and psychological trauma to the patient, and saves the expenditure of hospitalization, will be of

tremendous value. It may also help the surgeon to select, guide, and modify surgical planning in patients requiring surgery.

Table -1 Distribution of lesions as per tissue involved and gender

Tissue	**Male**	**Female**	**Total**
Lymphnodes	82	71	153(50.32%)
Thyroid gland	09	125	134(44.07%)
Salivary gland	03	07	10(3.28%)
Soft tissue	03	04	07(2.3%)
Total	97	207	304(100%)

Table -2 Distribution of various Lymphnode lesions

Lesions		**No. of cases**	**%**
Reactive lymphadenitis		79	51.63
Inflammatory	Nonspecific	14	9.15
	Tuberculosis	42	27.4
Malignant	Lymphoma	09	5.88
	Metastasis	09	5.88
Total		153	100

Table -3 Distribution of various Thyroid lesions

Thyroid lesions	**No. of cases**	**%**
Nodular goiter	62	46.26
Colloid goiter	18	13.4
Hashimoto's thyroiditis	26	19.4
Lymphocytic thyroiditis	10	7.4
Follicular neoplasm	12	8.95
Papillary carcinoma	06	4.4
Total	134	100

Table -4 comparison of results of various studies

	Our study(2016)	**Patel DN et al(2015)[11]**	**Kishor et al(2014)**	**Muddegowda et al(2014)**	**Bhagat et al(2013)**
Location	India	India	India	India	Iindia
Duration	1 yr	1 yr	3yrs	8months	1 yr
No. of patients	304	250	288	100	701
M:F ratio	1:2.1	-----	0.71:1	0.53:1	-----
Predominant site	Lymphnode	Lymphnode	Lymphnode	Thyroid	Lymphnode

References

[1]. Orell SR, Sterrett GF, Fine Needle Aspiration Cytology. 5th edn. New York: Churchill Livingstone; 1992.p. 1-36.

[2]. Suryawanshi Kishor H., Damle Rajshri P. Dravid Nandkumar V. Tayde Yogesh. spectrum of fnac in palpable head and neck lesions in a tertiary care hospital in india- a 3 years study. Indian Journal of Pathology and Oncology, January – March 2015;2(1);7-13.

[3]. Ahluwalia H, Gupta SC, Singh M, Gupta SC, Mishra V, Singh PA. Spectrum of head and neck cancers at Allahabad.J Otolaryngol Head Neck Surg 2001;53:16-20.

[4]. El Hag IA, Chiedozi LC, al Reyees FA, Kollur SM. Fine needle aspiration cytology of head and neck masses. Seven years' experience in a secondary care hospital. Acta Cytol 2003;47:387–92.

[5]. Klijanienko J. Head and Neck and Salivary gland.In: Layfield LJ, editor. Atlas of Fine Needle Aspiration Cytology,1st edn.New Delhi:Jaypee Publishers;2014.p.11.

[6]. Martin HE, Ellis EB. Biopsy of needle puncture and aspiration. Ann Surg 1930; 92:169-81.

[7]. Mehrotra R, Singh M, Gupta RK, Singh M, Kapoor AK. Trends of prevalence and pathological spectrum of head and neck cancers in North India. Indian J Cancer 2005;42:89-93.

[8]. Ponder TB, Smith D, Ramzy I. Lymphadenopathy in children and adolescents: role of fine-needle aspiration in management. Cancer Detect Prev. 2000; 24:228–33.

[9]. Muddegowda PH, Srinivasan S, Lingegowda JB, Ramkumar KR, Murthy KS. Spectrum of Cytology of Neck Lesions: Comparative Study from Two Centers. Journal of Clinical and Diagnostic Research 2014 ;Vol-8(3): 44-45 .

[10]. Bhagat VM, Tailor HJ, Saini PK, Dudhat RB, Makawana GR, Unjiya RM. Fine Needle Aspiration Cytology In Nonthyroidal Head And Neck Masses-A Descriptive Study In Tertiary Care Hospital. National

[11]. Journal Of Medical Research 2013; volume 3(3):273-76.

[12]. Patel DN, Patel PB, Patel HV, Gandhi TJ. Fine needle aspiration cytology role in head and neck lesions. IAIM, 2015; 2(8):99-104.