

# A Retrospective study of 130 cases in all age group presented with palpable head and neck swelling

Patel F.<sup>1</sup>, Gonsai R. N.<sup>2</sup>, Patel M.L.<sup>3</sup>, Qureshi N.<sup>4</sup>, Vora M.<sup>5</sup>

<sup>1</sup>Dr. Falguni Patel, <sup>2</sup>Dr. R.N. Gonsai, <sup>3</sup>Dr. M. L. Patel, <sup>4</sup>Dr. Nasrin Qureshi, <sup>5</sup>Dr. Maulik Vora, all authors are attached with Department of Pathology, Dr. M K Shah Medical College & Research Centre, Chandkheda, Ahmedabad.

**Corresponding Author:** Dr. Maulik Vora, Department of Pathology, Dr. M.K. Shah Medical College & Research Centre, Chandkheda, Ahmedabad. E-mail: dr.falgunipatel@gmail.com

## Abstract

**Introduction:** FNAC is a simple, quick, inexpensive and minimally invasive technique for early diagnosis of palpable lesions in Head and neck. It is usually performed in outpatient department with nearly no complications. **Objectives:** To evaluate the role of FNAC and its utility in the diagnosis of palpable head and neck masses. To study the spectrum of head and neck lesions and its correlation with age, sex, and frequency of occurrence and its categorization into various groups. **Methods:** A study was conducted over a period of one year and two months by pathology department, SMS hospitals and Dr. M.K.Shah Medical College, Ahmedabad. Total 130 cases of Head and neck lesions were included during the study period. All patients coming from OPD'S of different departments presented with head and neck swelling were included in the study. **Result:** Out of 130 cases, 59 (45%) were male, 71 (55%) were female. Head and neck swelling was most common in the age group of 21-30 years (25.3%). Highest number of FNAC was done from lymph node followed by Thyroid gland and Salivary gland respectively. Lymph node swelling were the most common 81(62%), followed by thyroid 28 (22%), skin/subcutaneous 12 (9%), salivary gland 09 (07%). **Conclusion:** The accuracy of cytology diagnosis is very high if the requisition forms are accompanied with all relevant clinical history along with proper laboratory information. FNAC 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.

**Key words:** Head and Neck, FNAC, Benign and Malignant lesions, Tuberculous Lymphadenitis.

## Introduction

The art and science of cytology and cytopathology has been implemented and recognized as early as the 18<sup>th</sup> and 19<sup>th</sup> [1-5]. The first American Board of Examination in cytopathology was undertaken in 1989. Europeans, especially north Scandinavian countries, were able to utilize this technique even before the World War II [1,4]. The science of cytopathology is currently well standardized with two major branches, exfoliative and aspiration biopsy.

FNAC is a very simple diagnostic tool for the superficial swelling in the head and neck region [6]. FNAC is also very convenient now a days for clinicians because it is OPD base procedure and it avoids the complications related to anesthesia and open biopsy. It differentiates the lesions whether it is neoplastic or non-neoplastic that greatly influences the planned treatment

[7]. Among the most frequently sampled palpable head and neck lesions are lymph nodes, thyroid and salivary glands along with other rarely encountered lesions like subcutaneous tissue swellings, lumps of skin appendages and oral cavity lesions. <sup>8</sup>Head and neck neoplasia is one of the cause of cancer in India accounts 23% of all male cancers and 6% of all female cancers [9]. FNAC is very useful in cervical swellings because cervical biopsy is avoided unless all other methods fail to establish the diagnosis [10].

The prime objective of this study was to assess the diagnostic accuracy of FNAC in the Head and Neck lesions, to assist the surgeon in selection of the patient for surgery and palliative therapy.

## Methods

**Place of study and type of study:** This retrospective study was conducted at SMS multispecialty hospital

Manuscript received: 26<sup>th</sup> July 2018

Reviewed: 4<sup>th</sup> August 2018

Author Corrected: 10<sup>th</sup> August 2018

Accepted for Publication: 14<sup>th</sup> August 2018

## Original Research Article

and Dr. M.K. Shah Medical College and research Centre, Chandkheda, Ahmedabad from November 2016 to December 2017.

**Inclusion criteria:** All patients with neck swelling who were presented in different OPDs were included in the study.

**Exclusion criteria:** Patients who presented with swellings other than neck were excluded from the study.

**Sample collection and sampling methods:** Those patients who were presented with swelling in neck region from Medicine, ENT, Surgery, Pediatrics, Orthopedics and Skin Department and requested for FNAC were included in the study. Through examinations of patients were done and detailed history of the about swelling as well as related history such as family history of T.B, colloid goiter, cancer and other diseases were taken. A detailed examination of the

swelling was done and its size, shape, consistency, movement, tenderness, skin overlying it was noted. Examinations of local lymph nodes were done. Patients were explained about procedure; risk and a written consent was taken. FNAC was done by 22-23 gauged 3-5 cm long needle with 10 ml syringe by a trained Pathologist with all aseptic precautions. Minimum three to four slides were made from aspirated material from the swelling, wet fixed in 95% alcohol and were stained by H & E stain. If fluid is drained from the swelling it is collected in EDTA vacuette and slides are prepared from sediment obtained from it. Reporting was done by expert Pathologist and Cytomorphological findings from all patients were recorded and advised biopsy depending upon the pathology.

**Statistical analysis:** The obtained parameters were evaluated using descriptive statistical analysis. Statistical analyses were performed using Microsoft Office Excel 2010 software.

## Results

Total 130 patients from SMS Multispecialty hospital underwent head and neck FNAC during the study period from Nov-2016 to Dec-2017. There were 59 (45%) Male and 71 (55%) Females. The male to female ratio is 9:11.

**Table-1: Age wise distribution of all patients.**

Age (in years)	No of patients	Percentage
0-10	18	13.8%
11-20	19	14.6%
21-30	33	25.3%
31-40	18	13.8%
41-50	15	11.5%
51-60	16	12.3%
61-70	08	6.15%
71-80	02	1.50%
81-90	01	0.76%

The most common age group involved in the study is 21-30 years. The youngest and the oldest age in the study is 2 and 81 years respectively [Table 1].

**Table-2: Site wise distribution of lesions.**

Site of FNAC	No of patients (%)
Lymph node	81(62)
Thyroid	28(22)
Salivary gland	09(07)
Skin/soft tissue	12(09)
<b>Total</b>	<b>130(100)</b>

As seen in table 2 the most common site is Lymph node 81 (62%) and the least common is salivary gland 09 (07%).

## Original Research Article

The most common lesion in the lymph node, thyroid, skin and subcutaneous tissue is reactive lymphadenitis 44 (54%), Colloid Goitre 16 (57%), Lipoma and least common is Acute suppurative inflammation 02(2.5%), Lymphocytic Thyroiditis 03 (11%), sebaceous and keratinous cyst respectively. In salivary gland there is equal number of cases of pleomorphic adenoma and Benign Salivary gland lesion.

**Table-3: Frequency distribution according to nature of the swelling.**

Nature of the swelling	No of patients (%)
Benign	124(95.4)
Malignant	6(4.6)
<b>Total</b>	<b>130(100)</b>

Majority of the cases in the study are Benign, only 4.6% cases are malignant, all of which are metastatic squamous cell carcinoma in lymph node. No malignant lesion is found in thyroid, salivary, skin and subcutaneous tissue.

## Discussion

In 1930, Martin and Ellis described and first introduced the technique of FNAC for diagnosis of organ lesion [11].

The two fundamental requirements on which success of FNA depends are nonrepresentative sample and high quality of preparation. These two prerequisites will always remain a sine qua non, no matter how sophisticated are the supplementary techniques [6].

**Table-4: Comparison of sex wise distribution of cases in various studies.**

Name of study	No. Of cases		
	Male	Female	Total
Pathak R et al [12]	116	93	209
Himanshu Shekhar et al [13]	114	86	200
Garima Gupta R et al [14]	56	90	146
Shaan Khetrapalet al [15]	128	162	290
Nanik J et al [16]	376	380	750
Present study	59	71	130

In our study the common age group was 21-30 (<50) years which comprised of 31 patients which is similar to the Pathak R et al study in which the predominant age group was <50 years and number of patients was 127 out of 209 patients [12] and the Himanshu Shekhar et al [1] study in which the preponderance were seen in the 31 to 45 (<50) years with 62 patients out of 200 patients [13].

The peak incidence in Himanshu Shekhar et al [13] was between 21 to 30 (<50) years with 90 patients out of 290 patients, which is similar to the present study.

**Table-5: Comparison of Distribution of Head and Neck lesions according to the Predominant site in different studies**

Name of study	Predominant site	Number of cases	Total No. Of cases
Pathak R et al [12]	Lymph node	128	209
Himanshu Shekhar et al [13]	Lymph node	84	200
Garima Gupta R et al [14]	Lymph node	107	146
Fernandes et al [17]	Thyroid	350	629
Present study	Lymph node	81	130

**Table-6: Comparison of frequency of Lesion (most common diagnosis) according to the site in different studies.**

Name of study	Site (most common diagnosis)		
	Lymphnode	Thyroid	Salivary gland
Pathak R et al [12]	Reactive Lymph node	Colloid goitre	Sialadenosis
Himanshu Shekhar et al[13]	Reactive Lymph node	Colloid goitre	Pleomorphic adenoma
Garima Gupta R et al [14]	Tuberculous lymphadenitis	-	Pleomorphic adenoma
Shaan Khetrapalet al [15]	Granulomatous lymphadenitis	Colloid goitre	Chronic sialadenitis
Shreedevi et al [18]	Reactive Lymph node	Nodular goitre	Pleomorphic adenoma
Deval N. Patelet al [19]	Nonspecific inflammatory lesion	Benign neoplastic lesion	Pleomorphic adenoma
Sudershan Kapoor et al [20]	Tuberculous lymphadenitis	Colloidgoitre	Pleomorphic adenoma
Present study	Reactive lymphadenitis	Colloidgoitre	Pleomorphic adenoma

In present study the most common lesion in skin and subcutaneous tissue is lipoma which is similar to the findings in other studies [13,15,18]. In Pathak R et al, And Sudershan Kapoor et al studies the common diagnosis was epidermal cyst, while in Deval N. Patelet al study the benign cystic lesion was the commonest finding [12,20,19].

Inflammatory and non-neoplastic lesions was the predominant cause of head and neck masses in our study which is in concordance with most of the national studies, while various international studies show neoplastic lesion as the commonest finding.

## 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. As benign lesions (124) cases overrated the malignant one (6) cases and FNAC could differentiate the inflammatory process from neoplastic one. Nowadays with increasing cost of medical facilities any technique which heralds the process of diagnosis, limits the physical and psychological trauma to the patients and is cost effective will be of tremendous value. Histopathology confirmation of FNAC should be done to arrive at the accurate conclusion; hence this technique should be complement to each other along with newer diagnostic techniques. So we conclude that FNAC is an excellent preliminary test and a useful adjunct to histopathology.

**What this study adds to existing knowledge:** This study provides with knowledge of evaluation of swelling whether benign, inflammatory or malignant without surgery or in setups where proper surgical facilities are unavailable, so that proper management of patients can be done on time.

**Author contributions:** All authors had equally contributed in each and every part of research like proposal making, data collection, statistical analysis and manuscript making.

**Funding:** Nil, **Conflict of interest:** None initiated

**Permission from IRB:** Yes

## References

1. Frible WJ. Fine-needle aspiration biopsy: a review. *Human Pathology* 1983;14(1):9-28.
2. Frible WJ. Integration of surgical and cytopathology: A historical perspective. *Diagnostic cytopathology* 1995; 13 (5):375-8.
3. De May RM. The art and science of cytopathology. 1996. American Society of Clinical Pathologists Press, Chicago, IL.
4. Cibas ES, Ducatman BS. Cytology: diagnostic principles and clinical correlates. Gulf Professional Publishing; 2003.
5. Geisinger KR, Stanely MW, Raab SS, Silverman JF, Abati A. Modern Cytopathology. Philadelphia, Pa: Churchill Living stone; 2004.
6. Orell SR, Sterrett GF, Walters MN, Whitaker D. Manual and Atlas of Fine Needle Aspiration Cytology. Edinburgh: Churchill Livingstone 2nd ed. 1995.
7. Watkinson JC, Wilson JA, Gaze M, Stell PM, Maran AGD. Stell and Maran's Head and neck surgery, Butterworth-Heinemann, Oxford, 4<sup>th</sup> edition, chapter 2; 2000. P20-21.

**Original Research Article**

8. Chauhan S, Rathod D, Joshi DS. FNAC of swellings of head and neck region. *Indian Journal of Applied and Basic Medical Sciences* 2011;13:1-6.
9. Rao YN, Gupta S, Agarwal SP, National Cancer Control Programme: Current status & strategies. In Agarwal SP, ed. *Fifty Years of Cancer Control In India*. Dir Gen of Health Services, MOHFW, Government of India, 2002;41-7.
10. Layfield LJ. Fine-needle aspiration of the head and neck. *Pathology- Phila* 1996;4:409-38.
11. Martin H, Ellis EB. Biopsy of needle puncture and aspiration. *Ann Surg* 1930;92:169-81.
12. Pathak R, Prasad KBR, Rauniyar SK, Pudasaini S, Pande K, Koirala S et al Fine needle aspiration cytology of head and neck lesions and its correlation with histopathology. *Journal of pathology of Nepal* 2016; 6: 985-9.
13. Shekhar H, Kaur A, Agrawal P, Pancharia A, Jadeja P. Fine needle aspiration cytology in head and neck swellings: a diagnostic and therapeutic procedure. *Int J Res Med Sci* 2014;2(4):1667-71.
14. Gupta G, Joshi DS, Shah A, Gandhi M, Shah NR. FNAC of Head and Neck Swellings. *GCSMC J Med Sci* 2014; 3 (1):38-41.
15. Khetrpal S, Jetley S, Jairajpuri Z, Rana R, Kohli S. FNAC of head and neck lesions and its utility in clinical diagnosis: A study of 290 cases. *Natl J Med Res.* 2015; 5 (1):33-38.
16. Nanik J, Rathore H, Pachori G, Bansod P, Ratnawat K. Cyto morphology of Head and Neck lesions: A study in tertiary care hospital. *Panacea Journal of medical science* 2015;5(3):145-9.
17. Fernandes H, D'souza C, Thejaswini B. The role of fine needle aspiration cytology in palpable head and neck masses. *J Clin Diag Res.* 2009;(3):1719-25.
18. Sreedevi P, Kishore Kumar Ch, Parankusa N  
Original Research Article: Diagnostic role of FNAC in Evaluation of Head and Neck Lesions. *Jou of Dent and Med Scie* 2016;15(9):11-13.
19. Patel DN, Patel PB, Patel HV, Gandhi TJ. Fine needle aspiration cytology role in head and neck lesions. *IAIM* 2015;2(8):99-104.
20. Kapoor S, Bagga PK, Rupesh S, Singh A, Kumar A, Singh H. Diagnostic accuracy of Fine needle aspiration cytology in Palpable lesions of head and neck in comparison to histopathology. *Int Jou of Contemporary Med Res* 2017;4(2):449-53.

.....

**How to cite this article?**

Patel F, Gonsai R. N, Patel M.L, Qureshi N, Vora M. A Retrospective study of 130 cases in all age group presented with palpable head and neck swelling. *Trop J Path Micro* 2018;4(4):319-323.doi:10. 17511/jopm. 2018.i4.04

.....