

# Pattern of fine needle aspiration cytology of superficially palpable lesions: One year hospital based study

Piya E<sup>1</sup>, Panth R<sup>1</sup>, Singh S<sup>1</sup>

<sup>1</sup>Consultant pathologists, Pathology Department, Shree Birendra Hospital Chhauni

## Abstract

**Introduction:** This is a retrospective study on fine needle aspiration cytology (FNAC) of superficially palpable lesions done in Shree Birendra Hospital, Chhauni, over a period of one year from 14<sup>th</sup> April 2008 to 13<sup>th</sup> April 2009.

**Aim:** The aim of this study was to review cytological diagnosis on superficially palpable lesions in various sites.

**Methods:** A total of 323 cytological diagnoses of palpable lumps performed in one year by pathologists were retrieved. Sites of FNA and diagnoses were analyzed and correlated with age and sex of the patients.

**Results:** This study has included 323 FNACs. Lymph node was the most common site for FNAC (32%), followed by breast (29%), thyroid (22%), and salivary gland (2%). Other site comprised 15% of cases. In lymph node, reactive lymphadenitis was the most common benign lesion (42.7%) and metastatic squamous cell carcinoma was the commonest malignant lesion (12.62%). In breast, benign proliferative breast disease was the most common (84.1%) and ductal carcinoma was commonest among malignant lesions (8.5%). Among thyroid lesions, benign proliferative thyroid disease was the commonest one (47.9%) followed by papillary carcinoma among malignant lesions (11.3%). Among salivary gland lesions, chronic sialadenitis was most common inflammatory lesion (37.5%) followed by pleomorphic adenoma among benign lesions (25%) and carcinoma comprised 25%. Lipoma was the commonest lesion (63%) from other sites.

**Conclusion:** Wide range of lesions, both benign and malignant, can be diagnosed by FNAC thus restricting surgery to cases only requiring further histopathological evaluation.

## Introduction

Fine needle aspiration cytology (FNAC) is a diagnostic procedure used to investigate easily palpable superficial lumps or masses in organs like thyroid, breast, lymph nodes, and salivary glands. Modern imaging techniques mainly ultrasonography (USG) and computed tomography (CT) guided FNA are carried out on those lesions not easily palpable and located in deeper areas and organs such as lungs, mediastinum and abdominal, retroperitoneal and pelvic regions<sup>1,2</sup>. FNAC is safer and less traumatic, relatively painless with speedy result and cheap. Major complications are usually rare<sup>3</sup>. Common complications include bruising and soreness. Its accuracy in many situations, when applied by experienced and well trained pathologists, can approach that of histopathology in providing workable diagnosis. However, aspiration cytology is not a substitute for surgical histopathology. Instead it should be regarded as a very important preoperative/pretreatment investigation. False negative results may sometimes be obtained because of low cell yield or sampling error. A definitive diagnosis may not always be possible in conditions with haemorrhage, infarction and reparative changes which at times mimic neoplastic features<sup>1</sup>. Therefore information obtained by FNAC must always be correlated with clinical features and relevant investigations.

Address for correspondence: evapiya@yahoo.com

## Aim

The main aim of this study is to analyze different cytological diagnoses of superficially palpable lumps on FNAC.

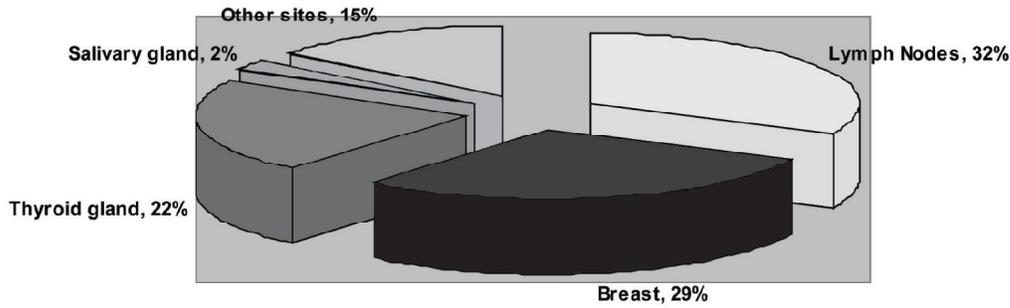
## Material And Method

A total of 323 cytological diagnoses of palpable lumps performed in one year by pathologists were retrieved. Sites of FNA and diagnoses were analyzed and correlated with age and sex of the patients.

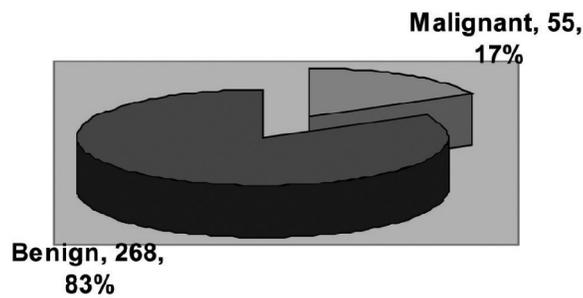
CT/USG guided FNA done from deeper areas and organs such as lungs, mediastinum and abdominal, retroperitoneal and pelvic organs and tissues were excluded from this study.

## Results

A total of 323 FNA were done from various sites. The various sites and their and percentages are shown in the pie chart.



There were a total 268 (83%) benign and 55 malignant cases (17%) as depicted in the pie chart.



### Lymph Nodes

103 FNAC were done from enlarged lymph nodes, 44 of which were reported as reactive lymphadenitis, 26 as granulomatous lymphadenitis. 33 cases were diagnosed to have malignancy. Metastatic malignancy was more common than lymphoma (2.9%) Cervical lymph was the most common site (85%).

FNAC Diagnosis	Number	Percentage(%)
Reactive Lymphadenitis	44	42.72
Granulomatous Lymphadenitis	26	25.25
Metastatic Squamous Cell Carcinoma	13	12.60
Lymphoma	3	2.92
Metastatic Adenocarcioma	4	3.90
Metastatic Malignant melanoma	4	3.90
Metastatic Small Cell Carcinoma	3	2.90
Positive for malignant Cells	3	2.90
Metastatic Hepatocellular Carcinoma	1	0.97
Metastatic Papillary Carcinoma	1	0.97
Metastatic Clear cell carcinoma	1	0.97
Total	103	100

Reactive and granulomatous lymphadenitis were seen relatively in younger age group (mean age 23 years) whereas mean age was 46 years for malignant cases. Male -to -female ratio was 3:1 in malignant cases.

## Breast

A total of 94 FNAs were done from breast. Various lesions diagnosed on FNA are tabulated as follows.

Breast was the second common site for FNAC. Benign proliferative breast disease was the commonest lesion in the age group of 20 to 45 years. Among malignant lesions, which favoured patients above 50 years of age ductal carcinoma was the commonest (88%). Male - to- female ratio was 1:8 in case of malignant lesions.

FNAC Diagnosis	Number	Percentage(%)
Benign Proliferative Breast Disease	79	84.1
Gynaecomastia	4	4.2
Ganulomatous Lesion	2	2.1
Ductal Carcinoma	8	8.5
Lobular carcinoma	1	1.1
Total	94	100

## Thyroid Gland

Out of 71 thyroid lesions, 63 were benign and 8 were malignant. cases. Benign proliferative thyroid disease was the commonest (54.9%) lesion followed by colloid goitre (23.2%). Papillary carcinoma was the most common malignant lesion (11.3%). Male to female ratio was 1:8 in case of malignant lesions and the mean age was 26 years.

FNA Diagnosis	Number	Percentage (%)
Benign Proliferative Thyroid Disease	34	47.9
Colloid Goitre	17	23.2
Subacute Thyroiditis	4	5.7
Lymphocytic Thyroiditis	3	4.2
Hashimoto Thyroiditis	3	4.2
Thyroglossal Cyst	1	1.4
Follicular adenoma	1	1.4
Papillary Carcinoma	8	11.3
Total	71	100

## Salivary Gland

Various salivary gland lesions diagnosed on FNAC are listed below. The most common site for FNAC was parotid gland. 25% of total cases was found to be malignant. Male-to-female ratio in case of malignancy was 1:1.

FNA Diagnosis	Number	Percentage(%)
Chronic Sialoadenitis	3	37.5
Pleomorphic Adenoma	2	25
Benign salivary Lesion	1	12.5
Mucoepidemoid Carcinoma	1	12.5
Hyalinizing Clear Cell Carcinoma	1	12.5
Total	8	100

## Other Sites

Out of 47 FNA done from other palpable lumps, lipoma was the commonest benign lesion, with malignant melanoma being the commonest of two malignant cases.

FNA Diagnosis	Number	Percentage(%)
Lipoma	30	63.7
Haemangioma	4	8.6
Keratinous Cyst	4	8.6
Neurofibroma	3	6.3
Paraganglioma	3	6.4
Malignant Melanoma	2	4.3
Fibromyxoid Sarcoma	1	2.1
Total	47	100

## Discussion

FNAC contributes significantly to preoperative investigations in patients with palpable lumps. Its importance in detecting cancer is widely recognized<sup>2</sup>. Out of 323 FNACs, 83% of lesions were benign and 17% were malignant.

The most common site of FNAC was lymph node (32%). Reactive lymphadenitis was the most common lesion (42.72%) followed by granulomatous lymphadenitis (25.25%). This is similar to the study done by Haque MA et al in which cervical lymph node was the commonest site (87%).<sup>4</sup> This matched with our experience (85%). In his study, reactive lymphadenitis comprised 27.1% and granulomatous lesions 40% which in contrast with 42.72% and 25.25% respectively. Prasoon D reported 27.2% as granulomatous lymphadenitis which matches to our study (25.25%)<sup>5</sup>. In the study done by Ahmad S et al, 53.6% of cases were diagnosed as reactive hyperplasia and 32.8% as tubercular lymphadenitis. In his study, 46.4% of cases were AFB positive<sup>6</sup> whereas in our study 19.2% of cases were AFB positive. On the other hand, Haque M.A et al found 3.5% AFB positive cases.

Haque MA et al reported squamous cell carcinoma as the most common metastatic malignancy (16.6%)<sup>4</sup>, this very well correlates with our study (12.62%). We report 2.9% lymphoma where as Tilak et al and Egea et al reported 5.6% and 9.5% cases of lymphoma respectively in their studies<sup>7,8</sup>.

Breast was the second common site for FNAC. Benign proliferative breast disease was the commonest lesion (84.1%) in the age group of 20 to 45yrs. Among malignant lesions, ductal carcinoma was the most common and affected patients above 50 years. Niazi S. et al found that benign breast disease is common (65%) in younger age group followed by malignancy (29%) in 5th to 6th decade<sup>9</sup>. This is comparable to our study.

Third common site for FNAC was thyroid gland.

Benign proliferative thyroid disease was the commonest (47.9%) which is similar to the result obtained by Matos L.G et al. In his study, benign thyroid lesion comprised 55% and neoplasm comprised 15%<sup>11</sup>. Papillary carcinoma was the most common tumor in our study (11.3%) which is also the most common malignant neoplasm in other studies.

Pleomorphic adenoma was the commonest tumor of all primary salivary tumors and parotid gland was the commonest site (80%). This tallies with the study conducted by S. Ahamed et al (70%). In his study pleomorphic adenoma was the commonest benign tumor (73%) of all primary salivary gland tumor (73%). Adenoid cystic carcinoma was the most common malignancy (35.7%)<sup>12</sup> Whereas mucoepidermoid carcinoma and hyalinizing clear cell carcinoma comprised 12.2% each in our study. The highest incidence for benign lesions was in the 3rd and 4th decade and malignant lesions in 4th to 5th decades of life. S. Ahmad et al observed benign tumors in age group of 30 to 70 years while pick incidence of malignant tumors was 6th to 7th decades.

## Conclusion

Wide range of lesions, both benign and malignant, can be diagnosed by FNAC thus restricting surgery to cases only requiring further histopathological evaluation.

## References

1. Svante R O, Gregory F.S, Walters M N, Whitaker D: **Manual and atlas of fine needle aspiration cytology**, 3rd edition, Churchill Livingstone 2002: 3-6.
2. Winifred G, Mckee GT, diagnostic Cytopathology, 2nd edition, Churchill Livingstone 2003, 281-283.
3. Fine needle aspiration in cancer diagnosis, Ian D Buley, BMJ, 2004, July 31;329(7460):244-245.

4. Haque MA, Talukder SI. Evaluation of fine needle aspiration cytology (FNAC) of lymph node in Mymensingh, Mymensingh Med J, 2003 Jan; 12 (1): 33-35.
5. Prasoon D. Acid fast bacilli in FNA smears from tuberculous lymph nodes. Acta cytologica;2000;44:297-300.
6. Ahamd SS, Akhtar S, Akhtar K. Study of fine needle aspiration cytology in lymphadenopathy with special reference to acid fast in case of tuberculosis. JK Science Vol 7, No. 1; Jan-March 2005.
7. Tilak V, Dhadel AV, Jain R. Fine needle aspiration cytology of head and neck masses. Ind J Path Microbiol 2002;45(1): 23-30  
Aspiration biopsy. Acta Cytologica 2002: 46:368-39.
8. Egea AS, Gonzalez NAM et al. Usefulness of light microscopy in lymph node fine needle aspiration.
9. Shahida Niazi, Farukh Kamal: Fine needle aspiration cytology (FNAC); Role in parable breast lesions. The Professionals Vol 7, No. 04, Oct, Nov, Dec. 2004.
10. Godinho M L, Kocjan G., Kurtz A. Contribution of fine needle aspiration cytology to diagnosis and management of thyroid disease. Clin pathol. 1992, May; 45(5): 391-395.
11. S. Ahmad, M. Lateef; R. Ahamd. Clinopathological Study of Primary Salivary Gland Tumors in Kashmir. JK practitioner 2002;9(4)231-233.