

**Chaurasiya Anand Kumar<sup>\*1</sup>, Patel Amit Kumar<sup>1</sup>, Khatun Tarannum<sup>2</sup>, Jana Debnarayan<sup>3</sup>, Sarraf Pramod Kumar<sup>4</sup>**

<sup>1</sup> Department of Pathology, National Medical College, Birgunj, Nepal

<sup>2</sup> Department of Obstetrics & Gynaecology, National Medical College, Birgunj, Nepal

<sup>3</sup> Department of Physiology, National Medical College, Birgunj, Nepal

<sup>4</sup> Department of Emergency, National Medical College, Birgunj, Nepal

## ABSTRACT

**Background:** To study the prevalence of various type of breast lesions in a tertiary care centre.

**Methods :** The period of study was one year , from 1<sup>st</sup> January 2015 to 31<sup>st</sup> December 2015. Patients with breast lesions who came to department of pathology for Fine needle aspiration cytology were included in the study. There were 55 patients who came to the department for Fine needle aspiration cytology during one year period. Information pertaining to patients were taken from the medical record section and department of pathology of National medical college.

**Results:** Out of 55 cases 17 patients (9.35%) were diagnosed with fibroadenosis, which was the highest followed by fibroadenoma (12 cases- 6.6%) . Ductal hyperplasia was the least diagnosed disorder which was seen in only one patient (0.5%).Carcinoma of breast was diagnosed in three patients (1.65%).There were three (1.65%) male patients with breast lesions who were diagnosed with gynaecomastia.

**Conclusion:** This study revealed that fibroadenosis was the most common disorder among the patients who came for fine needle aspiration cytology of the breast.

**Keywords:** Carcinoma breast, Fibroadenosis, Fine needle aspiration cytology

**\*Corresponding Author:** Dr. Anand Kumar Chaurasiya, Department of Pathology, National Medical College, Birgunj, Nepal, Email: dr.akc13@yahoo.com

## INTRODUCTION

All breast lesions are not malignant, and all the benign lesions do not progress to cancer; however the accuracy of diagnosis can be increased by a combination of preoperative tests (like physical examination, mammography, fine-needle aspiration cytology, and core needle biopsy). These modalities are more accurate, reliable, and acceptable when compared with a single adopted diagnostic procedure despite of having their own technical limitations.<sup>1,2</sup>

Breast lesions of various etiology are very frequent in females. Most of the lesions are associated with age related changes and others are of infective etiology. Diagnosis of breast lesions is routinely performed by the triple assessment of a specialised surgeon, radiologist and pathologist. In this setting, fine-needle aspiration cytology (FNAC) is the

current methods of choice for pathological diagnosis. The success rate of FNAC for obtaining a definite diagnosis depends both on the palpability and size of the lesion. FNAC has average success rates of 75–90% for palpable and 34–58% for non-palpable breast lesions respectively.<sup>3</sup> Fine-needle aspiration (FNA) biopsy is an established and highly accurate method for diagnosing breast lesions.” The use of core biopsy (CB) is being increasingly advertised but its procedure is more cumbersome, expensive and time consuming as compared to FNA procedure.<sup>4,6</sup> Core Biopsy or trucut needle biopsy is not widely used because of its complications, interpretation, and time-consuming results; therefore palpable breast lesions can be accurately diagnosed by triple test only (FNAC, physical examination and Mammography).<sup>7</sup> FNAC is more suitable for patients on anticoagulants and for lesions close to the skin, chest wall, vessels and implant or for very small lesions and those that are deep seated and difficult to reach. For accessible, palpable lesions FNAC can be performed relatively straightforwardly and takes approximately 5 min in experienced hands. Therefore and for these cases, FNAC is easier to plan in an outpatient clinic. As a general feature of cytology, good quality FNAC depends on the competence of the aspirator, and its interpretation is primarily determined by the skills and experience of the pathologist.<sup>6, 7, 8, 9</sup>

Fine-needle aspiration cytology (FNAC) is considered a successful and less complicated procedure with excellent results; however the main factors influencing success should be considered before its procedure to increase its accuracy and these are “the aspirator, the small size of many cancers, and the occult nature of the lesions seen only on mammography”.<sup>10</sup>

Fine-needle aspiration cytology (FNAC) is widely used in Nepal as a reliable, rapid, cost-effective, complication free, and an accurate diagnostic modality for the evaluation or management of breast lumps. Lesions suspicious of malignancy must undergo histopathological evaluation.

## MATERIALS AND METHODS

This retrospective study included 55 cases who came to the department of pathology with breast lesions from 1<sup>st</sup> January 2015 to 31<sup>st</sup> December 2015. Information of patients were taken from the medical record section and department of pathology of National medical college.

### Procedure for Fine-Needle Aspiration Cytology (FNAC)

Verbal consent is taken before performing the FNAC and the procedure is explained to the patients. FNA is done using a 23 gauge needle and 10 mL disposable syringe for each patient. No local anesthetic is used, and the needle is inserted into the palpable lesions, either once or twice depending upon the size of the nodule. Cellular material is aspirated into a syringe and expelled onto slides. Four to five slides are prepared for each patient. A small or medium-sized drop of aspirate is put near the frosted end of a slide that is placed on a table. A second slide is used to spread the aspirated material in the same manner used to prepare a peripheral blood smear. All the smears are wet fixed in 95% methanol, and the air dried smears are stained with two stains May-Grunwald Giemsa (MGG), and Papanicolaou stains.

## RESULT

Among the 55 cases who underwent fine needle aspiration cytology, there were 52 females and 3 male. Age of the patients varied from 11 years to 75 years. Out of 55 cases 17 (30.9%) patients had fibroadenosis, 12 (21.8%) had fibroadenoma, 6 (10.9%) patients had chronic mastitis, 5 (9%) had acute mastitis, 4 (7.3%) had fibrocystic disease, 3 (5.5%) patients had carcinoma of breast and 3 patients had gynaecomastia.

**Table 1: Distribution of Breast Lesions**

Lesions	Frequency	Percentage (%)
1. Fibroadenosis	17	30.9
2. Fibroadenoma	12	21.8
3. Chronic Mastitis	06	10.9
4. Acute Mastitis	05	09.0
5. Fibrocystic Disease	04	07.3
6. Galactocele	04	07.3
7. Gynaecomastia	03	05.5
8. Carcinoma	03	05.5
9. Ductal Hyperplasia	01	01.8

## DISCUSSION

Fine-needle aspiration cytology is widely used in the diagnosis of breast cancer because it is an excellent, safe, and cost-effective diagnostic procedure. One can get on site immediate report with minimal cost using inexpensive equipments and a simple technique. The most significant advantage of FNAC is the high degree of accuracy, rapid results, and a less invasive procedure than a tissue biopsy. FNAC of the breast can reduce the number of open breast biopsies.<sup>11,12,13,14</sup>

The frequency of inadequate cases are variable in different studies ranging from 0 to 57.2% depending on various factors. The main causes for inadequate smears may be due to either lack of technical experience in performing FNA, preparation, and fixation of smears. FNA of ill-defined masses like or lesions with hyalinization and deeply located lumps may also be contributed to the inconclusive diagnosis.<sup>15,16</sup> Many inflammatory breast lesions create confusion as these are presented as a palpable mass. "Mammographic, sonographic, and magnetic resonance imaging findings may not always distinguish some of the benign lesions like duct ectasia, fat necrosis from a malignant lesion." Fine-needle aspiration (FNA) is a well-accepted diagnostic modality and procedure for the diagnosis of inflammatory swellings of breasts. It is the most accurate diagnostic modality for these lesions and cell blocks accentuate the reliability of the diagnosis in these benign inflammatory and curable lesions without requirement of excision biopsy or other second-line investigations.<sup>17,18,19.</sup>

In our study there were 11 (20%) cases of benign inflammatory lesions, and the majority of these were of acute and chronic mastitis. Granulomatous mastitis is a rare chronic inflammatory breast lesion that mimics carcinoma clinically and radiologically.<sup>20,21</sup>

Our findings strongly correlates with the study of K. C. Lee et al. in which they stated that fibroadenoma and other benign lesions such as fibroadenosis were more common in their setup. Various types of adenosis have also been described, of which sclerosing adenosis and microglandular adenosis merit detailed

description and most of these lesions mimic malignant lesions".<sup>21</sup> In a study by M. H. Bukhari et al it was stated that FNAC results are more reliable regarding malignant lesions; however the category of "Suspicious for Malignant Lesions" needs histopathological evaluation before performing surgical measures. Self-assessment, mammography, and tru-cut biopsy may help in the accuracy of these lesions<sup>2</sup>. This correlates with the recent study in which it was stated that lesions suspicious of malignancy must undergo histopathological evaluation. Fibroepithelial lesions of the breast encompass commonly occurring fibroadenomas and rare phyllodes tumours.<sup>22</sup> In the present study fibroadenoma was one of the commonest disorder which correlates with the findings of Kuijper et al.<sup>22</sup>

## CONCLUSION

The cytological examination of breast lesions prior to surgical treatment serves as a rapid, economical, and valuable diagnostic tool. Adhering to the principle of "Triple test and acquisition of technical, observational, and interpretative skills will further enhance the diagnostic accuracy of proliferative conditions with atypia or suspicious lesions of breast. Fibroadenosis was the most common disorder among the patients who came for fine needle aspiration cytology of the breast.

## REFERENCES

1. Auger M, Huttner I. Fine-needle aspiration cytology of pleomorphic lobular carcinoma of the breast: Comparison with the classic type. *Cancer*. 1997; 81(1): 29–32.
2. Bukhari MH, Akhtar ZM. Comparison of accuracy of diagnostic modalities for evaluation of breast cancer with review of literature. *Diagn Cytopathol*. 2009; 37(6):416–24.
3. Ibrahim AE, Bateman AC, Theaker JM, et al. The role and histological classification of needle core biopsy in comparison with fine needle aspiration cytology in the preoperative assessment of impalpable breast lesions. *J Clin Pathol*. 2001;54:121–5.

4. Hukkinen K, Kivisaari L, Heikkila PS, et al. Unsuccessful preoperative biopsies, fine needle aspiration cytology or core needle biopsy, lead to increased costs in the diagnostic workup in breast cancer. *Acta Oncol.* 2008; 47:1037.
5. Pisano ED, Fajardo LL, Tsimikas J, et al. Rate of insufficient samples for fine-needle aspiration for nonpalpable breast lesions in a multicenter clinical trial: the Radiologic Diagnostic Oncology Group 5 Study. The RDOG5 investigators. *Cancer.* 1998;82:679–88.
6. Lieske B, Ravichandran D, Wright D. Role of fine-needle aspiration cytology and core biopsy in the preoperative diagnosis of screen-detected breast carcinoma. *Br J Cancer.* 2006; 95:62–6.
7. Rotten D, Levallant JM, Leridon H, et al. Ultrasonographically guided fine needle aspiration cytology and core-needle biopsy in the diagnosis of breast tumors. *Eur J Obstet Gynecol Reprod Biol.* 1993; 49:175–86.
8. Collins LC, Connolly JL, Page DL, et al. Diagnostic agreement in the evaluation of image-guided breast core needle biopsies: results from a randomized clinical trial. *Am J Surg Pathol.* 2004;28:126–31.
9. Gornstein B, Jacobs T, Bedard Y, et al. Interobserver agreement of a probabilistic approach to reporting breast fine-needle aspirations on ThinPrep. *Diagn Cytopathol.* 2004;30:389–95.
10. Rubin M, Horiuchi K, Joy N et al. Use of fine needle aspiration for solid breast lesions is accurate and cost-effective, *Americ J Surg.* 1997; 174(6):694–8.
11. Berner A, Sigstad E, Reed W, Risberg B. Fine-needle aspiration cytology or core biopsy when diagnosing tumours of the breast. *Tidsskrift for den Norske Laege forening.* 2003; 123(12):1677–9.
12. Lieu D. “Value of cytopathologist-performed ultrasound-guided fine-needle aspiration as a screening test for ultrasound-guided core-needle biopsy in nonpalpable breast masses. *Diagn Cytopathol.* 2009; 37(4): 262–9.
13. Ishikawa T, Hamaguchi Y, Tanabe M et al. False-positive and false-negative cases of fine-needle aspiration cytology for palpable breast lesions. *Breast Cancer.* 2007; 14(4):388–92.
14. Lamb J, Anderson TJ, Dixon MJ, Levack PA. Role of fine needle aspiration cytology in breast cancer screening. *J Clin Pathol.* 1987; 40(7):705–9.
15. Hindle WH, Payne PA, Pan EY. The use of fine-needle aspiration in the evaluation of persistent palpable dominant breast masses. *Am J Obst Gynecol.* 1993; 168, (6 ):1814–9.
16. Lee HC, Ooi PJ, Poh WT, Wong CY. Impact of inadequate fine-needle aspiration cytology on outcome of patients with palpable breast lesions. *Aust New Zeal J Surgery.* 2000; 70(9):656–9.
17. Khatun H, Tareak-Al-Nasir N, Enam S, Hussain M, Begum M. Correlation of fine needle aspiration cytology and its histopathology in diagnosis in breast lumpus. *Bangladesh Med Res Counc Bull.* 2002; 28(2):77–81.
18. He Q, Fan X, Yuan T, et al. Eleven years of experience reveals that fine-needle aspiration cytology is still a useful method for preoperative diagnosis of breast carcinoma. *Breast.* 2007; 16 (3):303–6.
19. Ciatto S, Cecchini S, Tossa A, Grazzini G, Bartoli D. Fine needle aspiration cytology and breast cancer diagnosis. *Tumori.* 1989; 75(3):280–3.
20. Feoli F, Paesmans M, Eeckhout Van P. Fine needle aspiration cytology of the breast: Impact of experience on accuracy, using standardized cytologic criteria, *Acta Cytologica.* 2008; 52(2):145–51.
21. Lee KC, Chan JK, Gwi E. Tubular adenosis of the breast: a distinctive benign lesion mimicking invasive carcinoma. *Americ J Surg Pathol.* 1996; 20(1): 46–54.
22. Kuijper A, Mommers EC, van der WE, et al. Histopathology of fibroadenoma of the breast. *Am J Clin Pathol.* 2001; 115:736–42.