

# Comparative Study of Fine Needle Aspiration Cytology with Histopathology in Cases of Breast Lump

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## Abstract

**Background and Objectives:** This study was conducted to compare the diagnostic accuracy of fine needle aspiration cytology (FNAC) in differentiating the benign and malignant lesions of palpable breast lump with histopathological correlation and also to study the accuracy of the needle tip localizing the tumor during FNAC procedure.

**Methods:** One-year multicenter prospective study was conducted and in that 50 patients underwent FNAC of the palpable breast lump after thorough physical examination. The cytological diagnosis was classified into 3 groups: Benign, suspicious, and malignant. After this reporting, all the patients were later subjected to open/excision biopsy and its histopathological confirmation. Later diagnostic accuracy of cytology reporting was compared with that of histopathology. The accuracy of the needle tip in localizing the tumor in FNAC was also studied by comparing the normal glandular cell aspirate with tumor cell aspirate. Repeat cytology was carried out before open/excision biopsy if the pathologist reports the cytology slide as "inadequate."

**Result:** We had accuracy rate of 100% for benign lesion and 93.10% for the malignant lesion with false negative rate of 6.9% and false positive rate of zero with FNAC in the diagnosis of a palpable breast lump. The overall sensitivity of FNAC in diagnosing the palpable breast lump is 93.10%, specificity is 100%, positive predictive value is 100%, and negative predictive value is 90.47%. Since inadequate sampling rate is 2% in our study, the accuracy rate of needle tip in localizing the tumor in FNAC is 98%.

**Interpretation and Conclusion:** Since our diagnostic accuracy rate and predictive values are very high and comparable to any other published series, it can be advised that the patients in which FNAC is unequivocally diagnostic for cancer can be managed directly by mastectomy (or any other definitive therapy). A diagnosis of suspicious for cancer must be confirmed by an open biopsy or intraoperative frozen section or rapid hemotoxylin and eosin staining (depending on availability). Since the accuracy of the needle tip in localizing the lump is very high (98%), the diagnostic accuracy of FNAC can be increased by performing repeat aspiration on the lump for which previously being reported as inadequate or unsatisfactory sampling before advising for open biopsy.

**Keywords:** Breast lump, Carcinoma breast, Diagnosis of breast lump, Fine needle aspiration cytology

## INTRODUCTION

Fine needle aspiration cytological (FNAC) diagnosis has important, but as yet unfulfilled, applications in surgical practice. It is the most useful component of clinical tissue cytology or non-exfoliative cytology defined by Bamroth (1996) as follows... "the examination of cells obtained

by needle or drill biopsy in solid organs or tissue masses or from the cut surface of such material freshly removed by surgical biopsy." In current practice tissue cytology, includes imprint, or touch preparations from excised material, scrape smears from superficial or inaccessible lesions. The purpose of aspiration is to obtain diagnostic material for cytologic study from organs that do not shed cells spontaneously. It is also particularly applicable where the lesion in question is relatively inaccessible or unsafe for surgical biopsy. The target organs for this procedure include breast, thyroid, lymph nodes, liver, spleen, soft tissues, and prostate; Carcinoma of breast still remains a formidable problem. It is the second most common cancer affecting Indian women. "Every lump in the breast, whether benign or malignant, small or big,

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is likely to generate anxiety in patient and her family particularly because of the present emphasis on breast cancer education through various media.” Although many of the lumps are benign, one should substantiate the clinical diagnosis by histopathological examination of some type.

It has been standard practice to use paraffin section or frozen section on biopsied material to confirm the diagnosis. The paraffin section practice carries the disadvantage of delay which may critically affect the ultimate results of therapy and also the need for the second operation. Reading and interpretation of frozen section histology is quite often very difficult. It has also got an additional disadvantage of subjecting the patient to an anesthetic without knowing if she will awake with or without her breast. For these reasons, FNAC is gaining increasing acceptance for pre-operative confirmation of the diagnosis.

Since it is simple and readily acceptable for patients, it helps in detecting carcinomas early. In advanced breast cancer, a not uncommon presentation in our hospitals. FNAC helps in confirming the diagnosis before instituting therapy. This enables the surgeon to discuss the problem and various types of treatment procedures available for it with the patient before initiating therapy. The patient can be better prepared psychologically too.

For optimal accuracy, FNAC should include a strong clinical association. Ideally, the clinician or cytopathologist should examine the patient, perform the aspiration cytology, read the smears, discuss the appearances in the light of other investigations if appropriate, and deliver the report. In surgical practice, it may be necessary to repeat the whole procedure in 10-15% cases. Provided a close liaison is maintained between clinician and cytologist useful diagnostic information should result.

FNAC is not only a sensitive and discriminating technique but also it carries the benefit of clinical utility. It takes its place among other investigations in formulating a diagnosis. Often it will transform a clinical dilemma and obviate the need for expensive, time-consuming and risky investigations.

This study is undertaken to evaluate the usefulness and limitations of FNAC in the pre-operative diagnosis of breast lesions. For this, it is correlated with histopathological findings of surgical specimens.

## METHODS

The truth is that the only kind of evidence on which a surgeon can wholly rely today is pathologic. The surgeon

must have proof of the nature of the disease because his therapy is so different for different lesions. Benign lesions, in general, require only harmless limited local excision, whereas carcinoma requires a formidable and mutilating radical operation. Biopsy and microscopic study of the lesion is necessary to prove the diagnosis for all lesions of the breast. The only question is what form of the biopsy should be taken. A number of different methods of obtaining tissue biopsy are in use.

The method of breast biopsy is becoming almost as controversial as is the definitive treatment of the breast cancer. FNAC or core needle biopsy, incision or excision biopsy, local or general anesthetic, in patient or outpatient and frozen versus permanent section readings are all current topics of debate.<sup>1</sup>

Following are the methods of biopsy:

1. FNAC
2. Trocar or tru-cut biopsy
3. Intraductal biopsy
4. Smears of nipple secretion
5. Incision biopsy
6. Excision biopsy
7. Biopsy of lesions of the nipple.

### Trocar or Tru-cut Biopsy

Surgeons have devised a variety of trocars and trephines for bringing out small cores of tissue from breast lesions. With them it is possible to obtain, a tissue specimen that can be fixed embedded, and cut in the usual way. In 1938, Silverman introduced the needle that bears his name and it has come to be widely used for biopsy.

Ackermann, at Delafield Hospital has advised a good trocar with which a small core of tissue can be obtained. Another needle that is commonly used is the tru-cut needle. All these techniques have the disadvantage that they provide only a comparatively small specimen of the lesion, in which the architecture is not well shown and question such as invasion remain doubtful. The microscopic evidence is just not good enough. Trocar and trephine biopsy face the objection that they miss the lesion if very small.

### Intraductal Biopsy

Leborgne in Montevideo has devised a set of small instruments, dilators and loops curettes, which he inserts through the nipple ducts to reach the lesions and to secure small fragments of them. These fragments are sectioned and stained in the usual way.<sup>2</sup>

### Smears of Nipple Secretion

The microscopic examination of nipple discharge smears shows a variety of cells including those from the duct

epithelium, inflammatory cells and red blood cells. The best technique for collecting the fluid is to gently squeeze the nipple, noting the position of the nipple of the discharging duct and to place the one end of the microscopic slide on the nipple and make a thin film by smearing the discharge along the slide. The number of cells obtained is usually small and they dry quickly to enable good quality staining by the Romanowsky technique. When several clusters of large duct cells are seen in a nipple discharge smear, the presence of a papilloma or papillary carcinoma should be considered. There is no doubt that the smear technique is not a reliable method of diagnosis. Smears often fail to reveal carcinoma when it is present in the breast and they may give false positive diagnosis of carcinoma when it is not present. Second, every kind of manipulation of a breast suspected of containing disease should be avoided for the fear of producing metastasis from possible carcinoma.<sup>3</sup>

### Incisional Biopsy

Some surgeons prefer incision biopsy and frozen section as the method of choice improving a nature of tumor of the breast. Frozen section provides adequate microscopic evidence except in one type of neoplasm of the breast that requires good paraffin section. That is papillary type of neoplasm. It is difficult to distinguish papillary carcinoma from papilloma microscopically by frozen section. Preliminary biopsy as a separate operative procedure and careful study of paraffin sections should precede any definitive operative procedure.

### Excisional Biopsy

Excision of the entire tumor is, however, the general practice throughout. The tumor should be removed by wide excision well away from the limits of the growth. The surgeon, who performs a radical mastectomy merely on the suspicion that he is dealing with a carcinoma, because he feels that it is not safe to wait until a definitive diagnosis is made, is using poor judgment and may mutilate his patient needlessly.

### Biopsy of the Lesions of the Nipple

Lesions of the nipple epithelium, thickening, reddening, erosion which are not accompanied by a palpable tumor in the breast may quite properly be biopsied in a physician's office or in the outpatient department.

### FNAC

The FNAC is a cost-effective clinical tool. The application of this simple, inexpensive technique has had a profound effect on the profile of surgery in institutions where it is appropriately applied. Earlier when FNAC was unavailable only 20% of patients admitted for excision biopsy of breast tumors with frozen section had a mastectomy for carcinoma. Since the introduction of this

needle aspiration cytology, approximately 60% of the patient admitted for breast surgery required mastectomy. Most knew the diagnosis before surgery, and the majority underwent mastectomy for carcinoma without frozen section examination. The economic and emotional advantages of this method are obvious.

The recent renewed interest in this technique is also due to the fact that this procedure is safe, atraumatic and repeatable. This can be carried out in outpatient department, and better treatment can be outlined before surgical intervention.

Methods	Accuracy (%)
Physical examination	85
Thermography	52
Ultrasonography	67
Mammography	53
Tru-cut needle biopsy	78
FNAC	96

## RESULTS

A total of 50 patients having the palpable breast lump underwent FNAC.

All 50 patients were female. The age incidence of the patient is as follows (Table 1).

The age incidence was ranged from 16 to 74 years (mean age 41.68 years). The age incidence for the benign lesions ranged from 16 to 39 years (mean age 27.89 years). The incidence for the malignant lesions ranged from 34 to 74 years (mean age 52.25 years). The most common age group for benign lesions was between 21 and 30 years and for the malignant lesion was 41-50 years.

All the 50 patients complained of lump in the breast. The other symptoms were pain in the lump, discharge per nipple, and lump in the axilla. The duration of symptoms varied from few weeks to few years. The mean duration of symptom was 5 months. The mean duration of symptoms for benign lesions was 3 months (range 1-7 months) and for the malignant lesions was 6.2 months (range 1-24 months). 29 patients complained of lump in the left breast, whereas 21 patients complained of lump in the right breast. The incidence of malignant lesion in both the breasts was equal. Benign lesions were the more common in the left breast as compared to the right one.

Among the 50 patients, 3 patients of breast lump were having family history of breast carcinoma (in mother). Among these 3 patients, 2 patients were having carcinoma breast (1 lobular carcinoma and 1 infiltrating ductal carcinoma), and one was having benign breast lump (nonspecific inflammatory lesion).

One patient was having lump in the right breast, which was diagnosed as carcinoma, who has previously underwent modified radical mastectomy for her left breast carcinoma 5 years back.

One patient was diagnosed as having fibroadenoma in the left breast; she had been operated for fibroadenoma in the right breast 3 months back.

One patient was having left breast lump which was diagnosed as malignancy, previously she had been operated for benign breast disease on the same breast 20 years back (pathology report and details of the earlier operation was not available).

One patient was having multiple lumps in both the breasts, FNAC as diagnosed as fibroadenoma. On local excision of these tumors, the histopathology reported as benign serous cystadenoma.

In one of the 50 patients of palpable breast lump, the FNAC was reported as “inadequate sampling” (showing normal glandular cells only). Following repeat FNAC, it was reported as fibroadenoma, later confirmed by histopathology.

The size of the breast lump ranged from 2 to 12 cm. The benign lesions ranged from 2 to 6 cm. 63.15% of the benign lesions were <5 cm. Malignant lesions were ranged from 4 to 12 cm in its greatest diameter. 80.64% of the malignant tumors measured 5 to 10 cm in its greatest diameter (Table 2).

The results of the FNAC are shown in Table 3.

Of the 21 cases of benign report by FNAC, 19 were confirmed by histopathology. False negative were 2 cases. False positive was zero. One case was reported

**Table 1: Age incidence in benign and malignant lesions**

Age (years)	Benign	Malignant	Total
11-20	5	-	5
21-30	8	-	8
31-40	6	7	13
41-50	-	9	9
51-60	-	5	5
61-70	-	9	9
71 onward	-	1	1
Total	19	31	50

**Table 2: Tumor size comparison in benign and malignant lesions**

Size (cm)	Benign (%)	Malignant (%)
<5	12 (63.15)	5 (16.12)
5-10	7 (36.84)	25 (80.64)
>10	0 (0)	1 (3.22)
Total	19	31

as unsatisfactory (inadequate) sampling, which on repeat FNAC revealed benign fibroadenoma that was later confirmed by histopathology after local excision.

The results of the benign lesions were as follows:

- Accuracy rate for benign lesions 100%
- False positivity 0%
- Unsatisfactory specimen rate 4.76%.

The histopathological reports of the benign lesions are shown in Table 4.

In their study, on 91 patients, Tiwari *et al.*<sup>6</sup> also reported fibroadenoma as the most common pathology (39.6%). The other important conditions such as subareolar abscess, invasive ductal cancer, breast abscess, fibrocystic disease, duct ectasia, and galactocele ranged from 5.5% to 7.7%.

Of the total 31 cases of malignant lesions, FNAC reported 27 as malignant, 2 as benign and 2 as suspicious lesions. False negative was 2 and false positive was zero. Two FNAC were reported as suspicious lesion for malignancy they underwent intraoperative rapid hemotoxylin and eosin staining for confirmation of malignancy before undergoing modified radical mastectomy and later histopathological confirmation. There was no unsatisfactory (inadequate) sampling for malignant lesions.

The results of the malignant lesions were as follows:

Accuracy rate for malignant lesion	93.10%
False negative rate	6.90%
Unsatisfactory specimen rate	0%

The histopathological results of the malignant lesions were as shown in Table 5.

Among 2 cases of false negative, one case of right breast lump was diagnosed as fibroadenoma in a 48-year-old female depending on the presence of uniform cells in sheets with myoepithelial cells with minimal nuclear atypia on FNAC. On local excision biopsy, the histopathology confirmed as infiltrating ductal carcinoma. Later she underwent modified radical mastectomy on the same stay. Total duration hospital stay was 14 days. In another case of left breast lump in a 35-year female which was diagnosed as benign proliferative breast disease with mild atypia by FNAC. On local excision biopsy of that breast lump, histopathology confirmed as infiltrating ductal carcinoma. Later she underwent modified radical mastectomy. Total duration of hospital stay was 10 days in this case.

The predictive value of the FNAC of the palpable breast lump is as shown in Table 6.

**Table 3: Results of FNAC**

Diagnosis	Patients
Benign	21 (false negative 2)
Suspicious	2 (both confirmed as malignant by histopathology)
Malignant	27 (false positive 0)
Total	50

**Table 4: Histopathology reports of benign lesions**

Diagnosis	Cases
Fibroadenoma	15
Fibrocystic disease	1
Serous cystadenoma	1
Nonspecific inflammatory lesion	1
Fatty degeneration	1
Total	19

**Table 5: Histopathology reports of malignant lesions**

Diagnosis	Cases
Infiltrating duct carcinoma	28
Lobular carcinoma	2
Comedo carcinoma (noninfiltrating)	1
Total	31

**Table 6: Predictive value of FNAC**

Test result	Disease (malignant)	Not diseased (benign)
Positive	27 (a) (True positive)	0 (b) (False positive)
Negative	2 (c) (False negative)	19 (d) (True negative)

## DISCUSSION

It is but natural to arrive at a tissue diagnosis in breast lumps at the very first consultation itself, lest, time should not be lost in planning and administering correct treatment. The most feasible and in expensive method is FNAC. The present series confirms the accuracy and clinical utility of FNAC in the investigation of the patient with benign and malignant breast disease. The accuracy of the diagnosis in patients with malignant breast disease is in the range of 85-90% in most of the series. Various benign and nonneoplastic lesion of the breast may present for needle aspiration. The benign lesions include fibroadenoma, fibrocystic disease, cysts, adenoma, intraductal papilloma, traumatic fat necrosis, fat degeneration, and serous cystadenoma. Benign lesions also include mesenchymal neoplasms such as lipoma and granular cell myoblastoma. In our study, we had 19 benign lesions (38%), fibroadenoma being the most common benign lesion that presents for needle aspiration. This has been confirmed in other series also. Fibroadenoma form the 80% of the benign lesion aspirated for cytology. Fibroadenoma exhibits a smear patten composed of large sheets and cluster of epithelial cells in honeycomb patten with some degree of nuclear atypia. The key to the diagnosis of fibroadenoma is the detachment of

oval naked nuclei from the cell clusters and sheets. The fibroadenoma has been considered a significant cause for the false positive diagnosis. The overall activity of the epithelial cell in this tumor is probably the season. We had no cases of false positive reports in our study. In a similar study done by Hussain<sup>4</sup> on 50 patients, the age distribution was between 15 and 65 years, and the maximum patients were seen in the 31-40 years group (30%). Similar studies done by Homesh<sup>5</sup> *et al.*, Tiwari,<sup>6</sup> and Ariga *et al.*<sup>7</sup> showed similar age patterns. Fibrocystic disease includes chronic cystic mastitis, mammary dysplasia, and Mazoplasia.<sup>8</sup> Mammography is of little aid in the densely fibortic breasts because microcalcification and increased vascularity are present both in chronic fibrocystic disease and carcinoma. We had one case of fibrocystic disease, which was reported as benign on FNAC. One case was reported as fatty degeneration in our study. Fatty degeneration and necrosis may follow an episode of trauma to the breast, but frequently there is no such history. Histologically the lesion is composed of lipid-laden macrophages, scar tissue, and chronic inflammatory cells. This is not a lesion of the epithelial tissue and has no malignant potential but can mimic cancer by producing a mass, a density lesion on mammography that can calcify and surrounding distortion of the normal breast architecture.<sup>9</sup> Serous cystadenoma and nonspecific inflammatory mass were the other two benign diagnoses reported in our study. Breast carcinoma is one of the most common malignancies among women. The breast lump is usually discovered by the patient. In premenopausal women, up to 80% are benign, whereas in patients over the age of 60 approximately 90% of the breast lump are malignant. Most commonly the malignancy appears as a single, discrete, dominant lump in the upper outer quadrant of the breast, however, vague masses and thickened cords may also be malignant. Other signs include induration, dimpling of the skin, nipple retraction serosanguinous or bloody nipple discharge and pain. Ulceration, skin fixation, and lymphadenopathy can occur later. The FNAC has become the investigation of choice for the diagnosis of the breast malignancy.<sup>10,11</sup> The typical carcinoma presents a gritty resistance to the fine needle. The aspirate is usually copious and blood stained.

In our study, we had 31 malignant lesions (62%), infiltrating ductal carcinoma being the most common malignant lesion that presented for needle aspiration. It forms the 90.32% of the malignant lesion aspirated for cytology. Although its incidence peaks in the postmenopausal women, it is seen as early as in the second decade. For cytology, it appears as much cellular smear, often with necrotic background, monomorphic cell population with variable cell pattern including conspicuous loss of cellular cohesion, numerous isolated single cells, and variable degree of anisonucleosis.<sup>12</sup> There were 2 cases reported as lobular carcinoma in our study.

Mainly diagnosed on histopathology, whereas cytology was able to explain the presence of malignancy only. Lobular carcinoma cannot be consistently differentiated from ductal carcinoma by cytology but can often be suggested by the presence of low to moderate cell yield, individual epithelial cells, small chains, and small groups of cells, uniform population of small to medium sized cells with mild atypia and inconspicuous nucleoli and occasional signet ring cells.<sup>12</sup> One case was reported as comedocarcinoma (noninfiltrating). Cytologically they appear as variable amount of hypertrophic cells, usually single or in sheets, papillae or clusters. They vary markedly in size and shape (40% round to oval; 60% irregular) and amount of cytoplasm present. The degenerate, occasionally multivacuolated cytoplasm stains pale blue with poorly defined borders. Analysis of the cytological reports in various series confirms the very high diagnostic accuracy of FNAC. 1-year prospective study of FNAC of clinically palpable breast lump with histopathological correlation was carried out in our hospital. In that FNAC revealed benign in 21 patients, suspicious in 2 and malignant lesions were 93.10% with false negative rate of 6.9% and false positive rate of 0%. The overall sensitivity of FNAC in diagnosing the palpable breast lump in our study was 93.10%, specificity was 100%, positive predictive of 100%, and negative predictive value of 90.47%. This study confirms the accuracy and clinical utility of FNAC in the management of benign and malignant breast diseases. The high rate of diagnostic accuracy and other predictive values in our study is similar to those in various other published series like the largest series conducted between 1982 and 2000 at Rush Presbyterian St. Lukes Medical College, Chicago, USA, where the sensitivity was 98%, specificity was 97%, positive predictive value was 99%, and negative predictive value was 86%.<sup>13</sup> This high rate of accuracy in FNAC permitted us for definite pre-operative planning and discussion with the patient in whom the fine needle aspiration is positive or suspicious for malignancy. FNAC compliments clinical and radiological diagnosis; thus, triple assessment has been reported to produce 99% accuracy for benign and malignant lesion. The diagnostic accuracy of clinical examination, xeromammography, and FNAC was compared with the definitive histological finding.<sup>14</sup> Comparative study of all 3 diagnostic techniques in the diagnosis of breast tumor has shown that the accuracy of 99% can be achieved.<sup>15</sup> False negative rate in our series is 6.9%, which is comparable to various other series, which quoted false negative rate of 1 to 31% with average range of 10%.<sup>16</sup> Cellular fibroadenoma and papilloma bear a risk in this respect. We had no false positive cases in our study. Various other series have reported false positive reports with the range of 0 to 10%.<sup>17</sup> It must be reemphasized that proper clinical judgment should prevent an erroneous mastectomy being performed. The accuracy of the needle tip in localizing

the tumor in FNAC was also studied in our series by comparing the normal glandular cell aspirate with the tumor cell aspirate. The unsatisfactory (inadequate) sampling in which there was little or no cellular material reported, we believe, to be an error in the technique of aspiration. In our study, we had only one aspiration in which it was reported as unsatisfactory, bringing the inadequate sampling rate to 2%. The unsatisfactory specimen rate for benign lesion was 4.76%, whereas for malignant lesion was 0%. The proportion of inadequate sampling as reported by different studies varies from 9 to 18%.<sup>17</sup> Our study result is comparable to study of Zarbo *et al*,<sup>19</sup> who had reported that 17% of 2,254 aspirates in his institutional study were unsatisfactory for evaluation. Maintaining suction as the needle is withdrawn from the breast, leads to loss of cells into the syringe at the time of withdrawal. This could probably be the common error done technically so as to produce an unsatisfactory material.

Since inadequate sampling rate is 2%, the accuracy rate of needle tip in localizing the tumor in FNAC is 98%. Repeat fine needle aspiration was performed on the inadequate sampling specimen and that time it was reported as fibroadenoma, which was confirmed by histopathology after local excision. By different studies also it has been concluded that accuracy of FNAC in diagnosing the breast tumors increases by performing repeat aspiration in a lump for which previously been reported as inadequate sampling.<sup>17</sup> Apart from the high accuracy rate of FNAC, this technique is quite attractive because of its rapidity of execution and interpretation, its low cost (compare to open biopsy of any type), and its low rate of morbidity. Some have raised questions about the possible dangers of cell implantation from the needle aspiration. These rare reports have largely resulted from the use of larger cutting needle (18 gauge) rather than fine needles (22 gauge). With this fine needle technique, there is essentially no danger of implantation with breast aspiration. Franzen and Zajicek in a review of 3479 consecutive breast aspirates found no evidence of seeding along the needle tract.<sup>18</sup> This is not surprising as the needle tract is invariably removed with definitive surgery. The use of FNAC as the main and direct indicator for mastectomy (without the needle for biopsy) remains controversial. The major concern is the danger of a false positive diagnosis, leading to unwarranted mastectomy. Since the false positive report is very rare (in our study it is zero), in the centers where the surgical staff is accustomed to performing mastectomy on the basis of FNAC for diagnosis of cancer, there is necessary for a high level of confidence in and rapport with the cytopathologist. The danger of misdiagnosis of cancer is studiously avoided by maintaining a cautious and conservative threshold for diagnosing cancer. Any questionable diagnosis that is stated to be suspicious, an open biopsy is suggested

wherein centers an intraoperative frozen section analysis is not available.

## CONCLUSION

The FNAC is an important diagnostic adjunct in the management of patient with a breast lump. Recently, the FNAC has become an increasingly popular technique utilized in the diagnosis of palpable breast masses owing to its distinct advantages of being sensitive, specific, expedient, economical, and safe. It greatly complements the clinical and radiological examination and permits rapid diagnosis in more than 95% of the cases. Thus, it is commonly used as a part of the diagnostic triad in case of breast lump, which in addition to FNAC includes clinical breast examination and mammography. We had high accuracy rate of 100% for benign lesion and 93.10% for malignant lesion with false negative rate of 6.9% and false positive rate of zero with FNAC in the diagnosis of palpable breast lump. In cases where FNAC results are not definitive or where the cell type and quantify cation are needed, Core biopsy or open biopsy are still indicated. Since the accuracy of the needle tip in localizing the lump is very high (98%), the diagnostic accuracy of FNAC can be increased by performing FNAC under ultrasound guidance.

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