

## Ultrasound Guided Biopsy in Suspicious Nonpalpable Breast Masses with Histopathological Correlation

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### Abstract

To evaluate the accuracy of ultra sound guided tru –cut biopsy in non palpable suspicious breast lesions and correlate with pathological results. Tru-cut biopsy may be a exact elective will fine needle desire cytology (FNAC) in the finding for breast lesions for a helter skelter symptomatic exactness Similarly as it supplies sufficient tissue to pathologists to create a right histological appraisal. Currently it is those main favored methodology for the finding about breast lesions former should operation rendering should its low cost, secondary accuracy, negligible complications, safe and short duration of the time system. Additionally it might save a considerable measure about liabilities Also unnecessary surgical methods likewise lessens the affinity of muddled surgical methods Also minimizes tolerant anxiety with considerate lesions. Done patients for threatening lesions, What's more should Hosting symptomatic significance, TCB additionally gives sufficient tissue for the assessment from claiming atomic markers which need amazing restorative esteem. This prospective, controlled ponder selected 40 female patients with non-palpable breast massenet undergone ultimo heartless guided biopsy (USGB) What's more excisional breast biopsy. Post-operative obsessive examination of the example required been directed to guarantee precision for tru-cut biopsy. Special case patient of the instances required false negative outcome about tru-cut biopsy in examination for post-operative excisional biopsy.Ultimo heartless guided biopsy (USGB) may be vital done finding suspicious non palpable breast massenet that guarantee secondary precision outcomes.

**Keywords:** Ultra sound guided biopsy (USGB), Fine needle aspiration cytology (FNAC).

### 1. Introduction

The frequency of breast tumor overall may be expanding. However, with the approach about general screening, All the more ladies would continuously diagnosed with early-stage malady. With the progressed Comprehension of the heterogeneity of the atomic subtypes about malignancy Also accordingly advancement for additional complex treatment, breast tumor mortal sin proceeds should decline [1].

With the goal the identification from claiming breast nodules to diagnosing malignancy forerunner lesions in the recent past clinical manifestations may be essential, acknowledging its right on time finding permits a lesquerella Forceful medication and yet additional viable to these illnesses [2].

US-guided CB about breast will be at present a standout amongst those principle symptomatic routines to neoplastic breast diseases, Also for lesions that need aid sonographically visible, may be habitually viewed as the system from claiming decision [3]. Concerning illustration it safe, effective, What's more exact owing of the absence of ionizing radiation What's more element visualization abilities [4]. A sufficient radiological – obsessive correspondence is important on minimize those false-negative outcomes [3].

### 2. Patients and methods

#### 2.1 Study population

patients underwent tru-cut biopsy then followed by excisional biopsy.

#### 2.2 Inclusion criteria

patients with suspicious non palpable breast mass detected by breast ultrasound and / or mammographic evaluation.

#### 2.3 Exclusion criteria

Patients with palpable breast masses, Patients refuse the procedure, Patients are not candidate for the biopsy as those with bleeding tendency.

#### 2.4 Methodology

Breast sonographic examination in the radiology department with a 7.5-10 MHZ linear array transducer. Steps of biopsy as follow:

Patient is positioned dorsal or anterior oblique decubitus. Then Perform the antisepsis over a wide area around the lesion .Sonographically identify the lesion, the access and entry point to the lesion .Inject the anesthetic agent through the entire pathway up to the lesion. .then Insert the biopsy needle (Automatic Biopsy needle 14 inch) through the incision, attempting to follow the same pathway of the anesthetic needle towards the lesion border Fig (1).

Trigger the device action inside the lesion. Retrieve the sample from the needle with the scalpel blade or sterile needle, placing it in the vial with formaldehyde .A minimum number of five good samples are obtained, preferably from different areas of the lesion. Followed by Compression of the lesion and incision areas for at least five minutes. Samples are send to the pathology department for histopathological correlation.



**Fig(1)** needle biopsy inside the lesion(arrow)

### 3. Results

This study was conducted on 40 patients attended to our Radiology Department from December 2017 to November 2019 (2 years duration) at Benha University Hospitals for radiological evaluation by mammography, US and tru-cut biopsy.

The mean age of the studied group is about 45 years ( $\pm$ SD 13) ranging between 27-68 years. Aim of examination: 4 patients came with breast enlargement, while 20 patients came with mastalgia, 8 patients came

with nipple discharge and 8 patients came for screening. 28 of the cases were right sided, while 12 cases were left sided. 24 of cases were in UOQ, while 6 cases were in UIQ, 4 cases in LOQ and 6 cases were retro areolar in location. 16 cases have positive family history of breast cancer, while 24 cases were negative family history of breast cancer. As regards the BIRADS (breast imaging reporting and data system) of each lesion, 34 patients were BIRADS IV while 4 patients were BIRADS V and only two of the cases was BIRADS III Table (1).

**Table (1)** Show the BIRADS classification of the included breast lesions.

	N	%
<b>BIRADS</b>		
<b>III</b>	2	5.0
<b>Iva</b>	20	50.0
<b>IVb</b>	8	20.0
<b>IVc</b>	6	15.0
<b>V</b>	4	10.0
<b>Total</b>	40	100

The pathological results of the tru-cut biopsy revealed 27 cases non-malignant (8 cases benign neoplasms, 20 cases inflammatory breast disease), 13 cases malignant breast carcinoma as following: 6 of the cases were fibro adenoma, 2 cases were intra ductal papilloma, 10 cases benign proliferative fibroadenomatosis, 2 cases chronic inflammatory breast mastopathy, 2 cases granulomatous mastitis, 4 cases fat necrosis, one case fibrocystic disease, 6 cases invasive ductal carcinoma, 4 cases invasive lobular carcinoma, 3 cases invasive breast carcinoma tubule-lobular Table (2).

The pathological results of the post-operative excisional biopsy revealed 26 cases non-malignant as following: 10 cases benign neoplasms, 16 cases inflammatory breast disease, 14 cases malignant breast carcinoma (8 of the cases were fibro adenoma, 2 were intra ductal papilloma, 6 cases benign proliferative fibroadenomatosis, 2 cases chronic inflammatory breast mastopathy, 2 cases granulomatous mastitis, 4 cases fat necrosis, one case fibrocystic disease, 6 cases invasive ductal carcinoma, 5 cases invasive lobular carcinoma, 3 cases invasive breast carcinoma tubulo-lobular Table (3).

**Table (2)** Show the pathological results of tru-cut biopsy.

	N	%
<b>Pathology pre op</b>		
<b>Atypical intra-canalicular fibroadenoma</b>	2	5.0
<b>Benign fibroadenoma</b>	2	5.0
<b>Benign fibroadenomatosis</b>	2	5.0

Table (2) Continue		
<b>Fibroadenoma</b>	2	5.0
<b>Benign proliferative</b>	8	20.0
<b>Ch inflammatory breast mastopath</b>	2	5.0
<b>Ductal carcinoma tubular variant</b>	3	7.5
<b>Fat necrosis</b>	4	10.0
<b>Fibrocystic</b>	1	2.5
<b>granulomatous mastitis</b>	2	5.0
<b>Intraductal papilloma</b>	2	5.0
<b>Invasive breast carcinoma lobular</b>	2	5.0
<b>Invasive breast carcinoma tubule-lobular</b>	2	5.0
<b>Invasive ductal carcinoma</b>	4	10.0
<b>Malignant invasive lobular carcinoma</b>	2	5.0
<b>Total</b>	40	100

Table(3) Show the post-operative pathological results.

<b>PATHOLOGY POST OP</b>	<b>N</b>	<b>%</b>
<b>Atypical intra-canalicular fibroadenoma</b>	2	5.0
<b>Benign fibroadenoma</b>	2	5.0
<b>Fibroadenoma</b>	4	10.0
<b>Benign proliferative</b>	6	15.0
<b>Ch inflammatory breast mastopath</b>	2	5.0
<b>Ductal carcinoma tubular variant</b>	3	7.5
<b>Fat necrosis</b>	4	10.0
<b>Fibrocystic</b>	2	5.0
<b>Granulomatous mastitis</b>	2	5.0
<b>Intraductal papilloma</b>	2	5.0
<b>Invasive breast carcinoma lobular</b>	3	7.5
<b>Invasive breast carcinoma tubule-lobular</b>	2	5.0
<b>Invasive ductal carcinoma</b>	4	10.0
<b>Malignant invasive lobular carcinoma</b>	2	5.0
<b>Total</b>	40	100

Table(4) Show the sensitivity and specificity of tru-cut biopsy in detecting malignant lesions.

<b>Post</b>	<b>Malignant (14)</b>		<b>Benign (26)</b>		<b>FET</b>	<b>P value</b>
	<b>No</b>	<b>%</b>	<b>No</b>	<b>%</b>		
<b>Pre</b>						
<b>Malignant</b>	13	92.9	0	0.0	31.66	<0.001**
<b>Benign</b>	1	7.1	26	100		
<b>AUC</b>						0.964
<b>Sensitivity</b>						92.9
<b>Specificity</b>						100
<b>PPV</b>						100
<b>NPV</b>						96.3
<b>Accuracy</b>						97.5

Sensitivity of tru-cut in prediction of malignant breast lesions is 92.9, while specificity is 100, which has high prediction of test, (accuracy =97.5%) Table (4).

#### 4-Discussion

The occurrence of breast tumor around the world may be increasing( 1),and with that's only the tip of the iceberg complex imaging modalities and screening

programs, those occurrence from claiming little nonpalpable breast tumors will be expanding as well<sup>(5)</sup>.

Us direction considers exact lese greatness inspecting due to constant visualization of the needle

Throughout the system. Our attempting protocol states that US-guided 14 g center biopsy if be utilized within every one cases about non-palpable, suspicious lesions imagined with this technique<sup>(6)</sup>.

The reason for this prospective consider might have been to survey those symptomatic esteem of US-guided 14 g center needle breast biopsy Previously, an arrangement about patients for non-palpable suspicious breast lesions sono-mamographically distinguished with histopathological relationship. Same time done situations with most likely benevolent lesions, catch up will be prescribed but Previously, extraordinary condition ,as refusal of the tolerant ,clinician a or certain family history.

Our outcomes yielded An secondary affectability about 92. 9% for 100% specificity, Furthermore a PPV Furthermore NPV, about 100%, 96. 3%, separately with 97. 5 % precision. On fact, there were no false certain outcomes. This implies that tru-cut biopsy (TCB) gives An breast tumor finding for a secondary degree of certainty.

Our contemplate indicated particular case case (false negative) from claiming 14 instances distinguished with make threatening. This situation demonstrated An Favorable lese greatness for main TCB, Be that as turned out with be harmful lese greatness The point when excisional biopsy might have been finished. The the vast majority possible demonstration for those false-negative situation in the current investigation Might make that the excised center may be not illustrative will every last one of lesion, inspecting error, slide misinterpretation, same time extraction Furthermore wellbeing edge build those exactness.

Our effects for US-guided center biopsy were comparable on the individuals to different accounted for arrangement On which affectability went starting with 90% to 94 % as stated by Leifland et al 's study<sup>(7)</sup>, Ahmed et al 's study<sup>(8)</sup>. For higher effects will be seen for Yasemin & Mehmet's investigation <sup>(9)</sup>, Rikabi& Hussain's study <sup>(10)</sup>, vega et 's study<sup>(6)</sup> because of vast number about instances incorporated in the consider (204 instances ). These diverse rates might be expected of the truth that our example extent is more diminutive over these investigations Also continuously single institutional study. So, we suggest other investigations for bigger size and multi driven foundations. Previously, Ahmed et al 's study<sup>(8)</sup> those affectability for center biopsy might have been 94. 64%, specificity might have been 91. 30% Also exactness rate might have been 94. 87%. In Yasemin & Mehmet's study<sup>(9)</sup> the affectability might have been 95. 4% for 100% specificity, What's more An PPV, NPV, Also symptomatic precision of 100%, 96. 1%, Furthermore 98. 9%, separately. Over Rikabi& Hussain's study<sup>(10)</sup> there were 97 (35. 3%) true-positive cases, 173 (62. 9%) true-negative cases, 5 (1. 8%) false-negative situations Furthermore no false-positive cases. TCB exhibited An affectability about 95. 1%, 100% specificity, PPV about 100%, same way as the NPV for 97. 2%,

Furthermore a Generally speaking da from claiming 98. 2%. In Leifland et al's contemplate <sup>(7)</sup> TCB uncovered cancellous On 388 (87%) from claiming situations and possible malignancy for 18 (4%) of instances (sensitivity 90%, specificity 98. 8%) from claiming these 448 patients. Done vega et al's consider (6) sensitivity, specificity, What's more predictive values of US-guided center biopsy affectability to diagnosing harm might have been 97% (118/122) Also specificity 100% though An absolute case from claiming insufficient inspecting might have been excluded. The PPV for analysis about harm might have been 100% (108/108) and the same way as the NPV 95% (79/83), since 4 false-negative effects struck them.

Our study show higher brings about examination to FNAC investigations clinched alongside Ahmed et al's study (8) the affectability from claiming FNAC done Ahmed et al might have been 92. 85%. The specificity for FNAC might have been 90% and the exactness rate might have been 92. 1%. Same time over our investigation affectability for tru-cut will be 92. 9 %, same time specificity is 100%, which need helter skelter prediction for test What's more precision for 97. 5%.

Those patient's period On our investigation went between 27 and 68 quite some time with a mean of 45 A long time ( $\pm$ SD 13), which is About comparative of the extend of the consider completed Eventually Tom's perusing vega et al <sup>(6)</sup> and Yeniçeri et al<sup>(11)</sup>,as the Normal period in the previous might have been 44. 9 A long time  $\pm$  9. 8, (range: 23 on 67 years) and Normal agdistis of the last might have been 47 a considerable length of time (range :20 with 89).

Our consider included 28 patients (70%) might have been right agreed breast lesions which is that's only the tip of the iceberg as a relatable point over exited agreed lesions that included 12 patients (30%). Which will be comparable will brings about Yasemin& Mehmet's study<sup>(9)</sup> On which straight agreed lesions incorporate 268 patients (%56. 8) that is that's only the tip of the iceberg regular over cleared out agreed lesions that incorporate 204 patients (43. 2%).

For our investigation those practically incessant area of the massenet might have been breast upper external quadrant 24 (60%) of situations. The opposite areas were individually upper internal quadrant with An rate of 6 patients (15%), retroareolar area for a rate for 6 patients (15%), easier external quadrant with 4 patients (10%). Done Yeniçeri et al's study<sup>(11)</sup> those mossycup oak incessant area of the massenet might have been breast upper external quadrant (%49. 5). Also how were upper internal quadrant with a rate about 18. 4%, bring down inward quadrant for 8. 7%, Also bring down external quadrant for 18. 4% Furthermore retroareolar district for 4. 9%.

As views the BIRADS (breast imaging reporting weight and information system) of each lesion, our ponder incorporated 2 (5. 0%) for patients for BIRADS III, 34

patients (85%) BIRADS iv Furthermore 4 patients (10%) BIRADS v. Same time done Yeniçeri et al's study(11) 44 of the lesions (42%) were ordered as BIRADS iii ,20 (19%) as BIRADS iv Also 39(39%) Likewise BIRADS v and On Yasemin & Mehmet's study(9) 338 for patients were BI-RADS 3 ( 71. 6%) Furthermore 134 from claiming patients BI-RADS 4 (28. 4%).

As stated by crew history, Our contemplate incorporated 19 situations (40 %) of sure family history same time in Yasemin & Mehmet's study(9)the rate might have been more level over our investigation 57 instances (12%).

### 5. Conclusion

Our examine uncovered that Tru-cut biopsy is a exact elective will fine needle desire cytology in the analysis about breast lesions for a secondary symptomatic correctness for 97. 5% Similarly as it supplies sufficient tissue to pathologists with make a right histological evaluation. Notwithstanding it is the to start with favored methodology to those analysis of breast lesions former to operation rendering will its low cost, secondary accuracy, insignificant complications, Also sheltered What's more short occasion when methodology.

Additionally it might save a considerable measure about liabilities Also unnecessary surgical methods likewise lessens the affinity of confounded surgical methods Furthermore minimizes tolerant anxiety for benevolent lesions. Done patients for threatening lesions, furthermore on Hosting symptomatic significance, TCB additionally gives sufficient tissue to those assessment about atomic markers which have amazing restorative worth. Therefore, we recommend that TCB will be an exact elective will FNAC for the analysis of breast lesions.

### Recommendation

We recommend ultra sound guided tru-cut biopsy for diagnosing breast disease.

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