# Lichtenstein Tension Free Mesh Repair in Inguinal Hernia: A Prospective Study and Follow Up

**Taufiqul Haque[1], Md Jahangir Hossain Bhuiyan[2], Ahamaduz Zaman[3], Kuntal Das[4]**

## Abstract:

**Back ground:** Inguinal hernia repair is one of the most commonly performed surgeries worldwide but recurrence rates are variable. To prevent recurrence, prosthetic materials have been increasingly used in hernia repair and the Lichtenstein tension free mesh repair remains the gold standard. Open tension free mesh techniques of inguinal hernia repair offers good results and has been associated with several advantages, such as less postoperative pain, rapid recovery and low recurrence rates. **Objective:** This prospective study is carried out to evaluate the short and long term outcome of Lichtenstein tension free hernioplasty in the hand of general surgeon. **Patients and methods:** In this prospective study a total of 387 procedures were carried out in 345 male patients during the study period from January 2014 to June 2018 in Shaheed Monsur Ali Medical College Hospital, Comilla Medical College Hospital and private hospital. Patients' selections follow predesigned inclusion and exclusion criteria. Polyprophylene mesh repair (Lichtenstein technique) used in all inguinal hernia repair under spinal and epidural anesthesia.. The main outcome measure was early and late morbidity and especially recurrence and groin pain. **Results:** The median age was 51.50(20 to 72) years. Seroma in 07 (2.28%), hematoma in 03 (0.86%), Transient testicular swelling in 20(5.79 %) ,wound infection in 03(0.86%) and Paraesthesia in 13(3.76%) patients developed as early post operative complications. During the long term follow up of available 253 patients no mesh rejection and 1(0.28%) recurrence of hernia was found. Groin pain/Postoperative neuralgia developed in 18(5.20%) cases, discharging wound sinus in 1(0.28%), foreign body sensation in 28 (8.11%), Vaginal hydrocele in 2(0.57%) and Testicular atrophy was in 3(0.86%). **Conclusion:** The Lichtenstein open tension-free mesh repair of adult inguinal hernia is a safe procedure with least postoperative morbidity and least chance of recurrence. It is a simple technique, easy to perform without compromising the patient's care and long term outcome in an experience general surgeon.

**Key-words:** Lichtenstein hernioplasty, inguinal hernia.

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## Introduction:

Inguinal hernia is the most frequently performed operation in general surgery with about 20 million procedures being carried out worldwide annually [1] and regardless of type is one of the most common diseases that a surgeon has to manage [2]. For many years, recurrence was the only criterion by which the quality of a hernia repaired was measured [3]. Mesh hernioplasty has gained widespread acceptance due to its superior outcome in terms of reduced recurrence rates which are in the range of 1-2%[4, 5]. Improved surgical technique and a better

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understanding of anatomy and physiology of the inguinal canal significantly improve outcome of many patients. Lichtenstein presented his open tension free mesh repair technique for inguinal hernia in 1986 [6]. Tension free mesh repair is nevertheless associated with complications such as foreign body reaction, pain, sinus formation, mesh migration etc. Meshes used are typically made from polyprophylene or polyester. Various studies have suggested that low density and larger pore size may lead to decreased inflammatory response and less contracture because it forms a thinner scar net[7, 8]. This decreased inflammatory response may help improved outcome [9]. Specialist hernia centers and public hospitals with a dedicated hernia service in Europe and America have achieved remarkable results for hernia repair by Lichtenstein technique. Such specialist centers are nonexistent in our country. Moreover, our populations are different from those in the Western world [10].

The aim of the study was to evaluate our experiences outcome and postoperative complications both early and late in a series of inguinal hernia repair by polyprophylene mesh in Lichtenstein technique.

## Patients and Methods:

A prospective type longitudinal follow-up study of operations of inguinal hernia by Lichtenstein technique open tension free mesh repair was carried out on 345 patients.

Place and period: In the Dept. of Surgery, Shaheed Monsur Ali Medical College Hospital, Uttara, Dhaka, Comilla Medical College, Comilla and a private hospital (Dhaka) from January 2014 to June 2018. Number of patients was 185 cases from Shaheed Monsur Ali Medical College, 120 cases from Comilla Medical College, and 40 cases from a Private hospital (Dhaka). Pre operative counseling and informed consent were done regarding procedure in details.

**Inclusion criteria:** (a) age >30 yrs for indirect inguinal hernia (b) Irrespective of age direct inguinal hernia and recurrent hernias (c) consent to enter study (d) male only.

**Exclusion criteria:** (a) Presence of any acute or chronic infection in body (b) strangulated or obstructed inguinal hernia (c) Coagulation disorders (d) Does not agrees to enter into study after informed consent. Most of the predisposing risk factors and co morbid illnesses (like diabetes Mellitus, COPD, hypertension, bladder outlet obstruction, heart disease, renal impairment etc.) were treated logically.

Data collected and recorded in pre formed data sheet specially post operative recovery, the length of hospital stay, post operative complications (Early and late). Most of the operation was done under spinal anesthesia and a few cases were done under epidural anesthesia. Prophylactic antibiotic (intravenous Cephalosporin and flucloxacin) were given in each cases 30 minutes before incision. In indirect inguinal hernia, sac was dissected up to deep inguinal ring and transfixed with 2'0' polyglactin 910 suture and distal sac was excised except in large indirect hernia was left in situ keeping the mouth wide open. A large direct hernia, sac was kept inverted by running suture of 2'0' polyglactin 910.

The Lichtenstein technique employed a sheet of polyprophylene mesh covering the posterior wall of inguinal canal extending for security, over adjacent structures, with a hole to transmit the spermatic cord. The overall dimension of the mesh is 7.5cmX11cm. To accommodate this, external oblique apponeurosis is separated from the deeper layers superiorly and medially and from the muscular part of the internal oblique laterally to create an adequate pocket to receive the mesh. The lower medial corner of the mesh is constructed slightly rounded and upper medial corner rather more so. The mesh is incised from its lateral margin, cutting one third of distance from lower edge. The cut is extended approximately half the length of the mesh, depending upon the size of the patient.

The apex of the mesh is sutured to the pubic tubercle using a 3'0' polyprophylene suture.

The same continuous suture is used to fix the lower boarder of mesh to the free edge of inguinal ligament which is extended up to just medial to the anterorsuperior iliac spine. Interrupted prolene sutures were used to approximate the cut edges of the mesh together around the spermatic cord. The infero-medial corner is attached well overlapping the pubic tubercle.

The mesh is anchored to the conjoined tendon by interrupted prolene sutures 3'0' ensuring good area of overlap medially, superiorly and laterally with good suture line inferiorly.

The fibrosis induced by prolene mesh produce a sound result. The cord is replaced in the inguinal canal. Meticulous haemostasis ensured. External oblique apponeurosis and skin were closed in layers.

An absolute hemostasis was ensured throughout the procedure. Every effort was given to identify and safeguard the illioinguinal, illiohypogastric and genital branch of genitofemoral nerve and avoiding their entrapment within the suture materials while fixing the mesh in position. The cord is replaced in the inguinal canal.

External oblique apponeurosis was closed by 1'0' polyglactin 910. Skin edges were apposed with interrupted 2'0' polyprophylene sutures. Bilateral hernias were repaired both sides simultaneously. Recurrent hernias were repaired by same as for primary hernias. Postoperative pain was managed mostly by NSAIDS and antibiotics were given orally up to 8-10 days. All the patients were given postoperative instruction to have normal diet and were mobilized within 24 hours of operation unless activity caused pain. Patients were discharged on 5 to7th post-operative day with advice to come for removal of stitch on 10th postoperative day.

All the patients were advised to have follow-up visit at 6th weeks, 6th months and yearly at least two years. They were instructed to consult the operating surgeon quickly in cases of any adverse post operative events either by cell phone or Office, e-mail /Private chamber (free of visit).

## Results:

From January 2014 to June 2018 prospectively, a total number of 387 inguinal hernia repairs (Tension free mesh repair by Lichtenstein technique) were carried out in 345 male patients. The median age was 51.50 years (Range 20 to 72 yrs).Table-I showing 145 patients (42.03%) were indirect inguinal hernia, 167 patients (48.41%) was of direct variety and remaining 33 patients (9.56 %)

**Table-I:** Type and side of inguinal hernia (N=345)

| | |
|---|---|
| Side of Hernia | |
| Right | 170(49.28 %) |
| Left | 133(38.55%) |
| Bilateral | 42 (12.17 %) |
| Type of hernia | |
| Indirect | 145(42.03%) |
| Direct | 167(48.41%) |
| Recurrent | 33 (9.56 %) |

were recurrent inguinal hernia. Inguinal hernia were right sided in 170(49.27 %), left sided in 133(38.55%) and bilateral in 42 (12.17 %) patients. Length of hospital stay after operation was 5 to 7 days. Complications in the early postoperative period were measured in terms of seroma, hematoma, transient scrotal swelling, paraesthesia and wound infection shown in Table-II. 07 patients (2.28 %) developed seroma and 03 patients (0.86 %) developed hematoma. Out of 07 seroma patients only two required drainage and five required repeated aspiration before finally resolved. Out of 3

**Table-II:** Early complications following operation

| Complications | No. (%) | Measures taken | Outcome |
|---|---|---|---|
| Seroma | 7 (2.28%) | Aseptic aspiration ,C/S* & necessary action | Resolved |
| Hematoma [a] | 3(0.86%) | 1 require three times aspiration, 2 required drainage of hematoma | Resolved |
| Transient Scrotal swelling | 20(5.79 %) | Scrotal elevation | Resolved |
| Wound infection [b] | 3(0.86 %) | Wound swab for C/S, Antibiotic, Dressing and suture if needed. | Controlled & wound healed |
| Paraesthesia | 13(3.76 %) | Counseling | Improved |

*C/S-Culture nd sensitivity, [a] In large recurrent hernia. [b] Superficial

hematomas only 1 required repeated aspiration and 2 required drainage. Only 03 patients (0.86 %) developed wound infection which was treated by antibiotics after culture and sensitivity of wound swab and dressing. Transient scrotal swelling developed in 20 patients (5.79%) which were settled spontaneously by simply elevation of scrotum. Paraesthesia occurred in 13 patients (3.76%) and improved by counseling.

Follow up report are shown in the table-III. During the follow up period no mesh rejection and 1 (0.28 %) recurrence of hernia occured (Out of 345 patients 253 patients available for evaluation 2 years after procedure). Groin pain/Postoperative neuralgia developed in 18(5.20 %%) cases, which were managed by simple analgesics like NSAID, nortryptylin and Neurologist consultation and most of the patients were settled. Discharging wound sinus developed in 1(0.28 %) case and surgical debridement of sinus fails to cure. Ultimately cured after mesh removal. Foreign body sensation 28 (8.11 %) were settled in tolerable satisfaction. Vaginal hydrocele 2(0.57 %) were treated by eversion of sac and Testicular atrophy were 3(0.86%) in recurrent hernia, settled by counseling.

## Discussion:

Tension free mesh repair of inguinal hernia was originally popularized by Lichtenstein in 1989 and it is most commonly performed operations for inguinal hernia now a day's[3, 11.] The description of Lichtenstein tension free mesh repair has opened a new era in groin hernia repair[12.] This method is very simple, effective, and is associated with very low recurrence rates (ranging from 0-2% in the literature) and can be performed under local or regional anaesthesia[13, 14.] As it is tension free, it causes minimal postoperative pain[12.] The technique used in this study is practical for our surgeons because there is virtually no learning curve. In the word of Amid "the open tension free repair is a typical example of 'see one, do one, teach one"[15, 16.] For these important advantages, it is currently the preferred method for plastic reconstruction of inguinal hernia. Closing the defect (in direct hernia) or narrowing it (in indirect hernia) is a crucial step in preventing recurrences. However the posterior wall tends to be weakened & breached again by persistent predisposing factors. In addition, wider defect in posterior wall than simple hernia demand to reinforce

the posterior wall with mesh which has got obvious improvement over traditional surface repair[16]. Its effectiveness is demonstrated in this study in terms of rare recurrence rate.

The mesh is constructed of high-porosity polyprophylene which provides a larger surface area for effective tissue ingrowths and fibrosis[11]. The properties of an ideal mesh are Inertness, resistance to infection, molecular permeability pliability, transparency, mechanical integrity and biocompatibility[12]. Absorbable mesh does not remain long enough in the wound for adequate collagen to be deposited, while multifilament mesh can harbor bacteria[14]. Monofilament mesh is the most popular presently in use with various types of polypropylene having different characteristic advantages[14]. To reduce the recurrences the mesh should extent 2-4 cm beyond the boundary of Hesselbachs' triangle[17].

This method is very simple and effective. An extremely low recurrence rate (0.7%) has been reported in many groups of surgeons[13]. All these factors have encouraged our surgeons as a choice of method of hernia repair.

The overall of complications after inguinal surgery varies widely. Early complications include urinary retention, seroma, hematoma, scrotal swelling, and epididymo-orchitis and wound infection. Late complications include sensory loss, foreign body sensation, hyperesthesia, chronic groin pain, testicular atrophy, hydrocele, discharging sinus, mesh rejection and recurrence of hernia[18]. In this series, seroma, hematoma and scrotal swelling were in a small percentage of patients.

In this series 15(4.34 %) patients had pain persisting for more than 6 weeks, and 3(0.86 %) patients needed

**Table-III:** Long-term post operative follow up (N=345)

| Complications | No.(%) | Measures taken | Outcome |
|---|---|---|---|
| Groin pain/ post operative neuralgia | | | |
| a) lasting >6 weeks | 15(4.34%) | NSAIDS and Nortryptilin, | Satisfactory |
| b) persists >3 months | 03(0.86 %) | Neurologist consultation | |
| Foreign body sensation | 28(8.11 %) | Assurance and Nortryptilin | Tolerable satisfaction |
| Vaginal hydrocele | 2(0.57 %) | Eversion of sac | Cured |
| Discharging sinus | 1(0.28 %) | Debridement of sinus tract. But cured after removal of mesh. | Cured |
| Mesh rejection | Nil | | |
| Recurrence [a] | 01(0.28%) | Treated as recurrent hernia | Resolved |
| Testicular atrophy | 03(0.86%) | Counseling | Solved. |

[a] 253 (73.33%) patients were available for evaluation 2 yrs after procedure

The position of mesh beneath the apponeurosis of the external oblique result in the intra abdominal pressure working in favor of the repair, since the external oblique apponeurosis keeps the mesh tightly in place by acting as a external support when intra abdominal pressure rises[12] .

Neurologist consultation for pain persists more than 3 months. Chronic pain and post operative neuralgia is one of the most debilitating long-term complications after inguinal hernia repair and is now considered as an important primary endpoint in hernia surgery. In several studies up to 30% patients will have some degree of

discomfort or pain one year or more after inguinal hernia repair [19, 20]. The etiology of this pain is probably multi-factorial .Its close association with numbness in some patients suggest a neuropathies causes[21]. Another mechanism of postoperative pain is the inflammation and fibrosis induced by mesh which is close proximity to the ilioinguinal nerve[22]. Enfolding and rolling of mesh, neuroma formation after accidental division of nerves, nerve entrapment by suture or mesh, perineural fibrosis-all are thought to have in the development of chronic groin pain. In up to 15% of cases, chronic groin pain after inguinal hernia repair may be unrelated to operation [23]. In most of the cases, this will subside with time, though in 6% cases this pain will be severe enough to interfere with the patient's ability to continue normal daily activities.[1]

The success of any hernia repair is determined by the recurrence rate. Uniformly excellent results have been reported consistently with Lichtenstein hernioplasty with polyprophylene mesh and at 5 years, this procedure in specialist centers has a recurrence rate 0.1% [24]. The majority of the recurrence occurs within the first 2 to 3 years of the repair. Acceptable recurrence rate should be below 3% at 5 years. In this series, 1 (0.28 %) recurrence occurs in 253 (73.33 %) patients who were available for evaluation two years after the procedure. This may not be the actual figures as because there was a drop out of significant number of patients during follow up period. Moreover, patients with recurrence might have reported to somewhere else. Recurrence in Lichtenstein hernioplasty may be due to faulty surgical technique and factors involved are insufficient mesh size, incorrect placement, immediate or early displacement by folding, inadequate mesh fixation or lifting of mesh by hematoma and urinary retention. Defective collagen metabolism of the patient may be another patient related factor. After all, we feel the necessary of a diligent long-term follow-up to keep tract of actual incidence of recurrence and to reduce number of drop out cases in significant level.

## Conclusion:

With our limited experience in a relatively small sample size, Lichtenstein open tension free mesh repair offered excellent results in this study in the hand of general surgeon and a very minor early and long-term complications which were managed easily with very minimum morbidity. So, Lichtenstein open tension free mesh repair of inguinal hernia is preferred method because for rapid post operative recovery, rapid return to unrestricted activities, safe, durable procedure with least morbidity and least chance of a recurrence .

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# Diagnostic Accuracy of Core Needle Biopsy in Clinically Suspicious Breast Lesions.

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## Abstract:

**Objective:** Breast lump is one of the most common surgical problems in female patients. Though excision biopsy of palpable breast lump is considered to be the gold standard method for diagnosis, there should be an improved and definitive method for establishing an accurate diagnosis of breast masses prior to surgery. The aim of this study was to determine the diagnostic accuracy of core needle biopsy (CNB) in cases of suspicious breast lesions. **Methods:** This descriptive cross sectional study included 42 female patients with breast lumps, presented to Dhaka Medical College Hospital over a period of one year and subsequently underwent CNB. The results were then compared with final histopathological findings and the correlations were determined. **Results:** Out of 42 cases included in the study, there were two false negative cases (7.14%) in CNB. The specificity and positive predictive value of CNB were 100%. **Conclusion:** CNB can provide accurate preoperative diagnosis of breast lesions and provide important information for appropriate treatment. Proper identification of lesional site, localization and careful correlation can reduce false negative rate.

**Key Words:** Breast lesions, FNAC, CNB, Histopathology

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## Introduction:

Breast cancer is the second most common cancer in the world and the most frequent cancer among women with an estimated 1.67 million new cancer cases diagnosed in developing countries in 2012[1]. Breast cancer is the most frequent cause of cancer death in women in less developed regions (324,000 deaths, 14.3% of total) and the second cause of cancer death in more developed countries (198,000 deaths, 15.4%) after lung cancer[2]. According to Globocan estimate, more than half of 1.67 million new breast cancer cases were diagnosed in developing countries in 2012 which is about 52.9%, whereas the corresponding figure for 1980 was only 35%[2,3]. In Bangladesh, the number of new cases of breast cancer in the year 2008 was 17,781 [4].

Breast cancer usually presents with a palpable breast lump. Most breast lumps are benign and of no serious consequences. Pre-operative pathology diagnosis constitutes an essential part of the work up of breast lesions[5]. In Bangladesh, Fine needle aspiration cytology is still widely practiced in the assessment of breast lumps because it provides a rapid, accurate and cost-effective diagnosis. But this technique is highly dependent on the skill and experience of the aspirator[6]. FNAC cannot confirm the presence of tumor invasion and therefore cannot be used to differentiate between invasive and in situ neoplasia[7]. In addition, low grade breast lesions, such as atypical ductal hyperplasia, ductal carcinoma in situ and tubular carcinoma cannot be accurately diagnosed using this modality alone. Therefore, erroneous diagnosis can occur due to sampling error or due to misinterpretation.

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Tru cut biopsy, also known as core needle biopsy (CNB) is now one of the most useful means of obtaining histopathological diagnosis and it has replaced fine needle aspiration for symptomatic and screen detected breast lesions in western countries[8]. The frequency of non-diagnostic or inadequate sample report is lower than that of FNAC. Besides, core biopsy allows the discrimination between in situ and invasive lesions and is a more accurate method to distinguish between invasive ductal and invasive lobular carcinoma[9]. A well sampled CNB specimen usually has greater diagnostic efficacy and provide more tissue for ancillary studies[10]. Apart from these advantages, CNB still has some pitfalls[11]. In some cases, even with image guidance, CNB can miss the lesion and yield inadequate material[12]. During the procedure, blood vessels can be injured by large bore needle and therefore the invasive biopsy procedure only yield clotted blood on repeated puncture[13]. In these cases, core biopsy cannot confer an adequate sample and delay in histological interpretation.

This study was aimed to find out the diagnostic accuracy of CNB of palpable and clinically suspicious breast lesions.

## Materials and Methods:

The present cross sectional study was carried out in the Department of Pathology, Dhaka Medical College over a period of one year from January 2016 to December 2016. Female patients of any age group with clinically suspicious and palpable breast lumps who were advised for CNB were enrolled and were subjected to CNB with their informed written consent. With proper aseptic measures, the core needle biopsy was performed by an automated biopsy device equipped with a 14 gauge needle having a sample notch of 15 mm in length. Samples were obtained from different areas of the lesion, usually from the center and close to the borders at the 3, 6, 9 and 12 o'clock positions and were placed in a vial containing 10% neutral buffered formalin. For each CNB procedure, the number of biopsies taken was recorded. The outcomes of CNB were reported using the standard National Health Service Breast Screening Programme (NHSBSP) criteria.

In this study, histopathological examination of mastectomy or lumpectomy or excisional biopsy was considered as gold standard. Statistical analysis of the results was obtained by window based computer software devised with Statistical Packages for Social Sciences (SPSS).

## Results and observations:

Total 42 cases were included in the study in whom CNB were performed followed by lumpectomy or mastectomy. Histopathological diagnosis was the gold standard of the study. CNB was compared with it and validity test results were calculated. It was observed that majority (45.2%) patients belonged to age 41-50 years. The mean age was found 40.94±7.8 years with range from 28 to 62 years (Table I).

**Table I:** Distribution of the study patients by age (n=42)

| Age (in years) | Number of patients | Percentage |
|---|---|---|
| ≤30 | 5 | 11.9 |
| 31 40 | 12 | 28.6 |
| 41-50 | 19 | 45.23 |
| >50 | 6 | 14.28 |
| Mean±SD | 40.9 | ±7.8 |
| Range (min - max) | 28 - 62 | |

In CNB , of the total 42 clinically suspicious and palpable breast lumps, 19 (45.2%) cases were found to be malignant cases, followed by 11(26.11%) benign , 07(16.66%) suspicious of malignant , 04(9.52%) of uncertain malignant potential and 01 (2.38%) unsatisfactory tissue ( Table II). Finally, after histopathology of the 42 cases, 28(66.66%) cases were confirmed as malignant and 14(33.33%) cases were found to have benign lesions. It was observed that 25(59.52%) patients with ductal carcinoma was the most frequent diagnosis, followed by 2(4.8%) papillary carcinoma and 1(2.3%) lobular carcinoma (Table III)

**Table II:** Distribution of the study patients by CNB diagnosis (n= 42)

| CNB diagnosis | Number of patients | Percentage |
|---|---|---|
| Unsatisfactory tissue | 1 | 2.38 |
| Benign | 11 | 26.11 |
| Benign,uncertain malignant potential | 4 | 9.52 |
| Suspicious of malignancy | 7 | 16.66 |
| Malignant | 19 | 45.2 |
| Total | 42 | 100 |

**Table III:** Distribution of the study patients by histo-pathological diagnosis of CNB (n=42)

| Histopathological diagnosis | Number of patients | Percentage |
|---|---|---|
| Benign | 14 | 33.33 |
| Duct cell carcinoma | 25 | 59.52 |
| Lobular carcinoma | 1 | 2.3 |
| Papillary carcinoma | 2 | 4.8 |

Of 19 patients, diagnosed as malignancy by CNB, 17(79.2%) were diagnosed as ductal carcinoma, 01(100.0%) as lobular carcinoma and 01(100.0%) as papillary carcinoma by histopathology. All 07 suspicious cases in CNB were histologically diagnosed as malignancy and the 04 cases presented with benign with uncertain malignant potential in CNB, ultimately diagnosed as benign in 03cases and malignant in 01 case .(Table IV)

**Table V:** Validity test results of CNB

| Validity test | CNB |
|---|---|
| Sensitivity | 92.85 |
| Specificity | 100 |
| Positive predictive value | 100 |
| Negative predictive value | 87.5 |
| Accuracy | 95.23 |

In the present study, the sensitivity of CNB is 92.85%, specificity 100%, PPV (positive predictive value) 100%, NPV (negative predictive value) 87.5% and accuracy 95.23%. (Table-V).

Figures are showing photomicrograph of different malignant lesions of breast found in our study.

**Table IV:** Distribution of CNB diagnosis with histopathological diagnosis (n=42)

| CNB diagnosis | Histopathological diagnosis | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Duct cell carcinoma (n=25) | | Lobular carcinoma (n=1) | | Papillary carcinoma (n=2) | | Benign (n=14) | | Total |
| | n | % | n | % | n | % | n | % | N |
| Malignant(B5) | 17 | 89.47 | 1 | 5.26 | 1 | 5.26 | 0 | 0.0 | 19 |
| Suspicious of malignancy(B4) | 6 | 85.71 | 0 | 0.0 | 1 | 14.28 | 0 | 0.0 | 7 |
| Benign, but of uncertain malignant potential(B3) | 1 | 25.00 | 0 | 0.0 | 0 | 0.0 | 3 | 75.0 | 4 |
| Benign(B2) | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 11 | 100.0 | 11 |
| Unsatisfactory tissue(B1) | 1 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 |

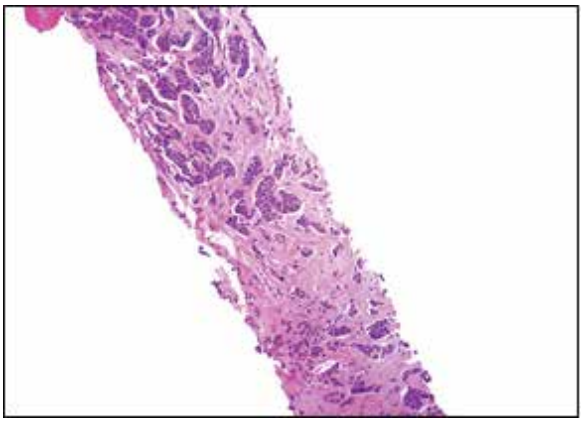

**Figure 1.1** Photomicrograph showing papillary carcinoma of breast (Core Biopsy) ( Case no 20, H&E stain X 4)

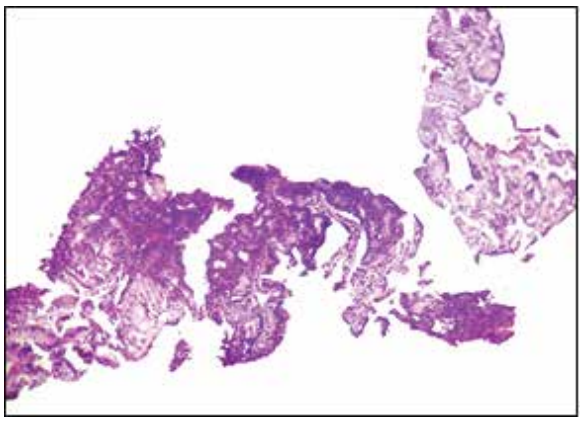

**Figure 1.2** Photomicrograph showing papillary carcinoma of breast (Core Biopsy) ( Case no 20, H&E stain X10)

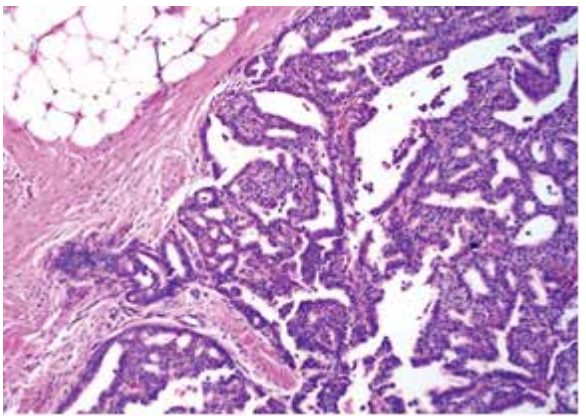

**Figure 1.3** Photomicrograph showing papillary carcinoma of breast (Histology) ( Case no 20, H&E stain X 4)

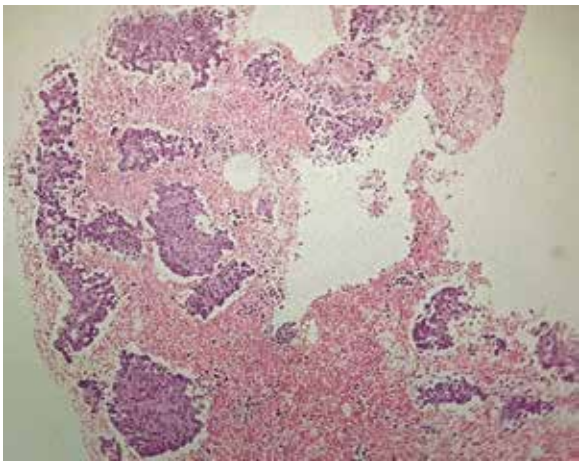

**Figure 2.1** Photomicrograph showing duct cell carcinoma of breast ( Core Biopsy ) ( Case no 14, H&E stain X 4)

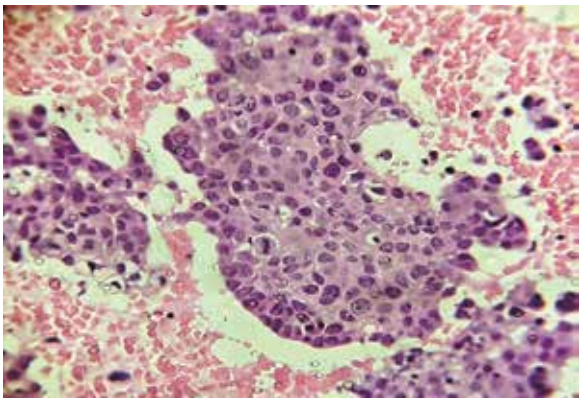

**Figure 2.2** Photomicrograph showing duct cell carcinoma of breast ( Core Biopsy ) ( Case no 14, H&E stain X 40)

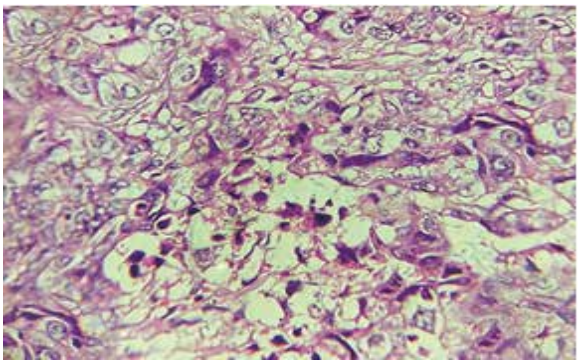

**Figure 2.3** Photomicrograph showing duct cell carcinoma of breast ( Histology ) ( Case no 14, H&E stain X 10 )

## Discussion:

With a population of over 163 million, Bangladesh is one of the most densely populated countries in the world[14]. Not much information on breast cancer in Bangladesh is available as there is no population based cancer registry in our country. However, the only hospital based cancer registry at the National Institute of Cancer Research and Hospital (NICRH) tracks new cancer cases systematically in this country. According to NICRH report, 5255 breast cancer cases were diagnosed during the period of 2005-2010[15, 16]. The data of NICRH states that breast cancer has overtaken cervical cancer as the most common female cancer in Bangladesh. (Breast cancer cases 26% and cervical cancer cases 21.1% during the period 2008-2010: NICRH, Cancer registry report) [16].

Core needle biopsy is one of the widely used methods for pathological diagnosis of breast lumps. The test has specific advantages and limitations. In the present study, a total of 42 cases of clinically suspicious and palpable breast lumps were included. CNB was done in all of them followed by lumpectomy or mastectomy. Of these 42 cases, 28 were malignant and 14 were benign. The firm to hard consistency, irregularity and larger size of the lumps in these 14 benign cases made them to be clinically suspicious. Histopathology was the gold standard in this study and the validity test results of CNB were evaluated and compared with it.

Use of core needle biopsy has been shown to be an excellent tool while working with the tissue specimens because it permits the evaluation of both the architectural and cytological patterns and provides adequate material to perform diagnostic ancillary studies. When a malignancy is diagnosed based on a FNAC, it is difficult to categorize further into invasive or in situ lesions. Also the receptor status (ER, PR, HER2) cannot be evaluated which is crucial for starting neoadjuvant chemotherapy.

A good representative core biopsy is usually adequate to give a definitive diagnosis. Repeat biopsies and further excision biopsies for diagnosis can be avoided. However, the performance of CNB has a few disadvantages. Missampling can occur, even with image guidance[12]. Improper processing of small tissue fragments may lead to tissue distortion and challenge sample adequacy. These technical errors or missampling can lead to false negative results. In the study, CNB had a sensitivity of 92.85% and specificity of 100% in the diagnosis of breast cancer. The false negative rate was 7.14% this results are comparable to others studies done by Mahmood H. Hasssan in Iraq[17] (2014) , Mohammed Bdour in Pakistan[18] (2008), Karimian F. in Iran[9] (2008), AD Baildum in UK[19] (1989) and Stanley Minkowitz in USA[20] (1986) which showed 95.0%, 90.0%, 98.07%, 95.0% and 89.0% sensitivity respectively .

In the study, there were two false negative cases in CNB. Out of the two cases, one showed cystic change in ultrasonography. The repeated missing of the lesion in core biopsy may be due to this cystic change. In this present study, the number of cores taken from each patient was four or above. It is possible to miss the lesion due to technical difficulties. Deep seated lesions, poor needle or lesion visualization during image guided CNB or fibrotic breast tissue may make the procedure difficult and therefore have a discordant result[20, 21]. Accurate targeting of the lesion will minimize the chances of false negatives.

## Conclusion:

While in resource poor countries, FNAC continues to be a valuable method in the diagnosis of palpable and non-palpable breast lesions, the practice of needle core biopsy provides the most accurate and optimal diagnostic information and also helps to perform ancillary studies required for further management in malignant lesions.

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