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SENSITIVITY AND CHARACTERISTIC ANALYSIS OF CORE NEEDLE BIOPSY COMPARED TO INCISIONAL BIOPSY FOR DIAGNOSIS OF GRANULOMATOUS LOBULAR MASTITIS

Amirahmad Salmasi, Mehdi Asgari, Behzad Borzui*

Department of General Surgery, Imam Hospital, Ahvaz Jondishapour University of Medical Sciences.

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***Correspondence for Author**
Dr. Behzad Borzui
Department of General Surgery, Imam Hospital, Ahvaz Jondishapour University of Medical Sciences.

ABSTRACT

Background: Granulomatous Lobular Mastitis (GLM) control and treatment is different in any disease. And, accurate pathologic and radiological symptoms are required for correct diagnosis and application of minimal invasive procedures. In this study, it is tried to determine the effectiveness of core needle biopsy in the diagnosis of GLM. Material and Method: all patients with Granulomatous Lobular Mastitis were included in the study. A total of 51 patients were selected. Data of age, parity, History of breastfeeding, history of OPC prescription, family history of breast disease, and history of autoimmune disease in patients were collected. These patients were selected between fall 2010 and fall 2011, and then, follow-up study was performed for six months to 1.5 year After collecting and recording data in statistical software spssver 19, statistical test of t-test was used to compare the results. Result: by the use of needle biopsy, 12 patients diagnosed of GLM, 44 patients diagnosed of invasive ductal carcinoma, 26 patients patients diagnosed of periductal mastitis, 12 patients patients diagnosed of fibroadenomas, 4 patients patients diagnosed of fatnecrosis, and 4 were indistinguishable (Fig. 1). All patients underwent incisional biopsy. And, in all cases where the diagnosis of GLM was not done by needle biopsy, it was completed by incisional biopsy and using incisional biopsy on 4 patients, one case of GLM, 2 cases of cancer breast, and one ductal ectasia were diagnosed. According to the obtained results, sensitivity of needle biopsyCore was 92.3%, and the characteristics of this method for the detection of GLM were 98%. Conclusions: Patients suspected of having the disease underwent the needle biopsyCore. And only those patients with negative response to

needleCore or no diagnose underwent incisional biopsy. In addition, since needle biopsyCore diagnosed the disease with certainty in lumpes with sizes more than 2cm, it is recommended to employ open biopsy or ultrasound-guided needle biopsy for lumpes smaller than 2cm to increase detection accuracy. However, this finding needs further study with a larger sample size.

KEYWORDS: Core Needle Biopsy, Incisional Biopsy, Granulomatous Lobular Mastitis.

INTRODUCTION

Breast diseases are among the most common gynecological diseases. Benign and malignant types of these diseases are the main reasons for women to visit a doctor. Mental effects resulted from breast cancer or chronic breast diseases could be serious. In addition, resulting costs of diagnose and treatment imposed on each patient are remarkable. However, diseases with clinical symptoms similar to cancer cause more concerns. Granulomatous Lobular Mastitis (GLM), a chronic inflammatory breast disease, is very similar to cancer with respect to clinical and radiological findings. The mean age of patients is 34 years (17 to 42 years). The main symptom of the disease is a lump with unknown shape (70% of cases). Other clinical symptoms include inflammation with pain (55%), erythema (40%), and orange peel appearance (40%) or axillary lymph nodes in 40% of cases.[1] In mammography, it is shown as a focal asymmetric density; while in ultrasound, it is often shown as irregular echo hypo lump.[1] So due to close similarity between its symptoms and those of cancer, exact diagnosis of the disease is crucial. Even cases of mistaken mastectomy in patients with GLM have been reported that was due to the incorrect diagnosis of breast cancer in these patients.[2] The disease is characterized by a chronic necrosis inflammation and granulomatous of breast lobules. The first pathological change in GLM is an inflammatory reaction within the breast lobules, called granulomatous lobules. Granuloma is composed of epithelioid histiocytes and giant cells of Langerhans which are surrounded by lymphocytes, plasma cells, and eosinophils around the lobules.[3] These cellular components may be seen in FNA smears in these patients. Non-caseating granulomas are created in the lobules of the breast. However, no microorganisms can be found in it.[4] Vasculitis is not seen in GLM. Painting and culture for bacteria, acid fast micro-organisms, and fungi is negative.[5] Serological tests for the ANA and RF, indicating systemic autoimmune phenomena, are usually negative.[5] It is noteworthy that granulomatous reactions may also occur in cancer and many of these patients may simply be mistaken for invasive intraductal carcinoma. Thus, early diagnosis for 50% of patients is

cancer.[2] Engin et al. suggested that neither mammography nor ultrasound plays an important role in the distinguishing diagnosis of cancer from GLM, and tissue pathologic diagnosis is required in all cases.[1] This disease is more common in Asians than in white-skin women. All patients had pregnancy history and young women during the first five years of the pregnancy showed the highest rate for this disease.[6] There is no unique agreement on tissue sampling and detection of GLM. Some articles supposed needle biopsy is adequate. On the other hand, other papers suggested open biopsy (1 and 3). Some research indicated that core needle biopsy is advantageous. However, it cannot always distinguish GLM from other breast granulomatous diseases. Some articles questioned the usefulness of FNA in the diagnosis of GLM and it was stated that sufficient tissue sample for diagnosis of GLM is not obtained from other breast pathologies, including cancer, TB, sarcoidosis, and among others.[5] Depending on its clinical symptoms, GLM control and treatment is different in any disease. And, accurate pathologic and radiological symptoms are required for correct diagnosis and application of minimal invasive procedures. In this study, it is tried to determine the effectiveness of core needle biopsy in the diagnosis of GLM. In addition, time and cost imposed by the disease will be reduced by proper diagnosis. And, adverse implications after open biopsy, including infections and fistula or chronic purulent of wounds in these patients, are eliminated.

METHODS AND MATERIALS

After obtaining permission from the Ethics Committee of the Ahvaz University of Medical Sciences, in an interventional study, all patients with GLM who attended the surgical clinics of hospitals of Ahvaz University of Medical Sciences were examined. In sampling process, all patients with Granulomatous Lobular Mastitis were included in the study. A total of 51 patients were selected. Data of age, parity, History of breastfeeding, history of OPC prescription, family history of breast disease, and history of autoimmune disease in patients were collected. These patients were selected between fall 2010 and fall 2011, and then, follow-up study was performed for six months to 1.5 year. Eight of the patients were excluded from the study due to immigration or dissuasion. Finally, the remaining 43 patients were treated after getting permission of patients by a hundred milligrams danazol per a day. Due to rarity of disease, all patients with GML pathology attended surgical clinics of hospitals of Ahvaz University of Medical Sciences within a year from fall 2010 to fall 2011 were included in the study. Because of the rarity of the disease, it was not possible to divide patients into two complete matched groups, and then treat patients with danazol in one group.

As a result, all patients were treated similar to previous studies in a single group. Serum prolactin levels were measured in all patients prior to initiating treatment to study the presence or absence of hyperprolactinemia. For accurate measurement of serum prolactin, patients were informed to prohibit taking H2 blockers or other medications that interfere with the measurement of serum prolactin. Measurement was carried out in the follicular phase of the menstrual cycle in the first interval of 6-7 doses. Embedded peripherally inserted angiocath was initiated within half an hour after it was sampled. The patients were visited monthly to examine their recovery or non-recovery. After collecting and recording data in statistical software spssver 19, statistical test of t-test was used to compare the results.

RESULTS

In this study, 102 patients with breast lump and inflammatory skin changes or axillary lymph nodes within armpit were treated by a needle biopsy followed by incisional biopsy. Of 102 patients who were examined, by the use of needle biopsy, 12 patients diagnosed of GLM, 44 patients diagnosed of invasive ductal carcinoma, 26 patients patients diagnosed of periductal mastitis, 12 patients patients diagnosed of fibroadenomas, 4 patients patients diagnosed of fatnecrosis, and 4 were indistinguishable (Fig. 1). All patients underwent incisional biopsy. And, in all cases where the diagnosis of GLM was not done by needle biopsy, it was completed by incisional biopsy and using incisional biopsy on 4 patients, one case of GLM, 2 cases of cancer breast, and one ductal ectasia were diagnosed. According to the obtained results, sensitivity of needle biopsyCore was 92.3%, and the characteristics of this method for the detection of GLM were 98%. Patients given the diagnosis of GLM were in the age group between 22 and 49 years (Fig. 1). All patients given a diagnosis of GLM visited the clinics complaining of breast lump with sizes of 1.5 to 6 cm. All lump cases were located in the outer half of breast. One-fourth of lower outer part of breast in 3 patients (23%), one-fourth of upper outer part of breast in 6 patients (46%), and one-fourth of lower and upper parts of breast with both breasts involved. Pain and lump in 7 patients (53%) was reported simultaneously. The lump was palpable in most cases with undefined precise sizes. Axillary lymphadenopathy was observed in 2 patients (15%). Discharge from the nipple was not seen in any patient. Wound and secreted tract sinus were seen in 4 patients (30%). A total of 12 (92%) patients were diagnosed using needle biopsy Core and only one patient was diagnosed using incisional biopsy. (Fig.2). All patients eventually diagnosed with GLM had gotten pregnancy.

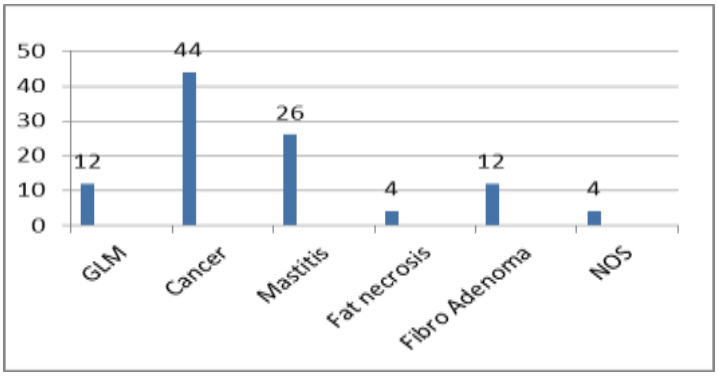

Table 1 - needle biopsy results

		Core needle biopsy		
		+	-	
Incisional biopsy	+	12	1	13
	-	0	89	89
		12	90	102

$$\text{Sensitivity}=\frac{12}{13}=92.3\%$$

$$\text{Specivity}=\frac{89}{90}=98\%$$

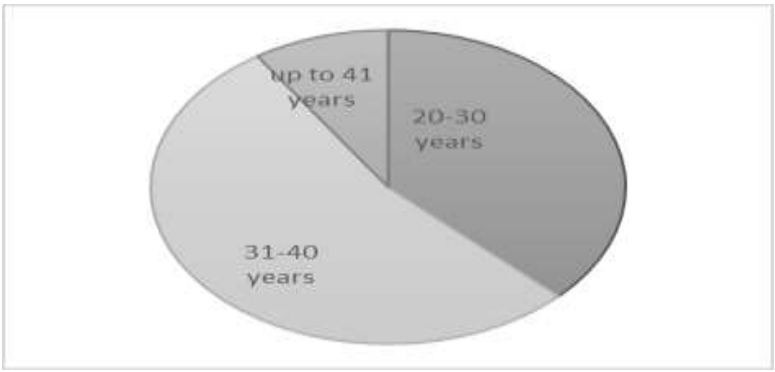

Fig1. The percentage of aged patients

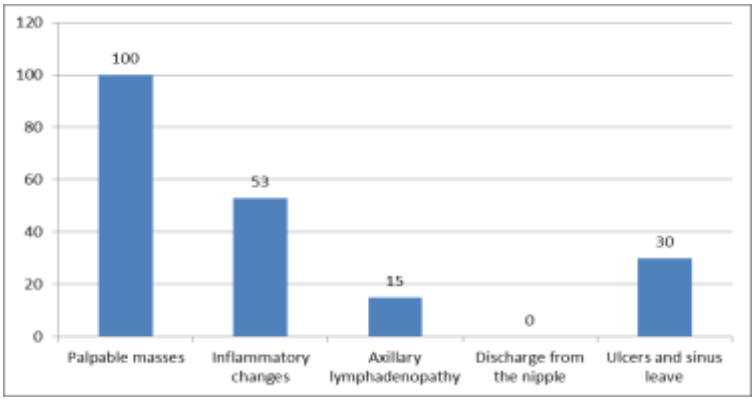

Fig 2.Symptoms of patients with a final diagnosis of GLM

DISCUSSIONS

As previous studies have shown, many patients after open biopsy experienced wound infection and fistula or chronic purulent wounds, a less invasive method is needed to change breast tissue to a lesser extent and reduce the time and cost imposed on patient. Based on previous studies, GLM disease is not distinguished from other malignant diseases of the breast by imaging or cytology methods. Thus, in this research, it is tried to know whether needle biopsy can be used to diagnose this disease. For this purpose, needle biopsy is performed, tissue sample is obtained, and pathological examination of samples is done. Then, the results are compared with those obtained by open biopsy. Accordingly, it is tested to determine whether obtained solution by needle biopsyCore is adequate to initiate treatment. As shown in the Results, sensitivity of needle biopsyCore was 92.3% and the characteristic of this method to detect the GLM was 98%. A research reported by Namnagani et al. in 2009 on FNA cytology in inflammatory breast diseases showed that FNA of the inflammatory lesions can be a helpful tool in the investigations.[2] In a study conducted at the Keck School of Medicine of USC between 2000 and 2008 on 54 patients, it was revealed that core needle biopsy for diagnosis of the disease is quite typical. FNA was carried out on 19 patients, but it was diagnostic only in 4 patients (21%) (3). In a research led by AlperAkcan et al. in 2006 in Turkey, they examined 21 patients with early suspected breast cancer. After employing Core needle biopsy in all patients, at the end, 20 patients (96%) were considered for GLM diagnosis. And, only two patients required surgical biopsy for final diagnosis of GLM (5). This test had results in two phases in some studies so that in a study by Satoshi Hirata et al in 2003 conducted on a patient with early symptoms of redness painful right breast and with a lump that was expanding quickly over the time, she first underwent FNA and inflammatory cells were found. However, special diagnosis was not presented for the patient. Then, the patient underwent the Core needle biposy. And, after painting of PAS and test for tuberculosis, the deterministic diagnosis of GLM was given for patient.[4]

CONCLUSION

Based on the results obtained and the high percentage of the sensitivity and specificity of this method, first of all, patients suspected of having the disease underwent the needle biopsyCore. And only those patients with negative response to needleCore or no diagnose underwent incisional biopsy. In addition, since needle biopsyCore diagnosed the disease with certainty in lumpes with sizes more than 2cm, it is recommended to employ open biopsy or

ultrasound-guided needle biopsy for lumpes smaller than 2cm to increase detection accuracy. However, this finding needs further study with a larger sample size.

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REFERENCES

1. Disease of the breast, 4th edition, Jay R.Harris-Marc E.Lippman-Monica Morrow-C.Kent Osborne-Lippincott, Williams & Wilkins, 2010.
2. Nemengani, Yagoob N: Fine needle aspration cytology of inflamatory breast lesion.J Park Med Assos, Mar, 2009; 59(3): 167-70.
3. Linda J.Hovanessian Lersen, Banafshe Peyvandi, Nancy Klipfel, Edward Grant and Geealyengar-Granulomatous Lobular Mastitis Imaging Diagnisis and treatment AJR, 2009; 193: 574-581.
4. Satoshi, HIRATA, Takashige Saito, Mashiro Kitada: Granulomatous Mastitis Diagnosis by core needle biopsy. A case report, Higashi Hosital.Japan, 2003: 10: 372-381.
5. Alper Akcan MD, Hizir Akyildiz MD, Mehmet Ali Deneme MD, Hulya Akgun MD,Yucel Aritas MD, Granulomatous lobular Mastitis; A Complex Diagnosis and Therapeutic Problem. World Surg, 2006; 30: 1403-1409.
6. Baslaim MM, Khayat HA, Al.amoudi SA.Idiopathic Granulomatous Mastitis:a heterogeneous disease with variable clinical presentation.World J Surg 1-AUG, 2007; 31(8): 1677-8. [MD Consult]
7. Shigeru Imoto, Tomoki Kitaya, Tesuro Kodama, Takashiro Hasebe and Kiyoshi Mua: Idiopathic Gr=ranulomatous Mastitis/case report and review of the literature JPN J clin oncol, 1997; 27(4): 274-277.
8. J J Going, T J Anderson, S Wilkinson, U Chetty, Granulomatous Lobular Mastitis J clin Pathol, 1987; 40: 535-540.
9. Juan Rosai-Rosai and Ackerman's Surgical Pathology-9th edition, 2004.(mosby)
10. Jhon R Farndon, Breast Surgery 2end edition 2001-W.B.Saunders Company Limited.
11. Paul Peter Rosen-Rosen, R.Sacre, C.Bourgain, J.Lamote-Granolomatous Lobular Mastitis a rare chronic inflamatory disease of the brest which can mimic brest carcinoma.Acta chinbelg, 2006; 106: 222-224.

12. Sevgi Bakaris MD, Murvet Yuksel MD, Punar Curagil MD, M.Atahan Guven MD, Fibret Ezberci MD, Erten Bulbuloglu MD, Granolomatous Mastitis including breast tuberculosis and idiopathic lobular Granulomatous Mastitis.Can J Surg, December 2006; 49: 6.