ORIGINAL ARTICLE

Clinical Value of Sure cut Biopsy in Breast Masses

MUHAMMAD LATIF AFTAB, *ASMA RASHID, MUHAMMAD ASLAM, *SHAFIQ UR REHMAN*

ABSTRACT

Sure cut breast biopsy is one of the reasonable methods of histological diagnosis of palpable breast masses. Sure cut biopsy was done in 52 female patients with palpable breast lumps and results were compared to histological findings in all cases after excision. The over all accuracy rate was 92.3%. Sensitivity was 94.1% and specificity was 91.4%. After excluding inadequate specimens for histology, obtained by sure cut needle from calculations, the sensitivity was same i.e. 94.1% while specificity was 100%. No false negative or false positive diagnosis was found in this study. The method of sure cut biopsy is simple, well acceptable to the patients, no hospitalization is required. It is a safe procedure and no complication was found in present study.

Key words: Breast masses, sure cut biopsy, histological diagnosis

INTRODUCTION

The technique of needle aspiration as a diagnostic tool is not new one, it was used as early as 1833 when diagnosis of liver abscess was confirmed by needle aspirate[1]. However much work on needle biopsy was done in 1920 at Memorial Hospital New York USA by Martin and Ellis[2]. Needle biopsy did not attain wide acceptance in USA as a diagnostic tool for many decades due to fear of dissemination of malignancy in the needle track, or via blood vessels and lymphatic[3]. It was also reported the reluctance of pathologists to report on aspirated smears and so did not favor the technique[4]. Since early 1950,s fine needle aspiration and cytology have become a popular procedure with increasing interest[5].

Later on wide bore needles were used for diagnosis of tumors. The main advantage is that histological diagnosis is made in contrast to cytological diagnosis. The tissue biopsy has advantage that in this technique histological classification of tumors is possible. Another advantage is that degree of invasion and differentiation may also be predicted[6]. Different varieties of wide bore needles are available .It has been reported that recent consensus conferences and guidelines state that 90% of the Breast lesions should undergo preoperative sure cut biopsy[7]. In this study sure cut biopsy needle (Menghini aspiration biopsy needle) was used to take specimen from breast masses and their diagnostic yield was evaluated.

MATERIALS AND METHODS

This study was conducted in 52 female patients with palpable breast lumps, visiting Sir Ganga Ram Hospital Lahore. The specimen for biopsy from lump was obtained with Sure cut biopsy needle (Manghini aspiration needle) 18 G, 50mm needle length was used. Local anesthetics, 2% Xylocaine was infilterated, lump was fixed by the assistant. The skin was punctured by the needle and the needle was advanced through subcutaneous tissue with careful movements, keeping the needle perpendicular to the skin surface, the syringe being aspirated (syringe plunger being locked automatically). The needle advanced to the appropriate needle depth, keeping the syringe in aspiration, the needle was then withdrawn completely, unlocked the syringe plunger locking device and removed the biopsy specimen from the needle lumen by pushing the plunger directly into the specimen bottle. The procedure was repeated at a different site in the lump. The specimen was preserved with formalin before sending to laboratory for histology. After the needle biopsy, the lump was excised in the operation theatre and was also sent to the laboratory for histological diagnosis. The results of sure cut biopsy were compared to that of open biopsy.

The accuracy of Sure cut biopsy was calculated as percentage of correct diagnosis made by Sure cut biopsy as compared to final diagnosis on the excised lumps in all cases.

RESULTS

Adequate specimen for histological diagnosis was obtained by Sure cut biopsy in 49(94.2%) out of 52 patients. Repeat needle biopsy was not done in any case and excision biopsy was done in all cases. In 3 cases (5.76%) the tissue was labeled as inadequate specimen for histological diagnosis by the pathologist. Out of 17 cases with final diagnosis of malignancy 16 (94.1%) were correctly diagnosed by

Department of Surgery and Department of Pathology Fatima Jinnah Medical College Lahore*
Correspondence to dr. M. Latif Aftab, Associate Professor Surgery

Sure cut biopsy. In 35 benign cases 32 cases (91.4%) were correctly diagnosed by Sure cut biopsy needle.

Table 1: Histological diagnosis by Sure cut biopsy in all cases

Diagnosis by Sure cut biopsy	**=n**
Carcinoma	16
Benign	32
Suspicious	1
Inadequate tissue obtained	3
Total	52

Table 2: Histological diagnosis by Sure cut biopsy verified carcinoma by open biopsy

Diagnosis	**=n**	**%age**
Carcinoma	16	94.1
Benign (False Negative)	-	-
Suspicious	01	5.9
Unsatisfactory tissue obtained	-	-
Total	17	100

Table 3: Histological diagnosis by Sure cut biopsy in 35 open biopsy verified benign lumps

Diagnosis	**=n**	**%age**
Benign	32	94.1
Malignant (false positive)	-	-
Suspicious	-	-
Unsatisfactory tissue obtained	3	8.6
Total	35	100

Table 4: Accuracy of Sure cut Biopsy in all cases.

Diagnosis	=n	Open biopsy	Accuracy of Surecut biopsy
Carcinoma	16	17	94.1%
Benign	32	35	91.4%
Suspicious	01	-	-
Inadequate tissue obtained	03	-	-
Total	52	52	

Over all accuracy =92.3%
Sensitivity= 94.1%
Specificity=91.4%

Sensitivity of Sure cut biopsy was 94.1% while specificity was 91.4%. The difference between 94.1% and 91.4% is insignificant statistically and P value is less than 0.05. After excluding cases in which inadequate tissue was obtained from calculations the sensitivity was same i.e. 94.1% and the specificity was 100%.

DISCUSSION

The purpose of doing biopsy is to establish a diagnosis. Histological diagnosis is superior to cytological diagnosis as it can distinguish between invasive and non invasive malignancy. Wide bore needle biopsy has advantage over excision biopsy in breast masses ,as no hospitalization is needed and can be performed on outdoor basis in any office or clinic. Procedure is well acceptable to the patients as compared to open biopsy. It is a reasonably good alternative of a surgical procedure which has its own problems and possibility of complications of a surgical operation. The overall accuracy rate of sure cut biopsy was found to be 92.3%. The overall accuracy rate is comparable to some other published report[8], which has overall accuracy of 91%. However it was higher to some other published study which reported 84% (38 out of 45 cases)[9]. Similarly the sensitivity is also comparable to Alfonso etal. who reported sensitivity of 93% as compared to 94.1% of the present study[8]. However the specificity is remarkably lower which is 91.4% in present study compared to 100% reported by Alfonso et al[8].However if inadequate specimens are excluded the specificity of present report is equal to that of Alfonso et al.

The sure cut biopsy in present study did not show any complication although simple hematoma formation in case of wide bore needle biopsies in breast has been reported in the literature[10]. It is useful method of follow up of patients with malignancy treated by chemotherapy or radiotherapy. It may also be valuable method for follow up of patients with benign tumors unwilling or waiting for surgery.

The possibility of implantation of needle track by malignant cells remains theoretical since the needle track is usually included in the mastectomy specimen. Although total freedom from invasion of biopsy track by neoplasm in case of wide bore needle has been reported by some researchers[11,12]. However in one study published from Denmark reported appearance of tumor cells along needle track in patients with breast cancer diagnosed by sure cut biopsy in 2 cases out of 47 consecutive cases[13]. However other studies claim to have no detrimental impact on local recurrence[14,15].

Although false negative results may be obtained the possibilities of false positive results are minimum. Different published reports claim there was zero percent false positive results[15]. Neither false positive nor false negative results were obtained in this study.

The disadvantage of this procedure is that tissue obtained by sure cut needle may not be representative of tumor as a whole, hence suitable diagnosis may not be possible. To minimize this possibility specimen was obtained from two different sites in the lump in present study. It is recommended that in cases with negative diagnosis for malignancy by needle biopsy in presence of clinically suspicious diagnosis for carcinoma either repeat needle biopsy or preferably open biopsy must be done.

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