TRUCUT NEEDLE BIOPSY IN BREAST LUMPS

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THE clinical differentiation between benign and malignant breast lumps is fraught with danger. A small proportion of cases present with classical findings but in the majority it is essential to have a histological or cytological diagnosis before surgery is undertaken.

Trucut needle biopsy (TCN) of solid tumours is now established as a useful means of obtaining representative biopsy material and has been used widely in liver and kidney disease. However, its usefulness in the diagnosis of solid breast lumps remains controversial. To evaluate the technique we carried out 250 consecutive TCN biopsies and the results of the series are presented.

MATERIALS AND METHODS

Two hundred and forty-two women attending the Breast Clinic were subjected to TCN. Some had simultaneous fine needle aspiration (FNA) and some went on to have excision biopsy or mastectomy. Lumps smaller than 0.5 cm in diameter were not suitable for biopsy due to difficulty in accurately locating the lump with the trucut needle.

BIOPSY TECHNIQUE

The lump was steadied between the thumb and forefinger of the left hand and the overlying skin infiltrated with one ml of two per cent lignocaine. A small (5 mm) incision was made directly over the lump and the trucut needle (Travenol Laboratories Inc) was introduced through the wound. The obturator was then thrust into the lump and the sheath advanced, trapping tissue in the specimen notch. The complete needle was then withdrawn and the specimen placed in ten per cent buffered formalin. Pressure was applied to the wound for two to three minutes to arrest haemorrhage, after which a pressure dressing was applied. A satisfactory specimen was 1-2 cm long and up to 2 mm in diameter. If it was felt that the specimen was inadequate a further biopsy could be taken through the same incision. Once mastered, the procedure was usually painless, although five patients experienced some mild discomfort. Two hundred and fifty TCN biopsies were performed on solid tumours in 242 patients. When the biopsy was reported as carcinoma and the clinical findings were in agreement, mastectomy was undertaken. In biopsies reported as benign (fibroadenosis, fibroadenoma, etc), depending on the degree of clinical suspicion, either excision biopsy was undertaken or the patient was followed-up for a minimum period of six months to establish that the lump was benign. In a number of cases fine needle aspiration (FNA) was undertaken simultaneously and formed the basis of a previous report.[1]

RESULTS

The results are detailed in the Table. Of a total of 250 TCN, 40 specimens were considered to be unsatisfactory or inadequate by the pathologist. One hundred and five of the remaining 210 were reported as carcinoma and all of these were

TABLE

TCN compared with final diagnosis

TCN Diagnosis		*Final Diagnosis*	
		Benign	*Malignant*
Unsatisfactory biopsies	40	28	12
Benign	94	89	5
Suspicious	11	2	9
Malignant	105	—	105
TOTAL	250	119	131

subsequently confirmed by the histology of the mastectomy specimen. Thirty-nine of the 94 biopsies reported as benign disease had excisional biopsy and of these, five were carcinomas. A further 11 biopsies were labelled as 'suspicious' and consequently had excisional biopsies carried out, of which nine proved to be carcinoma. If these are excluded there were five false negatives in 94 patients which is 5.3 per cent. There were 74 patients who did not subsequently have an excisional biopsy. These have been followed up and to date have shown no evidence of malignancy.

Twenty-one of the 40 patients who had unsatisfactory TCN biopsies had excisional biopsies because of suspicion of malignancy and 12 proved to be carcinomas.

During the study TCN biopsies were taken by both a consultant and a number of junior doctors. Our figures show that both the consultant and the junior doctors had 100 per cent accuracy with biopsies reported as being malignant. Of the 80 biopsies performed by the consultant and the 62 performed by the junior doctors reported as not showing carcinoma, six (7.5 per cent) of the former and eight (12.9 per cent) of the latter ultimately proved to be malignant. This is not a significant difference (X^2 0.62 d.f. = 1, $0.5 > p > 0.3$).

DISCUSSION

Cancer of the breast is still responsible for the greatest number of deaths from malignant disease in women and the incidence appears to be rising.[2] Prognosis is thought to be improved by early diagnosis[3] and therefore any method which contributes to this deserves due consideration. Also, more attention is now being paid to the psychological complications which arise from breast disease and many surgeons like to discuss the treatment with the patient before surgery. An excisional biopsy has several main disadvantages: (1) it normally requires a general anaesthetic, (2) the incision may affect the choice of incision for definitive surgery and (3) many surgeons do not feel that frozen section examination of the biopsy should be followed by immediate definitive surgery. These objections are largely overcome by TCN biopsy. Furthermore, when excisional biopsy is carried out, most surgeons are reluctant to send part of the specimen for oestrogen receptor assay in case that portion contains the entire carcinoma, thus causing a false negative histology report. Consequently, most lumps are sent in their entirety for histology. In the case of a diagnosis obtained with TCN the remaining tissue can be sent for assay at definitive surgery.

It has been postulated that as with FNA accuracy should improve with experience.[4] Our figures suggest that this is not the case and the technique is equally suitable for senior surgeons and those in training.

Concern has been expressed regarding the seeding of the needle track with tumour cells. This has been investigated with regard to FNA by Robbins et al[5] who registered the survival times of 1463 patients with mammary carcinoma submitted to radical surgery and compared the survival rates in patients who had FNA with those who did not. They found that the two groups did not differ in their ten year survival rates as long as the needle track was excised at mastectomy. Although FNA cannot be strictly equated with TCN, we feel that TCN is a safe procedure. We would also stress that TCN is a simple technique which can easily be performed in a normal outpatient clinic as no special facilities are required. Patient acceptance is high and apart from mild bruising, no complications have been experienced. Confidence in the technique has increased with experience and, provided it is used in conjunction with clinical judgement, it is a safe, cheap and virtually painless method of making a reliable diagnosis. Since we have had no false positive results, we agree with Elston et al[6] that when TCN is reported as showing a carcinoma definitive surgery can be undertaken with assurance. However, caution should be exercised with benign TCN biopsies and in patients where there is the slightest doubt that the lump is benign, excision biopsy should be undertaken.

In conclusion, we have found the technique of trucut needle biopsy useful in the pre-operative diagnosis of solid breast lumps and advocate that the technique plays an increasing role in the diagnosis and management of these patients.

SUMMARY

The technique of trucut needle biopsy (TCN) is described. Two hundred and fifty consecutive TCN were performed in 242 women and 84 per cent of these provided satisfactory biopsies. There were no false positive results. In 14 satisfactory biopsies the diagnosis of carcinoma was not made and these were considered to be false negative results. TCN was found to be a reliable means of pre-operative diagnosis when the biopsy showed carcinoma, enabling mastectomy to be undertaken safely, rendering excisional biopsy and frozen section unnecessary.

REFERENCES

1 Kernohan R, Logan H, Willis J. Fine needle aspiration in breast lumps. *Ulster Med J* 1982; **51**: 52-55.

2 Office of Population Censuses and Surveys, England and Wales, 1978; **DH1**: 6.

3 British Breast Group. Screening for Breast Cancer. *Br Med J* 1975; **3**: 357-358.

4 Webb AJ. The diagnostic cytology of breast carcinoma. *Br Med J* 1970; **57**: 259-264.

5 Robbins CG, Brothers GH, Eberhart WF, Quan S. Is aspiration biopsy of breast cancer dangerous to the patient? *Cancer* 1954; **7**: 774-778.

6 Elston CW, Cotten RE, Davies CJ, Blamey RW. A comparison of the use of the trucut needle and fine needle aspiration cytology in the pre-operative diagnosis of carcinoma of the breast. *Histopathology* 1978; **2**: 239-254.

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