Ultrasound-guided, vacuum-assisted excision in the diagnosis and treatment of clinically benign breast lesions

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ABSTRACT

INTRODUCTION Ultrasound-guided, vacuum-assisted biopsy has a definitive role in the diagnosis of breast lesions. Its role in the treatment of benign breast lesions like fibroadenomas has not been established.

PATIENTS AND METHODS This is a retrospective review of patients undergoing ultrasound-guided, vacuum-assisted biopsy for clinically benign breast lesions. The procedures were performed in all cases by two consultant radiologists with special interest in breast radiology between February 2002 and January 2004. Patients were followed up in the clinic 6 weeks after the procedure.

RESULTS Seventy-six patients had ultrasound-guided, vacuum-assisted excision of clinically benign breast lesions during this 2-year period. Mean age of the patients was 31 years. Altogether, 86 procedures were performed. Six patients with larger lesions (> 2 cm) had two procedures on separate sitting and 4 patients had separate lesions excised on a later date. Fifty-six patients were identified to have fibroadenomas and had complete excisions as evidenced on scan. Three out of nine patients identified with equivocal disease on fine needle aspiration cytology (FNAC) were found to have cancer following ultrasound-guided, vacuum-assisted excision. One patient who was diagnosed with cancer on FNAC, proved to be fibroadenoma on final histopathology. Four patients developed haematomas following ultrasound-guided, vacuum-assisted excision and all were managed conservatively.

CONCLUSIONS Our study shows that ultrasound-guided, vacuum-assisted excision can play an efficient role in the diagnosis of benign breast lesions and is a safe and successful alternative in treatment of fibroadenomas.

KEYWORDS

Ultrasound-guided vacuum-assisted excision – Ultrasound-guided vacuum-assisted biopsy – Benign breast disease – Fibroadenoma

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Ultrasound-guided, vacuum-assisted biopsy has been used as an efficient tool for diagnosis of breast lesions. Vacuum-assisted biopsy has clear advantages over fine needle aspiration cytology (FNAC) and core biopsy in certain situations.¹ Fine needle aspiration cytology has a high rate of insufficient tissue material obtained. Core biopsies have the disadvantage of multiple insertions and also insufficient material obtained in very dense breasts.

Fibroadenomas occur in 10% of women and their treatment is controversial.² Some surgeons prefer a conservative approach with regular follow-up.² But this is often associated with poor compliance and not all patients are satisfied with this approach.³ Surgical excision of every fibroadenoma is costly and has cosmetic implications. But they still represent 50% of surgical breast biopsies performed.²

Ultrasound-guided, vacuum-assisted excision could represent another approach in their treatment.

The aim of our study was to evaluate ultrasound-guided, vacuum-assisted excision (UGVAE) as an alternative approach in the diagnosis and treatment of clinically benign breast lesions.

Patients and Methods

This is a retrospective review of patients undergoing UGVAE. A total of 86 ultrasound-guided, vacuum-assisted excision procedures were performed on 76 patients with clinically benign breast lesions between February 2002 and January 2004. All patients had ultrasound scan as a part of triple assessment, and patients 35 years and above had

mammography in addition to ultrasound scan. An attempt was made to establish cytological diagnosis in patients prior to UGVAE. The procedures were performed in all cases by two consultant radiologists with special interest in breast radiology. Size 11 gauge and 8 gauge mamotome vacuum-assisted biopsy needles were used. Patient who had lesions larger than 2 cm had two sittings to excise the lesion completely. Excision biopsies were continued until there was no sonographic evidence of the lesion. All excisions were performed in an ambulatory setting using local

anaesthesia. Patients were followed up in the clinic 6 weeks after the procedure.

Results

Seventy-six patients with clinically benign breast disease were included in the study group. The mean age of patients who had excision biopsy was 31 years (range, 15–53 years). Seventy-four patients had FNAC prior to UGVAE as shown in Figure 1. In five patients, the FNAC sample was inadequate

to make a diagnosis. Fifty-nine patients were diagnosed with benign disease on FNAC, of which 54 were fibroadenomas. Following UGVAE, 51 of these patients were confirmed as fibroadenoma and the remaining 8 as benign breast change. In nine patients, the diagnosis was equivocal on FNAC and three of these patients were identified as having cancer following UGVAE. One patient was diagnosed with cancer on FNAC. This patient had a core biopsy prior to UGVAE and this was reported as benign breast change. Subsequent UGVAE confirmed this to be a fibroadenoma.

Altogether, 56 fibroadenomas were excised; in all patients, the excision was complete as evidenced on scan. Six patients with larger lesions measuring more than 2 cm had two sittings. Four patients, who were diagnosed with fibroadenomas on UGVAE, underwent similar procedure for a second lesion at a later date. Of the 56 patients with the diagnosis of fibroadenoma, only 4 had core biopsies prior to UGVAE. Three came back as fibroadenoma on core biopsy and one as fibroadenosis.

Four patients developed palpable haematomas following UGVAE but none needed surgical intervention.

Discussion

This study has shown that UGVAE can serve as an efficient tool for the diagnosis of benign breast lesions and also in the treatment of breast fibroadenomas.

Compared to automated core biopsy device, ultrasound-guided, vacuum-assisted biopsy has certain advantages in achieving tissue diagnosis. It reduces the possibility of false negatives, which is comparatively high in non-palpable lesions and microcalcifications.^{4,5} It eliminates the need for multiple insertions and reduces the likelihood of epithelial displacement.^{1,6} It also has the advantage of placing a marker post biopsy if required. It is a safe procedure and none of the patients in our study had any major complications (e.g. uncontrolled bleeding or infection). Four patients developed haematoma, which were managed conservatively.

One of the major disadvantages of FNAC is the high false negative rate^{7,8} and a significant number of patients will have equivocal findings needing further tissue diagnosis as shown in our study. Using ultrasound-guided, vacuum-assisted excision, lesions are often completely excised and thus excluding the even the remote possibility of missing malignancies.

In adolescent girls and young women, fibroadenoma represents the most common breast tumour.⁹ Accurate diagnosis on clinical grounds is possible only in less than 75% of cases.¹⁰ Thus supportive data in the form of radiology and tissue diagnosis are often required. Following triple assessment, it is common practice to offer either surgical removal or conservative management in the form of close follow-up. In practice, to alleviate patient anxiety, and the possibility of losing patients in follow-up, these lesions are

often surgically removed.¹¹ But cosmetic result is a concern in these young women and they would prefer to limit the scarring to the breast to the minimum. UGVAE has the advantage of leaving only a very small scar compared to surgical excision.

Another advantage of UGVAE is its cost-effectiveness. The procedure is done as a day-case, under local anaesthesia and it would cost about £750 compared to £920 for an open operation as a day-case under general anaesthesia. However, it requires a team radiologist with expertise in the field who is willing to set aside time to do the list and also pathologists who are ready to do additional histopathology.

Conclusions

UGVAE can be considered as a viable option in the diagnosis and treatment of benign breast lesions. Long-term follow-up of this technique with ultrasound scan is required with a control group to establish this modality as the gold standard in the management of fibroadenomas. In the future, its role could further be extended to treat other benign conditions of the breast like gynaecomastia and complex breast abscess.

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