



Treatment of Fibroadenoma by Ultrasound-Guided Vacuum Assisted Breast Biopsy at Ho Chi Minh City Oncology Hospital

Phuong Viet The Tran^{1*}, Cuc Hong Le², Huong Thien Pham³ and Tu Hoang Pham⁴

¹Department of Breast Surgery-Ho Chi Minh City Oncology Hospital, Vietnam

²Department of Radiology-Ho Chi Minh City Oncology Hospital, Vietnam

Abstract

Introduction: VABB is effective for complete removal of benign lesion of the breast such as fibroadenoma.

Method: breast lesions which are diagnosed fibroadenoma by ultrasound and less than 3 cm are removed by ultrasound-guided VABB and local anesthesia.

Result: 20 patients with 39 lesions are removed with ultrasound guided VABB. All histology turns out benign with 22 fibroadenomas. Mean age is 37.5 (11-54), mean size is 16.7 mm (9.5 mm to 30 mm). 8 cases with one tumor (40%), 6 cases with 2 tumors (30%), 5 cases with 3 tumors (25%) and 1 case with 4 tumors (5%). There is no severe complication, 5 cases with skin echymosis and 1 case with hematoma. None of the patients feels pain.

Conclusion: VABB is an effective for diagnosis and treatment of benign breast lesion, including fibroadenoma with small size.

Keywords: Fibroadenoma; Breast biopsy; Ultrasound-Guided

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*Correspondence:

Phuong Viet The Tran, Department of Breast Surgery, Vinmec Hospital, 139/7A Phan Dang Luu Street, Ward 2, Phu nhuan District, Ho Chi Minh City, Vietnam, Tel: 84903760542; E-mail: tvtphuong_1999@yahoo.com

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Introduction

Fibroadenoma is the most common benign tumor of the breast. Treatment of this type of tumor is either follow up or removal. Follow up is often for small tumors, multiple tumors, young patients, or patients who do not like surgery. Conventional treatment for tumor removal is open surgery. This type of technique is relatively simple, with local anesthesia (if tumor is not big). However, this technique has disadvantages such as leaving scars is an invasive method, and post-op care is necessary.

Vacuum Assisted Breast Biopsy (VABB) has been performed worldwide since the 1990'. This technique uses bigger needle (7G, 8G, 11G) and could biopsy or completely remove small benign tumor (less than 3 cm). Therefore, this is a method for biopsy of breast lesions and also for treatment of benign breast lesions. This technique has been approved by FDA (USA) and NICE (UK) for complete removal of fibroadenoma.

In our knowledge, VABB has not been performed and reported in Vietnam until 2017. In this article, we report our series of breast tumors diagnosed fibroadenomas by ultrasound and treated with VABB at Ho Chi Minh City Oncology Hospital in 2017, which is the first reported series in Vietnam.

Method

Patients who have breast tumors diagnosed fibroadenoma on ultrasound and less than 3 cm are recruited. Patients will have consultation about options of follow up, open surgery or tumor removal with VABB, pros and cons of each option.

When the patient decides to have VABB, her breasts are examined again with ultrasound by the radiologist of the team. The character of the tumors, number and the size of the tumors are recorded. Patients are also informed about the number of the tumor removed. If there are multiple tumors, we decide to remove 2 to 3 tumors, those smaller than 10mm will be followed up. The number of the removed tumor is also decided by the patient.

Table 1: Pathology results.

Pathology	Number
Fibroadenoma	22
Borderline phyllodes tumor	1
Fibrocystic changes	10
Intraductal papilloma	4
Granuloma mastitis	2
Total	39

**Figure 1:** VABB Mammotome-Legacy machine.**Figure 2:** Performing VABB.

The procedure is performed at the Radiology department. Before the procedure, breast ultrasound will be done to decide the entry of the probe. Local anesthesia is with 20 ml of Lidocain 1% (with Adrenalin) by 25G needle and then 18G needle. Lidocain is injected behind and above the tumor. The purpose of Lidocain injection is local anesthesia, homeostasis and to prepare the route for the probe.

The procedure is performed by radiologists or breast surgeons who have been trained with VABB. A small orifice will be made by an 11 blade to insert the probe. The size of the probe will be depended on the size of the tumor and if the tumor is close to the skin or not. The probe is inserted behind the tumor, at 6:00 position. When the position of the probe is accurate, the Legacy machine (Mammotome-USA) is activated and will cut and remove the tumor. The process of removal of the tumor is visualized under ultrasound until the tumor is removed completely and the probe is withdrawn afterward.

A nurse will compress the breast in 5 min for homeostasis and the orifice is tapped. Patient stays at the hospital in 30 min and will be instructed to remove the tap the day after. Patient will take pain killers if painful but antibiotics are not prescribed. Patient comes back in 10 days for histology result, clinical and ultrasound examination.

Pain is evaluated on the scale of 1-10. Evaluation is taken before the procedure, after the procedure and 10 days after the procedure.

Result

There are 20 patients (39 tumors) diagnosed fibroadenoma on ultrasound and treated with VABB. Mean age is 37.5 (11-54). Mean size: 16.7 mm (9.5 mm to 30 mm). There are 8 patients with 1 tumor (40%), 6 patients with 2 tumors (30%), 5 patients with 3 tumors (25%), and one patient with 4 tumors (5%).

Pathology results of 39 tumors are 22 fibroadenomas, other pathology results are borderline phyllodes tumor, fibrocystic changes, and intraductal papilloma and granuloma mastitis (Table 1). Four patients diagnosed fibroadenoma turn out benign lesion (not fibroadenoma), 16 cases have at least one fibroadenoma.

Complications are mild, including 5 cases with ecchymose of the skin of the breast, one case with hematoma and needs puncture. There are no infection, bleeding or chest wall injury. All the patients do not have pain in the duration of the procedure, after the procedure and 1 week after the procedure. Breast ultrasound shows that there is no residue after the procedure and 10 days afterwards.

Discussion

Fibroadenoma is the most common tumor of the breast. For a long time ago, treatment for this kind of tumor is follow up or opens surgery. Follow up are for young patients, small tumor (<1 cm) and multiple lumps. However, some patients worry about the tumor and want to have the tumors removed for histology and VABB will give the patients a good option because it is less painful, does not leave a big scar and multiple lumps could be removed in one time.

VABB has been performing since 1995 and becoming an efficient device for biopsy of breast lesions. VABB is useful for lesions smaller than 5 mm which are not applicable for core biopsy. The probes of VABB are bigger enough to provide large sample for histology. Not only for biopsy, VABB has been approved by FDA and NICE for treatment of benign breast lesions like fibroadenoma [1]. In these situations, VABB provides patients an alternative of open surgery without big scar. VABB could also remove multiple tumors in one time. Pivoski [2] report a case in which VABB removes 14 fibroadenoma of a 21 year old patient.

In the report of Karol et al. [3] with 196 cases diagnosed fibroadenoma by ultrasound, only 157 cases (80.1%) are fibroadenoma on histology, and 2 cases are invasive carcinoma. In the series of Thurley et al. [4] with 134 cases diagnosed benign in ultrasound, only 81 (60.4%) are fibroadenoma on histology. In our series, 75% are fibroadenoma pathologically. The remaining cases are benign except one borderline phyllodes. In this case, patient rejects the option of wide excision and decides to have followed up.

In our series, we do not use VABB for tumor bigger than 30 mm (mean size is 16.7 mm). When the tumor is too big, the vacuum force and the aperture of the probe could not completely remove the tumor. In the series of Karol et al. [3], the mean size of the tumor is 13.53 mm. Two big tumors (50 mm and 60 mm) could not be removed completely.

Like Lui [5], we use the probe 11 for lesions smaller than 1cm và 8 for lesions bigger than 1 cm. The choice of the size of the probe also depends on the position of the tumor and skin, if the tumor is very close to the skin, probe 8 could not be used to protect the skin.



Figure 3: Complete removal of Fibroadenoma with VABB.

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Figure 4:

Similar the series of Sperber et al. [6] with 52 cases, we do not have any patient with pain in the procedure or afterwards.

VABB seldom has complication and often mild. Two patients of Sperber et al. [6] have bleeding and resolve with compress. In 2477 cases of Lee et al [7], only 3 have bleeding and compression could resolve the problem. Only 19% of patients of Thurley et al. [4] have echymoses. We have 5 cases with mild ecchymoses and only one case needs withdrawal for hematoma.

VABB has some disadvantages. In Vietnam, higher cost of VABB compared to open surgery is an obstacle. This is a sophisticated technique and need learning curve, radiologists and breast surgeons need to master ultrasound guided intervention technique. Bigger tumors is relative contraindicative of this procedure.

Conclusion

VABB is an efficient method for diagnosis and treatment of breast benign lesions, including small fibroadenoma. This is a promising and potential option for treating of fibroadenoma in Vietnam.

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