available at www.sciencedirect.com

ScienceDirect

journal homepage: http://www.rpor.eu/

Original article

Vacuum-assisted core-needle biopsy as a diagnostic and therapeutic method in lesions radiologically suspicious of breast fibroadenoma

Połom Karol[a,*], *Murawa Dawid*[a], *Nowaczyk Piotr*[a], *Adamczyk Beata*[a], *Giles Elizabeth*[a], *Fertsch Sonia*[a], *Michalak Michal*[b], *Murawa Paweł*[a]

[a] *1st Surgical Oncology and General Surgery Dept., Greater Poland Cancer Centre, Poznań, Poland*
[b] *Biostatistcs Dept., University of Medical Sciences, Poznan, Poland*

ARTICLE INFO

Article history:
Received 18 September 2010
Accepted 5 December 2010

Keywords:
Fibroadenoma
Breast biopsy
Cosmetic effect

ABSTRACT

Background: Treatment of breast fibroadenoma remains a subject of clinical discussion. Recommended methods include clinical observation or surgical excision of the lesion. The procedure involves hospitalisation and anaesthesia, leaving a scar on the breast.
Aim: The aim of this study was to present the Centre's experience in removing lesions radiologically suspicious of fibroadenoma by means of an ultrasound-guided vacuum-assisted core-needle biopsy as an alternative to a classical surgery.
Materials and methods: Between March 2007 and April 2010, 196 ultrasound-guided vacuum-assisted biopsies were performed in the Mammotome Biopsy Laboratory of the 1st Surgical Oncology and General Surgery Department at the Greater Poland Cancer Centre in Poznań. The procedure was delivered to female patients aged 17–91 years (mean 40.8, median 39). Qualified for removal were ultrasound identified lesions described as fibroadenomas.
Results: The average size of excised lesions according to pre-biopsy ultrasound image was 13.53 ± 8.92 mm (median 11 mm, range 4–60 mm). In 184 cases (93.9%), benign lesions were found in the final histopathologic examination. Pre-cancer lesions were found in 10 cases, and invasive lesions in two cases. Overall, after follow-up ultrasound examination, four patients were qualified for subsequent surgical resection of lesions that had been left behind.
Conclusion: Vacuum core-needle biopsy is an effective tool enabling removal of breast fibroadenomas. It combines features of a lesion resection and histopathologic material collection providing an access with minimum invasiveness.

1. Introduction

Fibroadenoma is a benign tumour, in most cases distinctly separated from the surrounding tissue, originating from the epithelium and stroma of the terminal ductolobular unit. It is most common in young women under 25 years of age. The lesion occurs rarely in the post-menopausal period; however, with hormone-replacement therapies widely used, the prevalence of fibroadenoma has increased in that age group, too.[1] The most frequent clinical manifestation is a palpable

* *Corresponding author*. Tel.: +48 61 8850 600; fax: +48 61 8850 601.
E-mail address: surgoncolclub@gmail.com (K. Połom).
1507-1367/$ – see front matter © 2010 Greater Poland Cancer Centre, Poland. Published by Elsevier Urban & Partner Sp. z.o.o. All rights reserved.
doi:10.1016/j.rpor.2010.12.001

Fig. 1 – Ultrasound image of fibroadenoma sized 19.2 mm × 18.5 mm prior to vacuum-assisted biopsy.

tumour detected during self-examination of the breast or control medical examination. In most cases, tumours are found to be smooth-surfaced, painless, and mobile in relation to their surrounding tissue, sized 1–3 cm. Larger or multifocal fibroadenoma lesions occur in less than 20% of cases. According to Smalwood et al., 15% of lesions regress, while 19% grow in size.[2] In most cases, having reached the size of 2–3 cm, they remain static for months or even years. Sometimes, fibroadenomas are found to co-exist with phyllodes tumours. These lesions may be difficult to distinguish in clinical and ultrasound examination. Large size, fast growth and ultrasound visible liquid-filled areas suggesting phyllodes tumour may prove to be useful differentiating characteristics. Transformation into a malignant neoplasm is extremely rare. As Ozello and Gump report, it applies to 0.3% of cases in women under 40 years of age.[3] Lobular cancers are then observed more likely than ductal lesions.

A triple test comprising clinical examination, ultrasound and biopsy remains the basic method for diagnosing fibroadenomas. Fine-needle or core-needle biopsy may be proposed in order to collect material for histopathologic examination.

Treatment of breast fibroadenoma remains a subject of clinical discussion. For non-palpable lesions, clinical observation, including necessary ultrasound, and histopathologic diagnosis are recommended. For palpable lesions, some authors recommend surgical excision, given patients' anxiety and their frequent reluctance to cooperate in the monitoring of such lesions. Others propose observation until the age of 35 and surgical procedure, should the lesion fail to regress. The surgery involves hospitalisation and anaesthesia, leaving a scar on the breast. In recent years, a new option has emerged for minimal invasive treatment of benign breast lesions – ultrasound-guided vacuum-assisted biopsy.

The aim of this study was to present the Centre's experience in removing lesions radiologically suspicious of fibroadenoma by means of an ultrasound guided vacuum core-needle biopsy.

2. Materials and methods

Between March 2007 and April 2010, 196 ultrasound-guided vacuum biopsies were performed in the Mammotome Laboratory of the 1st Oncologic and General Surgery Department at the Greater Poland Cancer Centre in Poznań. The procedure was delivered to female patients aged 17–91 years (mean 40.8, median 39). Qualified for removal were ultrasound demonstrable lesions described as consistent with fibroadenoma (Fig. 1). The biopsies were initially performed with Mammotom manufactured by Ethicon Endo-Surgery Inc., USA, then with the equipment of Encor Breast Biopsy System Sono RX Inc. USA, under the guidance Siemens Sonoline G20 ultrasound system, Siemens Medical Solutions Inc. USA. As a rule, procedures were performed in an outpatient setting, in 13 cases they were performed in patients hospitalised at the 1st Oncologic and General Surgery Department, preliminarily qualified for surgical excision of the lesion. The procedures, preceded by sterile draping of the operative field, were performed with single-use needles 8, 11 G (Mammotom) or 7, 10 G (EnCor). All patients were informed of the method to be used, the benefits and possible complications arising from it. They were also advised that a surgical resection of the lesion would be necessary if pre-cancer, pre-invasive or invasive lesions were to be found. Biopsy sites were locally anaesthetised using 1% solution of lignocaine and in the event of pain occurring during the procedure, additional anaesthetic was introduced through the chamber of the biopsy needle. After the procedure was completed, patients were asked to stay in the outpatient clinic or hospital department for a short observation, with the biopsy site compressed for 10–20 min with an ice pack.