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SHORT COMMUNICATION

Management of B3 lesions of the breast: implementations of current recommendations in clinical practice

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Summary

Purpose: *Stereotactic needle breast biopsy and vacuum assisted breast biopsy have replaced wide local excision in the last decades. B3 lesions of the breast represent a particular subgroup which is difficult to manage. The purpose of the present study was to present our experience with this specific type of lesions and to examine the conformity of Princess Margaret Hospital with current recommendations.*

Methods: *We retrospectively searched for patients that attended the Breast Clinic of Princess Alexandra Hospital during the period 2012-2015, and were diagnosed with B3 lesions during stereotactic needle core biopsy.*

Results: *In total 24 patients with B3 lesions were identified. Among them 6 women had synchronous malignant lesions and were excluded from our study. From the remaining, 8 patients presented with a single B3 lesion and 10 with multiple B3 lesions. Twelve of our patients underwent stereotactic vacuum-assisted biopsy (VAB). Ten patients underwent only core biopsy, 8 underwent only VAB biopsy and 3 lesions were investigated with both core biopsy and VAB.*

Conclusions: *The findings of our study support the applicability of the current recommendations for the surgical management of B3 breast lesions. Core needle biopsies and VAB are equally efficacious with wide local excision for the differential diagnosis of lesions of uncertain malignant potential, thus limiting the necessity of open surgery.*

Key words: *B3 lesions, breast cancer, core biopsy, vacuum assisted biopsy*

Introduction

To date, minimally invasive breast biopsies are performed to identify lesions detected on ultrasound which are suspected to be potentially malignant. Core biopsy of breast lesions is classified in 5 distinct categories according to the type of lesion and associated risk of malignancy. The majority of these lesions is classified either as B1 (normal), B2 (benign) or B5 (malignant) [1]. B3 category (lesions of uncertain malignant potential) represents a heterogeneous category that constitutes a challenging problem in clinical decision. B4 lesions were not included in the present study because the positive predictive value of core biopsy for carcinoma in these lesions is as high as 86% [2]. Therefore, a B4 lesion should be excised, even if a radical cancer operation isn't appropriate. B3 lesions are considered of uncertain malignant potential and a repeat core biopsy gives positive result for malignancy only in 25% of the cases [3]. The main reason for the diagnostic dilemmas which arise from B3 lesions is that although they are benign, there seem to be evidence which supports that a malignant lesion might be adjacent to them [4]. Most of these lesions were treated in the past with excisional biopsy (wide local excision/WLE), thus leading to a significant number of unnecessary excisional procedures. Since 2008 stereotactic vacuum as-

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sisted excisional biopsy has been instituted as a safe alternative to surgery for selected patients, according to the NICE and London Cancer Guidelines [5,6].

The differentiation among the diverse groups of B3 lesions at stereotactic VAB is important in order to identify patients with a low risk of cancer and who can therefore be referred for follow-up rather than surgery, reducing thus the number of unnecessary surgical procedures.

The aim of the present study was to present our experience concerning the management of B3 lesions and to clarify if the undertaken actions conform to the current guidelines.

Methods

Study population

We retrospectively searched for patients that attended the Breast Clinic of Saint Margaret`s Hospital during the period 2012-2015, and were diagnosed with B3 lesions during stereotactic needle core biopsy. All procedures were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments. Patients with synchronous malignant lesions were excluded from the present study.

Core biopsy and VAB protocol

All biopsies were performed according to current guidelines [7]. Briefly, the procedure was performed under topical anesthesia, after proper cleansing of the area with povidone iodine. We used the ATEC stereotactic breast biopsy system (Hologic®, Bedford, Massachusetts, USA) and the Achieve™ automatic biopsy device (BD®, Franklin Lakes, New Jersey, USA). The decision to proceed directly to VAB was made exclusively by the radiologist.

Pathology analysis

All histological slides of B3 lesions were stained with standard hematoxylin-eosin and reviewed by two pathologists. The definitive histological diagnosis was based on the highest grade of the lesion.

Results

In total 24 patients with B3 lesions were identified. Among them, 6 patients had synchronous

Table 1. Patient characteristics

Patient no.	*Age (years)*	*Size (mm)*	*Mammographic classification*	*US classification*	*Core biopsy*	*VAB*	*WLE*	*Diagnosis*
1	56	75	2	2	+	-	+	Phyllodes
2	50	7	4	9	-	+	-	Atypical hyperplasia
3	61	30	3	-	-	+	+	Mixed DCIS/LCIS
4	59	20	3	-	+	+	+	DCIS in VAB/No residual in WLE
5	61	16	2	2	+	-	+	Fibroadenoma
6	59	3	3	-	-	+	+	Fibroelastic reaction
7	62	12	4	4	-	-	+	Radial scar
		14	3	4	-	-		
8	53	7	3	3	+	-	-	Radial scar
		20	3	3	-	+		
9	55	22	2	2	+	-	+	Benign intraductal papilloma
		11	2	2	+	-	+	Benign intraductal papilloma
10	63	30	4	4	+	-	-	LCIS
		12	3	-	+	-	-	LCIS
		26	3	-	+	-	-	LCIS
11	50	30	4	4	+	-	-	Radial scar
12	64	17	3	2	-	+	-	Radial scar
13	53	20	3	-	-	+	+	DCIS
14	80	30	3	-	-	+	-	Atypical intraductal papilloma
		20	4	-	-	+	-	
15	49	30	3	3	-	+	-	Radial scar
		14	4	4	-	+	-	
16	68	30	3	3	+	+	-	Sclerosing adenosis
17	62	13	4	5	+	-	+	Radial scar
		12	4	4	+	-	+	Radial scar
18	57	12	3	3	-	-	+	Benign intraductal papilloma
		12	3	3	-	-	+	

US: ultrasound, VAB: vacuum-assisted biopsy, WLE: wide local excision, DCIS: ductal carcinoma in situ, LCIS: lobular carcinoma in situ

malignant lesions and were excluded from our study.

From the remaining, 8 patients presented with a single B3 lesion and 10 with multiple B3 lesions. Twelve of our patients underwent stereotactic VAB. Ten patients underwent only core biopsy, 8 underwent only VAB and 3 lesions were investigated with both core biopsy and VAB (Table 1).

Among patients that required WLE, 8 had only core biopsy, one had core and VAB and 4 patients underwent VAB and WLE.

Considering the 8 patients who underwent core biopsy and WLE without VAB we evaluated the pathologist's reports in order to identify the justification of the surgical excision.

Two patients were diagnosed with large fibroadenomas, 2 with large radial scars and 4 with intraductal papilloma with atypia. Based on the recent guidelines all of these patients underwent surgical excision without VAB as an alternative, since they were fulfilling the criteria for excision.

Discussion

To date, guided needle core biopsies and VAB are actively used to determine the malignant potential of lesions that seem suspicious in ultrasonography and/or mammography. Avoiding open resections significantly reduces postoperative complications, thus, limiting the economic burden for both the patient and national health system.

B3 lesions pose a significant diagnostic dilemma in current clinical practice and require thorough investigation. In a recent large retrospective study Saladin et al. reported a 17% rate of B3 lesions in the general population [8]. They also found that the malignancy rate (invasive carcinoma or ductal carcinoma in situ/DCIS) was 21.5%. The most common finding within the B3 classification after VAC was atypical ductal hyperplasia (28.4% of diagnoses), followed by papillary lesions (25.1%) and flat epithelial atypia (22.5%).

In the recently released international consensus on B3 lesions of the breast, Rageth et al. suggested that both atypical ductal hyperplasia and phyllodes tumors may be treated with first-line open surgical excision, whereas for the remaining cases VAB remains an acceptable alternative [9]. These suggestions conform to the NICE and London Cancer Surgical guidelines, thus underlining an international uniformity of recommendations for the active management of lesions of uncertain malignant potential of the breast.

Assessing the applicability of recommendations in the clinical setting is essential during the process of their reevaluation. In a recent systematic review, Gagliardi et al. reported that the applicability of 137 guidelines published in 2008 or later ranged between 21.8 and 63% (mean=43.6%) [10]. The same authors commented that the origin of development was one of the major determinants of the applicability score, with UK scoring being highest than other countries. In this context, active reporting of current clinical practice in tertiary hospitals and evaluation of the conformity to current recommendations seems to be crucial for healthcare systems.

Concluding, the findings of our study support the applicability of current recommendations for the surgical management of B3 breast lesions. Core needle biopsies and VAB are equally efficacious with wide local excision for the differential diagnosis of lesions of uncertain malignant potential, thus limiting the necessity for open surgery. Further clinical studies are needed, however, to corroborate our findings and determine whether the current consensus requires revision.

Conflict of interests

The authors declare no conflict of interests.

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