CASE REPORT

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Approach to Breast Lesions with Radiology-pathology Discrepancy: Discussion Based on 3 Cases Diagnosed with Malignancy After Surgery

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ABSTRACT

Breast lesions are mainly classified as benign and malignant. When breast cancer is diagnosed, the patient is evaluated and a treatment plan is prepared. For benign lesions, follow-up or surgery may be performed. Imaging and biopsy results are essential when deciding on surgery. In particular, when there is a discrepancy between radiologic imaging and pathology results, excision may be useful for definitive diagnosis. We planned to present an approach to suspicious breast lesions with radiology pathology discordance through the presentation of three patients diagnosed with malignancy. Between February 2018 and March 2023, patients who underwent wire marking and excision for suspicious breast lesions were analyzed. Three patients diagnosed with malignancy after total excision were analyzed in detail. Of 33 patients, 2 (6.06%) patients had ductal carcinoma *in situ* and 1 (3.03%) patient had invasive tubular carcinoma. Preoperative and postoperative pathological findings were consistent with benign changes in all three cases. After total excision, a definitive diagnosis was made, and follow-up and treatment were planned. In cases of radiology-pathology discordance, total excision may be effective in detecting atypia, carcinoma *in situ*, or invasive carcinoma not detected on pathologic examination. Therefore, even if the biopsy result is not malignant, wire-guided total excision of radiologically suspicious lesions should be considered as a diagnosis and treatment method.

Keywords: Breast lesions, cancer, excision

INTRODUCTION

Breast cancer is the most common malignancy in women [1,2]. Early diagnosis and treatment are important. Therefore, annual physical examination, mammography, and ultrasonography, especially in women starting from the age of 40 years, are important for early diagnosis. Thus, the morbidity and mortality rates related to breast cancer can be reduced [3]. Thanks to routine screening, not only malignancies but also lesions with suspected malignancy can be detected and treated.

Non-malignant, epithelial benign lesions of the breast. Papillomas, adenosis, fibroadenomas, sclerosing lesions, and florid hyperplasia are examples of these lesions. Especially in proliferative lesions with atypia, there is an increased lifetime risk for breast cancer [4]. Therefore, even if the preliminary diagnosis is benign, the mass in the breast should be closely followed up. Excision should be planned when biopsy and imaging results are discordant and atypia is detected. In this way, even if the biopsy result is benign, atypia *in situ* or invasive ductal carcinomas that could not be detected in the biopsy can be diagnosed after the total excision of the mass. With the cases we present, we demonstrated that early stage malignancy can be diagnosed by excision of lesions with discordant radiologic pathology.

Between February 2018 and April 2022, 70 patients who underwent surgery for breast mass in our clinic were evaluated. Thirty-three patients who were radiologically suspicious on breast imaging but whose biopsy results were found to be benign and who were decided to be excised due to persistence of clinical suspicion of malignancy (continued suspicion in control radiology examinations, family history) were analyzed in detail. Clinical data of three patients diagnosed with malignancy were recorded.

The article has been presented previously in a scientific meeting orally (1st International 4th National Breast Surgery Congress).

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CASE PRESENTATION

When 33 patients were reviewed, it was found that 9 (27.2%) patients had intraductal papilloma (IDP), 21 (63.6%) patients had benign proliferative and non-proliferative pathologies (8 patients had fibroadenoma, 4 patients had apocrine metaplasia, 3 patients had ductal hyperplasia, 2 patients had phyllodes tumor, 2 patient had atypical papilloma, 1 patients had sclerosing papilloma, 1 patients had hamartoma), 2 (6.06%) patients had ductal carcinoma *in situ* (DCIS), and 1 (3.03%) patient had invasive tubular carcinoma (Table 1). The mean age of the 33 patients was 48 (27-70).

When the three patients diagnosed with malignancy were examined in detail, the mean age was 61.3 years, and intraoperative frozen section analysis of all patients did not reveal malignancy. Biopsy and frozen section analysis of patients whose pathological examination resulted in DCIS were compatible with IDP. One patient who was later diagnosed with tubular carcinoma had a frozen section result of sclerosing adenosis.

The ages of the patients whose pathology was DCIS were 67 and 61. Two patients were postmenopausal and had no family history of malignancy. While the largest lesion in one of the patients was 17 mm in diameter (Figure 1), the other patient had a mass of 8 mm diameter. Both patients had a history of bloody nipple discharge. Preoperative and intraoperative pathological diagnoses of two patients were IDP. DCIS was diagnosed in the postoperative evaluation of excised tissue. Patients received radiotherapy during the postoperative period. No recurrence was found at the 6-month follow-up.

The third patient was 56 years old. She had a 4 mm lesion that was diagnosed as invasive tubular carcinoma. The frozen section result of this patient showed sclerosing adenosis (Table 1). This patient also had no family history of breast cancer.

DISCUSSION

Cancer is one of the leading causes of death worldwide. Breast cancer is the most common cancer among women and is one of the leading causes of death in women [5]. As with all types of cancer, early diagnosis and treatment are important in breast cancer. Therefore, early detection and treatment of suspicious lesions are possible with the development of screening programs.

Radiological imaging is critical to breast examination as a complementary element to physical examination. Ultrasonography and/or mammography findings are especially important in non-palpable lesions in the breast. Even if the biopsy result of a suspicious lesion is benign, in which case the radiology-pathology result is non-correlated, it is important to consider total excision to exclude or diagnose a possible malignancy [6].

Benign breast diseases comprise a heterogeneous group that includes developmental anomalies, inflammatory lesions,

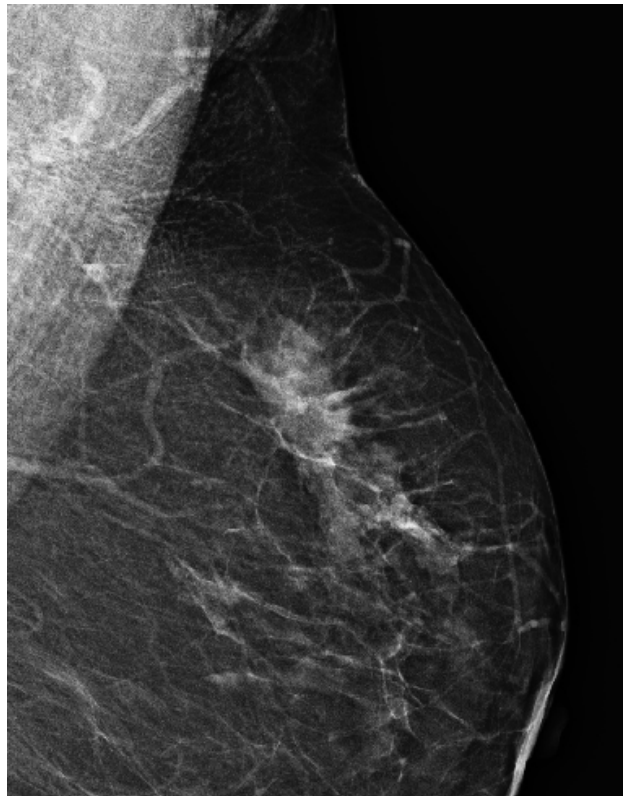

Figure 1. Lesion in the upper outer quadrant of the left breast

Table 1. Outcomes of patients diagnosed with malignancy

Patient	Gender	Age	Mammography findings	Ultrasound findings	MRI findings	Preoperative diagnosis	Postoperative diagnosis	Tumour size (diameter)	Treatment
1	Female	67	BIRADS 0*	BIRADS 4C	No pathology	DH **	DCIS***	8 mm	RT****
2	Female	61	BIRADS 4	BIRADS 4C	BIRADS 4	IDP*****	DCIS**	17 mm	RT****
3	Female	56	BIRADS 4	BIRADS 4B	BIRADS 4	Sclerosing adenosis	Invasive tubuler carcinoma	4 mm	Close follow-up

*Breast Imaging Reporting and Data Systems, **Ductal hyperplasia ,***Ductal carcinoma *in situ*, ****Radiotherapy, *****Intraductal papilloma, MRI: Magnetic resonance imaging

and epithelial and stromal proliferations. These diseases may present with various symptoms or may be detected incidentally by imaging and microscopy. Examples of these lesions include hyperplasic lesions, cysts, fibroadenomas, IDPs, sclerosing adenosis, radial scars, fat necrosis, mastitis, and ductal ectasia [7].

Epithelial lesions can be examined in three main categories: non-proliferative, proliferative without atypia, and proliferative with atypia. While the lifetime risk of developing invasive carcinoma is 5-7% in non-proliferative and proliferative lesions without atypia, it increases up to 13-17% in lesions with atypia [4].

Papillary breast lesions comprise a group of clinically, histologically, and biologically heterogeneous breast diseases [8]. Papillary lesions of the breast are a diagnostic entity that includes benign papillomas, papillomas with focal epithelial atypia, DCIS, lobular neoplasia, encapsulated papillary carcinomas with or without invasion, solid papillary carcinomas, and invasive papillary carcinomas. IDPs are benign intraluminal proliferations lined with a population of basal and luminal cells [9]. Most papillomas appear in the perimenopausal period between the ages of 30 and 50. They may not always be seen on mammography, and when seen, they may be observed as calcification [10]. After diagnosing papilloma on biopsy, the risk of concomitant DCIS is primarily determined by the detection (or absence) of atypical epithelial proliferation. After biopsy, the risk of upgrade after excision of papilloma without atypia is 2-3% [11]. Considering that some studies have shown that it may increase up to 5-10% after excision of IDP, it would be appropriate to plan the excision by evaluating it together with imaging features [12].

Clinical symptoms in the parameters found to be significantly associated with upgrade include nipple discharge and/or a palpable mass, large size of the lesion (>1-1.5 cm), contralateral breast carcinoma, multifocality, and peripheral localization. In some studies, advanced age was also found to be a factor [13-15]. In this case presentation, malignancy was found in 3 of 33 patients (9.09%) in whom excision was recommended in accordance with the literature.

In conclusion, proliferative lesions of the breast are benign lesions. However, considering that the possible atypia in these lesions cannot be detected by any imaging method and the possibility of atypia or carcinoma *in situ* in the final pathology result, we believe that excision is important in terms of diagnosis and treatment, especially in cases of radiology-pathology discordance.

Ethics

Informed Consent: Constent was obtained from the patients.

Authorship Contributions

Surgical and Medical Practices: S.E.B., L.D.E., Concept: S.E.B., L.D.E., Design: G.E., L.D.E., Data Collection or Processing: S.E.B., G.E., Analysis or Interpretation: S.E.B., G.E., L.D.E., Literature Search: S.E.B., Writing: S.E.B., G.E., L.D.E.

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