

Occult breast cancer detected in a patient undergoing risk-reducing surgery: case report

Abstract

Prophylactic mastectomy (PM) is performed to reduce the risk of breast cancer in women at high risk. Contralateral mastectomy does not improve survival, but is done for local control, reducing risk and giving symmetry. We present a case of a 39-year-old woman with right breast cancer, who underwent a prophylactic mastectomy of the left breast with immediate reconstruction and a pathology result of a hidden invasive ductal carcinoma.

Keywords: occult breast cancer, breast cancer, sentinel lymph node biopsy, prophylactic mastectomy, ductal invasive carcinoma, mastectomy

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Jaime Antonio Hidalgo-Carrera,¹ Juan Enrique Bargalló-Rocha,² Maria Fernanda Ramírez-Valencia,¹ Milagros Pérez-Quintanilla,² David Paredes-Nevárez²

¹Department of Obstetrics and Gynecology, The American British Cowdray Medical Center, México

²Department of Breast Tumors, Instituto Nacional de Cancerología, México

Correspondence: David Paredes-Nevárez, Instituto Nacional de Cancerología, México, Av. San Fernando # 22 Delegación Tlalpan, Mexico, Tel 6865237242, Email davidparedesnevarez@hotmail.com

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Abbreviations: PM, prophylactic mastectomy; RAD, radical axillary dissection; SLN, sentinel lymph node; US, ultrasonography; CNB, core needle biopsy; IHC, immunohistochemical; ER, estrogen receptor; PR, progesterone receptor; HER2, human epidermal growth factor receptor 2

Introduction

Prophylactic mastectomy (PM) is performed to reduce the risk of breast cancer in women at high risk. Contralateral mastectomy does not improve survival, but is done for local control, reducing risk and giving symmetry. The incidence of synchronous contralateral cancer is 3-5% and metachronic 0.6%.¹

Bilateral PM reduces risk by 89.5% in those with intermediate risk and by 90% at high risk. In the case of risk-reducing PM, occult cancer has been identified in 2.7% of the specimens.² Once diagnosed invasive cancer management should be supplemented with radical axillary dissection (RAD), with the potential risk of complications and the psychological impact on the patient of a second surgery. Earlier detection of sentinel lymph node (SLN) in early breast cancer is a standard, however, in prophylactic mastectomy it is still controversial.³ We present a case of a 39-year-old woman with right breast cancer, who underwent a prophylactic mastectomy of the left breast with immediate reconstruction and a pathology result of a hidden invasive ductal carcinoma.

Case report

A 39-year-old woman with family history of breast cancer from her mother and aunt presented with a 2.5cm palpable lump in the right breast. She had a history of having smoked from 16 to 33 years and resection of fibroadenoma resection at 32 years of age. Her Mammography revealed a periareolar nodule with heterogeneous echogenicity, indistinct margins, irregular morphology, posterior acoustic enhancement and presence of calcifications and central

vascularity. Ultrasonography (US) images showed a 2.5x2cm irregular hypoechoic mass in the right breast (Figure 1). Left breast simple cysts smaller than 1cm in radius 2 to 4 centimeters from the nipple, which modifies in the different scans suggesting duct with detritus. Bilateral axillary nodes with preserved morphology. BIRADS 4.

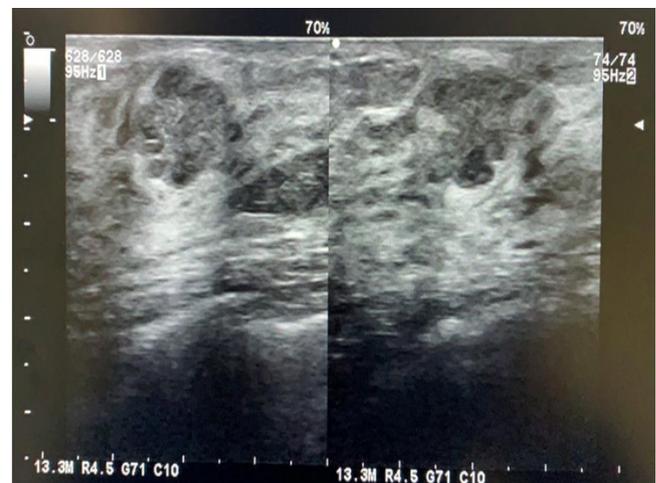


Figure 1 US of the right breast. BIRADS 4.

A core needle biopsy (CNB) of the right breast mass indicated invasive ductal carcinoma (Figure 2). Immunohistochemical (IHC) staining showed that the biopsy specimen was positive for estrogen receptor (ER) and progesterone receptor (PR) and negative for human epidermal growth factor receptor 2 (HER2) expression. Due to her family history of breast cancer and her age, we decided to perform total skin-sparing mastectomy with sentinel node of the right breast and risk-reducing mastectomy of the left breast with immediate reconstruction. The intraoperative study was negative for malignancy. The definitive pathology report was invasive ductal carcinoma of

the right breast, tumor size 3x2x2cm, with 2 sentinel nodes negative stage pT2 pN0 M0. Left breast invasive ductal carcinoma, tumor size 1x0.8cm pT1b NXM0. The axilla was staged by radical axillary dissection with a definitive pathological report of 15/15 negative nodes, for which hormone therapy, adjuvant chemotherapy and genetic evaluation was decided, being a candidate for a BRCA1-2 mutation study which came out positive for BRCA2 mutation performing a prophylactic bilateral salpingo-oophorectomy.



Figure 2 Core needle biopsy of the right breast mass.

Discussion

The Surgical Oncology Society proposes as indications of prophylactic mastectomy a BRCA mutation or susceptibility genes, strong family history without genetic mutation histological risk factors (ductal hyperplasia with atypia, lobulillar hyperplasia with atypia, or lobulillar carcinoma in situ). Magnetic resonance imaging increases the detection of small cancer in high-risk patients compared to mastography, however it has a high rate of false positives and increases costs.⁴

The sentinel lymph node is not standard in prophylactic mastectomy. Most patients with invasive cancer detected in prophylactic mastectomy have sentinel lymph node negative. In this group, the sentinel lymph node allows to avoid RAD, it also identifies those sentinel lymph nodes positive in the absence of invasive cancer; complementing management with radical dissection of axilla.^{1,5}

In the meta-analysis performed by Pan et al, they evaluate in 1251 patients (6 studies) undergoing 1343 prophylaxis mastectomy and a sentinel lymph node biopsy. Invasive cancer was identified in 1.7% (21 cases), including 4 with sentinel positive lymph node. In addition, 18 sentinel positive lymph node were obtained without evidence of cancer in prophylaxis mastectomy. A benefit of sentinel lymph node was determined at 2.8%. The sentinel positive lymph node occurred in patients with locally advanced breast cancer in the counter lateral breast.^{6,7}

The sentinel lymph node prevents radical dissection of the armpit and its complications such as lymphoedema, pain, paresthesia and limitation of shoulder mobility. Moreover, in most cases, the sentinel lymph node is negative.¹

However, sentinel lymph node also presents a risk of lymphoedema and sensory loss by 5 and 11%, respectively, and a reduction in mobility by 3.8%. The majority of patients will be exposed to this with few patients benefiting and is therefore not considered as standard.^{1,4,5}

The most common breast cancer histologic subtype is infiltrating ductal carcinoma; however, lobular carcinoma is tumour type associated with diffuse or multifocal growth pattern and bilaterality.⁶

Recently, a review of 524 specimens in 454 patients showed that the presence of lobulillar carcinoma in situ in the ipsilateral breast and a high-risk mastography are predictors of malignancy. Other reported factors are high Gail risk, multicenter ipsilateral tumor, or invasive lobulillar histology.^{8,9}

Although a PM statistically reduces the chances of a woman developing breast cancer, the risk of the patient developing psychological sequelae is high and should not be overlooked when considering evaluation by a psychologist or psychiatrist.¹⁰

Conclusion

The risk of occult cancer in prophylactic mastectomy varies between 5–8% according to the characteristics of the primary tumor. These patients are undoubtedly taken to RAD, as it is not routine to perform the sentinel node during prophylactic mastectomy.

The performance of sentinel lymph node could be evaluated in a subgroup of patients with locally advanced disease at high risk of occult cancer in the contralateral axilla.

It is important to give clear and concise information to the patient, managing the findings in a multidisciplinary manner. Risk-reducing surgery of the contralateral breast in patients with important risk factors should always be evaluated in order to provide the patient with the best treatment and the best quality of life.

Patient consent form

Patient's consent was given to us in order to publish this case report.

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None.

Conflicts of interest

The authors declare that they don't have any conflict of interests.

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