Contralateral breast cancer

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Abstract

The incidence of contralateral breast cancer is increasing at a frightening rate. It ranges from 0.22% to 68%. This second breast cancer remains, however largely sub-clinical. There are pathological and clinical factors, which can be utilized to identify those women at a particularly higher risk of contralateral breast cancer. These factors include: family histories, Lobular carcinoma in-situ (LCIS), precancerous mastopathy, extensive intraductal papilloma, and duct cell hyperplasia with cell atypia. The risk is eleven times higher in these patients. This recognition is important so that this group can be treated before a second invasive carcinoma occurs. This will invariably improve survival. The concept of bilaterality of breast cancer treatment should be introduced at first visit in patients presenting with a unilateral lesion. Prophylactic mastectomy has the potential for reducing the incidence of second breast cancer in patients with an extraordinary high risk. Good cosmetic results can now be expected with bilateral mastectomies and reconstruction. The prospect for patients with synchronous or metachronous bilateral breast carcinoma is poor and worse than a unilateral lesions.

Key words: Contralateral, breast cancer

Introduction

Human breasts are paired organs, consisting of eight quadrants and are regarded as one unit. Whatever factors permit a cancer to develop in one breast continue to exert influence on the remaining breast. [1-5] The incidence of contralateral breast cancer is increasing at alarming rate. It ranges from 0.22% to 68%. [1-6] This variation depends on the means of investigation used for detection and on the number of years of follow up. Second breast cancer can be primary or secondary; this knowledge determines the line of management and the prognosis. A metastatic second breast cancer is less commonly seen than primary lesions. [7-8] Metastatic tumours to the breast from extramammary organ site are extremely rare. The risk of developing a cancer in the second breast is considerably greater than the incidence of the initial malignancy. [7-8] Bilaterality may be documented at the time of the initial treatment (synchronous) or after treatment of initial cancer (metachronous). This paper reviews the incidence of bilateral

breast cancer, diagnosis, and the impact on survival. The management of the contralateral breast cancer at diagnosis and risk factors predictive of the development of cancer in the opposite breast are discussed below.

Incidence

The occurrence of unilateral cancer in patients with family history of breast cancer is associated with a 15.4% probability of simultaneous occult malignant neoplasms in the contralateral breast in the developed countries. [9] In Africa, the incidence of bilaterality is 6%. [10] Clinical diagnosis yield only 0.2-2% but when combined with mammography yields 2-4%. Autopsy gives the highest figure of 68%. [2-6] Whatever factors permit a cancer to develop in one breast continues to exert influence on the remaining breast. [6]

Risk factors

Second breast cancer can be primary or secondary. The secondary metastases can be from the other previously treated breast or from extramammary organ site. A second breast cancer, which occurs 5 years or more following the initial malignancy, is metachronous and that which occurs before five years is synchronous. [1, 2, 11] Differences in tumour histology and nuclear grading are applied to distinguish between metastatic spread and second primary cancer, although cancers of the breast often share the same histological features. [12] Most opposite breast cancers are synchronous occurring within the first few years following treatment of the initial breast malignancy. It is known that in-situ cancers may be present for a very long time before detection. Time alone cannot be used to determine whether the cancer is primary or metastatic. [10, 13] A metastasis to the opposite breast can occur early or late and remain dormant for long periods of time. [14] The differentiation between primary and secondary cannot always be precise and can only be determined by a constellation of features. Metastatic second breast cancer is less commonly seen than primary lesions. [7, 8] More rare are metastatic tumours to the breast from extramammary organ site. [7, 8] It is important to know if the second breast cancer is primary or secondary as this determines the line of management and the ultimate prognosis. [6, 8]

There are pathological and clinical factors, which can be utilized to categorize those people at a predominantly higher threat of contralateral breast cancer. This identification is imperative so that this group can be treated before a second breast invasive carcinoma occurs. This will invariably improve survival. The most frequent precursor of cancer in a second breast is the history of having had cancer in the opposite breast. [5, 15] The important factors that point to the possibilities of developing bilateral breast cancers are: family histories, Lobular carcinoma in-situ (LCIS), precancerous mastopathy, extensive intraductal papilloma, duct cell hyperplasia with cell atypia. The risk is eleven times higher in these patients. [12, 16] Over 20% of breast cancer patients have a family history of the disease and this also increases the incidence of bilaterality. [4, 6] Clinical observations have shown that aggressive inflammatory breast cancer and stage III cancers frequently evolve into bilateral carcinoma particularly now that patients survive longer because of systemic chemotherapy. [13, 16] The risk to the opposite breast in infiltrating lobular carcinoma appears to be low. [4, 6, 8]

Features

There are features that help to differentiate between a primary second breast cancer and a metastatic second

breast cancer. The gross characteristics of the breast are only reliable to identify second breast metastatic tumours. The second breast metastatic tumours are usually clinically located in the fatty tissues which surround the breast medially near the sternum or is in the fatty tissue of the tail, in a superficial location as intracutaneous or subcutaneous lesions which may exhibit skin retraction, where there is clear extension across the sternum of the primary lesion into the other breast; where as primary carcinomas most often arise in the upper outer quadrant parenchyma. [17] Breast lesions that are primary usually show: presence of two distinctly different histological types of breast cancer, contiguous in-situ ductal or lobular carcinoma, pure in-situ carcinoma, the presence of multicentricity, better second breast nuclear differentiation, particularly if the primary lesion is fairly homogenous in its character. [18]

Management

In the management of a patient with unilateral breast cancer, both breasts must be considered prospectively and the concept of bilaterality should be introduced at the initial interview. [4, 6, 12, 13] The surgeon who treats the patient and her initial breast cancer can most successfully motivate management of the second breast. At the time of management of a unilateral breast cancer the following procedures form the basis for the management of the second breast cancer: clinical palpation, mammography, contralateral mirror image biopsy at the time of definitive surgery as a means of detecting an occult second breast cancer, therapeutic mastectomy and prophylactic mastectomy. Palpate for lumps, minimal thickenings and texture and look for asymmetry in the second "normal" breast. Perform bilateral mammography for all patients being treated for a breast cancer and all suspicious areas should be biopsy. An incidence of 12.5% of simultaneous cancer was reported with mirror image random biopsy and in the hands of some investigators, opposite breast biopsies has proven to be a useful and reproducible approach. [1-3, 6, 19] Certain biopsy site factors increase the yield of this biopsy: upper outer quadrant site, areas related to the central ducts, as these areas are the common sites for breast cancers. Other important factors include, textural (physical) findings or mammographic subtleties, a mirror image biopsy. Avoid areas of sparse parenchyma for biopsy, as the yield is very low. [3, 16, 20] Contralateral carcinomas often have a similar mammographic appearance to the first tumours. Two factors may be responsible: (i) the tendency for contralateral carcinomas to be of the same histological grade and (ii) the influence of mammographic background pattern on the radiological appearance of breast carcinoma. This knowledge may assist in the interpretation of follow-up mammography in patients with a previous breast carcinoma. [21]

Where second breast cancers are found based on the biopsy taken from the second breast while treating patient for a supposedly unilateral breast cancer, therapeutic mastectomy is indicated. This should be based on the stage of the disease encountered and in consistent with the approach selected for the initial malignancy. All forms of treatments are used including chemotherapy, radiotherapy as it is in the treatment of a unilateral cancer of the breast. In this era of increasing interest in breast conservation surgery, performing a preliminary excision of the suspected carcinoma and also biopsy of the opposite breast at the same time has merit and both are recommended. This can provide the most complete information prospectively in order to plan therapy. [19-23]

Prophylactic mastectomy should be considered in patients with infiltrating

lobular carcinoma, lobular carcinoma in-situ, infiltrating ductal carcinoma associated with proliferative fibrocystic disease, multicentricity, clinically where the first breast cancer has a good prognosis for extended survival, family history of breast cancer particularly if this includes bilateral and premenopausal disease. It is recommended that in cases where prophylactic mastectomy is indicated, it will be carried out in the period after the initial breast cancer treatment has been completed. An ideal time to perform the second mastectomy is as a part of bilateral reconstruction, which can provide excellent symmetry. [23-25] Prophylactic mastectomy reduces the likelihood of developing breast cancer among women at heightened risk for breast cancer, but at significant personal cost. According to recently published data, prophylactic mastectomy (PM) appears to prevent about 90% of the expected malignant neoplasms in women with a family history of breast cancer. [9] Women at increased breast cancer risk on the basis of hormonal history, family history and/or genetic mutation carrier status may consider bilateral prophylactic mastectomy with or without reconstruction to reduce their cancer risk and/or decrease their chances of cancer mortality. Women having received mastectomy as treatment for breast cancer may request contralateral mastectomy to decrease the chances of developing a second breast primary. The potential oncologic value of these procedures must be weighed carefully on a case-by-case basis against the operation's physical and psychological morbidity. [26]

Prognosis

The prospect for patients with synchronous or metachronous bilateral breast carcinoma is poor and worse than might reasonably be anticipated. [25-28] The survival of women with synchronous bilateral breast cancer or metachronous breast cancers diagnosed within 2 years of the original primary was worse than those with unilateral disease. [29] There is an indication that the longer the interval between the two cancers, the better the survival of the BBC patients. [5, 30] Because contralateral breast cancer often is detected at an early stage, there are few treatment-related complications, and the risk of recurrence is no different from that for the initial cancer, breast conservation therapy (BCT) is an acceptable and desirable option for appropriately selected patients with metachronous or synchronous bilateral breast cancers with outcome that appears to be comparable to that of patients with early stage unilateral breast carcinoma. [31-36]

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