Relationship Between Breast Cancer and Meningioma

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ABSTRACT: Several authors have suggested the existence of a relationship between breast cancer and meningioma occurring in the same patient. I describe four patients who had both of these neoplasms and present findings that dispute the implied relationship between the two.

BREAST CANCER is a common neoplasm in women, accounting for 28% of cancers (or affecting 1 of every 13 women).[1] Likewise, meningiomas are common benign neoplasms encountered twice as often in women as in men. In 1975, an association between breast cancer and meningioma was suggested by Schoenberg et al.[2] Rubenstein et al[3] summarized numerous articles suggesting that coexistence of these two neoplasms is more common than expected. The occurrence of four such neoplasms in our hospital during a 10-year period prompted this report.

CASE REPORT

Case 1. A 66-year-old woman had a hard mass in the left breast. Biopsy showed infiltrating ductal carcinoma. A modified radical mastectomy was done and positive nodes were found. A year later ascites developed, and at laparotomy, metastatic mesenteric implants were found. She did well with chemotherapy until 3 years later when she had symptoms of central nervous system disease. A lesion was identified by computerized tomography, and biopsy showed meningioma. The patient died a few months later of systemic breast cancer.

Case 2. A 47-year-old woman with a mass in the left breast had a modified radical mastectomy after biopsy showed infiltrating ductal carcinoma. All nodes were negative. Eight years later ascites developed, and an ovarian neoplasm was identified at laparotomy. She did fairly well for 3 years, and then had rhinorrhea. A CT scan showed an olfactory groove mass, which at craniotomy was found to be a meningioma. She is doing well 15 years after mastectomy.

Case 3. A 75-year-old woman had both a left breast mass and a right frontal lesion on CT scan. Biopsy of the breast lesion revealed infiltrating ductal carcinoma. Craniotomy 2 days later revealed meningioma. Six weeks later, she had a lumpectomy and axillary node dissection for the breast mass. Tests were positive for estrogen receptors (ERs) and progesterone receptors (PRs). No axillary lymph nodes were involved. She is well 2 years after mastectomy.

Case 4. A 73-year-old woman who was seen initially because of CNS symptoms was found to have a space-occupying lesion on CT. Craniotomy revealed meningioma. Three months later, she noticed a mass in the right breast, and fine needle aspiration revealed carcinoma. A modified radical mastectomy followed. Nodes were not involved, and tests for ERs and PRs were negative. She is well 1½ years after mastectomy.

DISCUSSION

Other than skin cancer, breast cancer is the most common malignancy in women, affecting 1 in every 13 women.[1] Similarly, meningioma occurs in a fairly large percentage of the population, with a 2:1 predilection for women. Schoenberg et al[2] suggested that the two neoplasms occur together in a higher-than-expected frequency and that there is therefore an association between the two. Rubenstein et al[3] summarized the reports of cases in which both tumors were present.

Previous studies have suggested an association of these tumors because both occur in a similar age group, both are ER and PR positive in a high percentage of cases, and both have been manifested as so-called collision tumors, in which the breast cancer has metastasized to the meningioma.

Jacobs et al[4] suggested that meningiomas of the sphenoid ridge are the most likely to be associated with other neoplasms, particularly breast and uterus. However, Burns et al,[5] in a study of 4000 patients with breast cancer, found the association to be less common than we have been led to believe.

Breast is the second most common site of origin for brain metastases, with 37% to 55% of breast cancer patients having brain metastases at autopsy.[6] Likewise, Burns et al[5] found that for every case of meningioma in patients with breast cancer, 54 had metastatic disease as the cause of their intracranial mass. Meningiomas overall

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constitute 20% of all brain tumors.

Despite the small number of cases of both tumors, to which I have added four, it does not appear that the two are related. Between the years 1984 and 1989, the Western Reserve Care System reported 1018 cases of breast carcinoma and 42 cases of meningioma, with one case in combination. Most patients with meningioma do not have breast cancer, and the majority of patients with breast cancer do not subsequently have meningiomas. Although a few patients with breast cancer and a CNS lesion will have a meningioma, by far the majority of patients will have metastatic disease. Magnetic resonance imaging may differentiate between the two, but if any doubt exists, craniotomy should be done to identify the occasional patient with both breast cancer and a meningioma.

References

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