

Metastatic Breast Tumors Imitating Primary Colonic Malignancies

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The gastrointestinal tract is not a common site for metastases from breast cancer. Nevertheless, one should always consider colonic malignancy in a patient with a previous breast cancer to be metastatic spread. The spread of metastases from breast cancer is either by direct invasion or through lymphatic or hematogenous route. The organs most usually involved are axillary lymph nodes, the liver, bones and chest wall [1]. Unusual sites of metastasis include the scalp, the gastrointestinal tract and the gynecological system [2,3]. Most reports on gastrointestinal tract are on autopsy series [4] or are case reports [3,5]. In large series reporting the metastatic pattern of breast cancer, gastrointestinal tract metastasis are rare, accounting for 0.8% of metastatic sites [6].

We present three cases of gastrointestinal metastases from breast cancer seen and treated in our department during the period November 1993 to November 1997. All three appeared after a long latent period following surgical and oncological treatment of the primary breast tumor. The appearance of the disease and the clinical presentation were recorded as primary malignancies of the colon. The diagnosis of metastatic breast cancer was reached only after immunohistochemical staining of the mammary and colonic tissue was compared.

In the modern era, much effort is directed at early detection of breast cancer and aggressive adjuvant therapy in order to reach long disease-free survival. A new primary colonic tumor that occurs in patients with long latent period after breast cancer must be

differentiated from metastatic breast cancer.

Case Descriptions

The records of all patients with primary breast and colorectal tumors at the Rabin Medical Center are entered into the database of the surgery departments. A list of 728 patients with the diagnosis of breast cancer and 800 with colorectal cancer was retrieved for the period November 1993 to November 1997. Three patients had colorectal tumors that were defined as metastatic breast tumors only after immunohistochemical studies of the pathological specimen.

Patient 1

Patient 1 was a 65-year-old woman who presented with a change in bowel habit. Two years before she had undergone wide excision and axillary dissection because of infiltrating duct carcinoma, T2N0M0. Barium enema examination revealed an apple-core lesion in the sigmoid colon that was confirmed by computed tomography scan and colonoscopy. Biopsy of the mass obtained during the latter procedure was not diagnostic. Of note in the physical examination was cervical lymphadenopathy.

Surgery revealed the suspicious mass in the sigmoid colon, with invasion of the pancreas. Following left hemicolectomy the histologic finding was a poorly differentiated tumor invading the submucosa. Of 26 lymph nodes examined 25 were positive with invasion of blood vessels. Immunohistochemical markers, keratin, CA 15-3 and estrogen receptor markers revealed the tumor to be identical to that

of the breast. Subsequent removal of the cervical lymph node revealed the same histological findings. Postoperatively the patient received six courses of chemotherapy with cisplatin, adriamycin and 5-fluorouracil. During 46 months follow-up there has been no evidence of recurrence and the patient feels well.

Patient 2

This 73-year-old woman complained of constipation, tenesmus and weight loss of 10 kg in one year. Six years before she had undergone a modified radical mastectomy due to infiltrating duct carcinoma, T1N0M0. Barium enema and colonoscopy revealed a space-occupying-lesion in the sigmoid colon. Biopsy obtained during the latter procedure showed a moderately differentiated carcinoma. There were no pathological findings on ultrasound examination, bone scan and chest X-ray. Surgery disclosed the mass in the sigmoid colon and a sigmoidectomy was performed. The histological finding was a moderately differentiated tumor invading the sigmoid submucosa, with involvement in 8 of 30 lymph nodes. Immunohistochemical markers, keratin, CA 15-3 and estrogen receptor markers were identical to those of the previous breast cancer. Because of her age and other medical problems adjuvant therapy was not given. The patient died 42 months after surgery. Her death was not associated with the primary disease.

Patient 3

This 72-year-old woman complained of abdominal distension. Twelve years previously she had undergone a modi-

fied radical mastectomy because of infiltrating lobular carcinoma, T1N0M0. Rectoscopy revealed a rectal mass that was confirmed by transrectal ultrasound and colonoscopy. Biopsy obtained during the latter procedure showed a poorly differentiated carcinoma. There were no pathological findings on ultrasound examination, bone scan and chest X-ray. Surgery disclosed the mass in the rectum and an abdominoperineal resection was performed. The histologic finding was a poorly differentiated tumor invading the rectal submucosa, with involvement of 6 of 22 lymph nodes. Immunohistochemical markers, keratin and CA 15-3 and estrogen receptor markers were identical to those of the previous breast cancer. During 26 months follow-up there has been no evidence of recurrence.

Comment

The gastrointestinal tract is not a common site for the implantation of metastases from breast cancer. During the years a number of such cases have been reported, most of them sporadic and most involving the stomach, small intestine or colon [4,5]. In the large series of Borst and Ingold [6] in which they investigated the metastatic patterns of carcinoma of the breast in 2,600 patients, the authors found only 21 cases with gastrointestinal metastases (0.8%). In our series colon metastases from breast cancer were diagnosed in 0.4% of breast cancer patients. The difference referred to isolated colon metastases in our series compared to gastrointestinal metastases in theirs.

Most cases of gastrointestinal metastases are secondary to infiltrating lobular carcinoma of the breast [6,7]. Given that infiltrating lobular carcinoma is not the commonest breast cancer, the reason for spread to the gastrointestinal tract especially to the stomach and colon remains unknown [7,8]. The primary tumor was an infiltrating duct carcinoma in two of our patients and infiltrating lobular carcinoma in the third.

The clinical presentation of such metastases does not differ from those of a primary tumor of the organ involved. There are rare reports in which the clinical manifestation mimicked dysphagia [9], Crohn's disease [10], choanal polyp [11] or other disease. Imaging studies may sometimes be helpful in reaching the diagnosis but are usually not specific [12]. Taal et al. [8] found that precise diagnosis even with endoscopic biopsy was achieved in only 60% of patients. In our three patients neither imaging studies nor biopsies were diagnostic.

Positive expression of estrogen or progesterone receptors usually identified breast carcinoma, unlike colon tumors that are not considered estrogen-receptor positive [13]. Special subtypes of keratin receptors are present in metastatic breast cancer as well as in colon cancer but their differentiation and assistance in diagnosis is still unclear.

It is noteworthy that despite the advanced pathological stage in our patients, one patient died 42 months postsurgery while the others are still alive 26 and 46 months respectively. As found by other authors, survival can be long even with multifocal metastatic spread. Hattori et al. [14] reported survival of 9 years in cases of gastric metastases from breast cancer, although colon metastases from breast cancer does not always serve as a predictor of high morbidity and mortality. Of interest in our patients was the long interval between the removal of the primary tumor and appearance of the rectal metastasis, particularly the 12 year interval in patient 3.

In summary, it should be borne in mind that breast metastases can appear in unpredictable sites and after long latent periods, with no clear correlation to pathological and clinical staging of the primary disease. Any case of colon malignancy in a patient with history of breast cancer should be suspected as metastatic breast cancer. Complete pathological workup including immunohistochemical markers especially estrogen receptors with comparison of

the primary breast cancer and the colonic lesion must be completed.

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