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Breast Cancer and Idiopathic Granulomatosis Mastitis; Review of the Literature

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Abstract

Idiopathic granulomatous mastitis is a rare, chronic, benign and inflammatory disease of the breast. Usually, since the disease presents as an irregular inflamed mass in the breast, it may be confused with breast cancer clinically and radiologically. I want to evaluate the association of breast cancer and IGM in light of the literature data. My case is a 58-year-old postmenopausal woman, who came to our clinic because of a mass in the left breast. Following a tru-cut biopsy which revealed invasive ductal breast cancer, she was operated on in June 2018. The patient developed a mass in the same breast 1.5 years later, and the tru-cut biopsy result this time was IGM. The patient was treated with an oral steroid. According to the literature, while there are many cases where IGM mimics breast cancer, there are 4 cases where IGM and breast cancer were found together. In one of two cases where they coexisted, it was invasive breast cancer found with IGM and, in the other; it was IGM with ductal carcinoma in situ. In the other two cases, invasive breast cancer developed years after the IGM treatment. In my case, IGM developed 1.5 years after the patient was treated for invasive ductal cancer. The evidence in the available literature data, as well as my case, reveals that IGM may either exist before or after the onset of breast cancer. Therefore, it would be more correct to accept IGM as a benign breast disease.

Keywords: Idiopathic granulomatous mastitis; Breast cancer; Granulomatous mastitis

Introduction

Idiopathic Granulomatous Mastitis (IGM) is a rare, chronic, benign and inflammatory disease of the breast. It is generally seen in women in their 30s or 40s, during the 3 to 5 years after giving birth. We don't know what the main etiological reason is so far. Usually, since the disease presents as an irregular inflamed mass in the breast, it may be confused with breast cancer clinically and radiologically [1,2]. In the literature, we are able to find many cases that IGM is clinically and radiologically confused with breast cancer [3-5]. However, only a few cases have been reported in which IGM and breast cancer coexists. I want to evaluate the association of breast cancer and IGM in light of the literature data.

Methods

I looked at all the cases published in PubMed and Google Scholar up to 2020 in which breast cancer and IGM coexist. My case and the literature data were compared to each other. In May 2018, a 58-year-old postmenopausal woman was admitted to our clinic due to swelling in the left breast. Ultrasonography (USG) showed a multilobulate, 16 mm × 10 mm irregular mass lesion with suspicion of malignancy was observed at 10 o'clock in the left breast. Mammography (MG) showed a 16 mm × 11 mm mass lesion (BI-RADS 4) with micro-calcifications at 9 o'clock in the left breast. The tru-cut biopsy result was invasive ductal cancer. In June 2018, a breast-conserving surgery and a sentinel lymph node biopsy were performed on the patient whose axilla was negative clinically and radiologically (USG and MG). The receptor status was that the estrogen receptor was positive (70%), the progesterone receptor was positive (40%), and the Cerb B2 receptor was positive (score 3+). The patient, whose follow-up continued, developed a mass lesion accompanied by inflammation in the left breast in December 2019. USG showed a 3 cm × 2 cm heterogeneous mass lesion (suspicion of malignancy) at 12 o'clock in the left breast. The tru-cut biopsy of this mass reported IGM with no evidence of malignancy. No microorganisms were detected through histochemical studies such as PAS, Gomori Methenamine Silver (GMS) and Acid Fast. The mass was completely excised. The final histology showed noncaseating granulomatosis mastitis and no evidence of microorganisms or malignancy (neoplastic staining with panCK). The patient was treated with oral steroids (32 mg/day). The patient last visited our clinic in October 2020, and there was no recurrence of IGM or

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breast cancer.

Result and Discussion

IGM, which is an inflammatory disease of the breast, still continues to be a difficult disease for surgeons in terms of both differential diagnosis, and treatment. IGM, whose certain etiology is unknown, may be caused by a variety of medical conditions such as tuberculosis, sarcoidosis, fungal infections, a localized immune response to extravasated secretions from lobules, oral contraceptive use, pregnancy and lactation, and hyperprolactinemia. The characteristic histopathological feature of IGM is non-caseating granuloma formation and a mixed chronic inflammatory process composed of lymphocytes, plasma cells, epithelioid histiocytes, and multinucleated giant cells. In general, IGM involves presentation of a mass that is accompanied by inflammation and sometimes an abscess or fistula in one breast [1,3].

IGM is frequently confused with breast cancer both clinically and radiologically [1]. Lai et al. [6] reported in their study that 56% of the IGM patients were initially diagnosed with breast cancer. However, in the literature, the number of cases where breast cancer and IGM coexist is extremely low.

Limaiem et al. [7] reported a case where infiltrative breast cancer coexisted with IGM in a 77-year-old patient. They explained that breast cancer had arisen from chronic inflammation. They stated that this case, in which breast cancer and IGM coexist, was the second case of its kind in English literature. Mazlan et al. [2] reported that in a case where IGM had been treated 8 years earlier, breast cancer was discovered which also had metastasized to the brain and multiple bone areas. They explained that the development of breast cancer had also arisen from chronic inflammation. Ozsen et al. [8] reported that IGM and Ductal Carcinoma *in Situ* (DCIS) coexisted in a 35-year-old patient who presented with a mass in the right breast. Calis et al. [9] reported a case of a 77-year-old patient who had both invasive ductal cancer and IGM. They stated that it was the 4th case of this type in the literature.

My case is the first one in which IGM was detected in the same breast after the treatment for breast cancer. We know that cancer can develop from inflammation [2]. We have two different scenarios. First, IGM was present at the cancer diagnosis time but could not be detected. Second, it was the subsequent development of IGM independent of breast cancer. IGM might mimic breast cancer but there are some important differences. First, the average age of onset is different and IGM occurs in predominantly in breast-feeding age women [4-6]. The treatment for IGM is still unclear. Given the leading hypothesis of an autoimmune etiology, there are many studies in the literature documenting therapeutic efficacy of immunosuppressant agents such as corticosteroids, methotrexate, azathioprine, bromocriptine, and colchicine [6,10]. All of these suggest that IGM is a benign entity.

In conclusion, although it is very difficult to say that there is a connection between IGM and breast cancer in view of current literature, it would be more correct to accept as IGM is a benign disease of the breast for now.

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