

Case Report

Colorectal cancer and breast cancer: two cases with a review of literature

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Abstract: Multiple cancers may occur in an individual because of a genetic predisposition, environmental exposure, cancer therapy, or immunological deficiency. We presented two patients with two cancers in the West of Iran. Case 1: a 52-year-old woman referred to Clinic of Oncology (December 2010) with complaints of left breast lump with induration. The pathology report had shown invasive ductal carcinoma of left breast. Immunohistochemistry (IHC) report showed that ER, PR and p53 were positive, HER2 was 3+ and Ki67 was positive in 20% of tumoral cells and stage was T₂N₂M_x. After surgery, the patient was treated with chemotherapy regimen (dose and course epirubicin 150 mg combined with Endoxan 1000 mg for four weeks and then paclitaxel 300 mg every two weeks for four weeks. In July 2011, she was treated with radiotherapy for 25 courses (5000cGy/25 fractions). At the end of left breast irradiation, she received tamoxifen 20 mg/day. The CT scan of abdominopelvic in October 2013 showed a tumoral infiltrative process in the rectal area. Pathology report showed well-differentiated adenocarcinoma. The genetic laboratory reported KRAS mutation and NRAS wild-type. She was not eligible for targeted therapy with Cetuximab. Case 2: a 54-year-old woman referred to Our Clinic with complaints of abdominal pain on January 30, 2012. Pathology and IHC report had shown with well-differentiated Adenocarcinoma of left colon. The patient was treated with chemoradiation. The patient was treated with chemoradiation. In May 2014, mammography showed a medium to high density lesion in the left breast. The pathology report showed invasive ductal carcinoma. She was treated with docetaxel 140 mg/day and epirubicin 150 mg/day. In her past history, she had two sisters with the diagnosis of breast cancer. In conclusion, there is a correlation between breast cancer and colorectal cancer genetically. Also, hormone therapy in metastatic breast cancer can increase the risk of colorectal cancer in patients.

Keywords: Colorectal cancer, Breast cancer, Tamoxifen, Genetics.

INTRODUCTION

History of breast cancer has been reported as a risk factor for colorectal cancer in women [1, 2]. Also, patients with colorectal cancer are at increased risk of developing cancer at a number of other sites [3]. The BRCA1 and BRCA2 genes confer increased susceptibility to breast and ovarian cancer and to a spectrum of other cancers. There is controversy regarding the risk of colorectal cancer conferred by germ line mutations in these two genes [4]. We presented two patients with two cancers (colorectal and breast) in the West of Iran.

CASE REPORT

Case 1: Tamoxifen therapy increases risk of the second cancer

A 52-year-old woman referred to Clinic of Oncology with complaints of left breast lump with induration during last three months on December 22,

2010. The pathology report had shown invasive ductal adenocarcinoma of the left breast (Figure 1) that vascular and perineural invasions were seen with metastasis to 5 lymph nodes and tumor size was 4*3*3 cm, but nipple and skin were free of the tumor. Immunohistochemistry (IHC) report showed that estrogen receptors (ER), progesterone receptor (PR), p53 were positive, the human epidermal growth factor receptor 2 (HER2) was 3+ and Ki67 was positive in 20% of tumoral cells and also stage was T₂N₂M_x. The patient did the left radical mastectomy and axillary lymph nodes dissection. After this surgery, the patient was treated with chemotherapy regimen (Epirubicin 150 mg combined with Endoxan 1000 mg for four weeks and then paclitaxel 300 mg every two weeks for four weeks). In July 2011, she was treated with radiotherapy for 25 courses (5000cGy/25 fractions).

At the end of left breast irradiation, she received tamoxifen 20 mg/day. The patient referred again to Clinic (September 2012) with metastatic lesions to liver and bone, in further evaluation tumor markers been CEA=38.2 µg/L and CA15-3=6.4 µg/L. In the CT scan of abdominopelvic in October 2013, showed a tumoral infiltrative process in the rectal area with increasing of wall thickness up to 15mm and numerous small lymph nodes with a diameter of 13 mm was observed in the space of rectal fullness. After rectal endoscopy and biopsy of infiltrative rectal lesion in 5 cm of anal verge, the pathology report showed well-differentiated adenocarcinoma. After APR surgery, there was a tumoral lesion with pathological characters consist of; size: 7*5*5 cm, tumor location: rectum, 4 metastatic rectal lymph nodes, surgical margins were free of tumor. The genetic laboratory

reported that KRAS was mutation (p.Gly12Ser (c.34G>A)) and NRAS wild-type. She was not eligible for targeted therapy with Cetuximab. Therefore, she was treated with XELOX regimen (capecitabine 2500 mg/day for 14 days, oxaliplatin 200 mg for eight months). Then she completed pelvic chemo-irradiation (with Xeloda) course during one month. In the imaging study, after two months at the end of this protocol, liver lesions resolution and bone sclerosing was seen.

In follow-up, due to reappearance of liver lesions, she was treated again with Irinotecan and Xeloda 2000 mg/day for six months. Then liver lesions again disappeared and at this time, she was treated with maintenance therapy with Xeloda (for rectal cancer) and tamoxifen (for breast cancer). She died in Nov 2015.

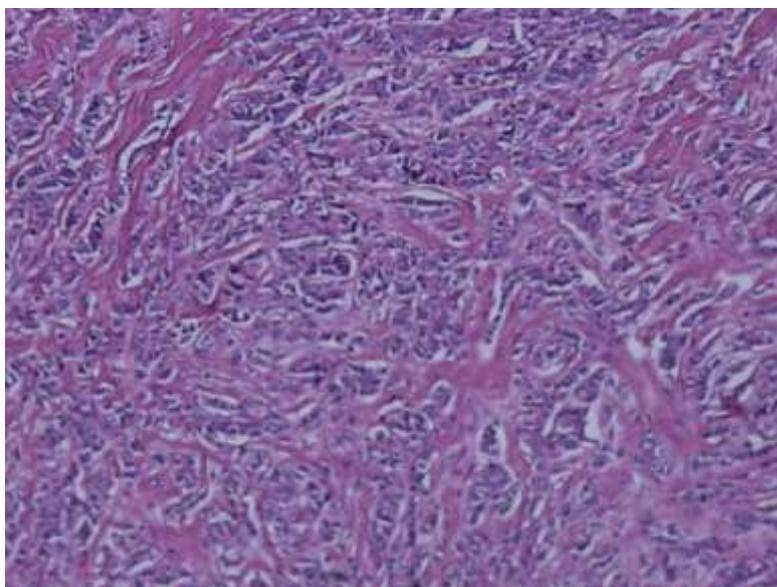


Fig-1: Invasive ductal carcinoma of breast, Hematoxylin and Eosin staining (×100)

Case 2: The familial history increases risk of the second cancer

A 54-year-old woman referred to Our Clinic with complaints of abdominal pain on January 30, 2012. Pathology and the IHC report had shown left colon cancer (sigmoid) with well-differentiated adenocarcinoma that after resection both surgical margin were free of tumor.

Also, tumoral cells extended to the full wall thickness of intestine with tumor size of 4 cm and 4 lymph nodes had been involved by tumoral cells. The patient was treated with chemoradiation (8 courses XELOX regimen and one course of chemoradiation). Due to acute dyspnea, Scintigraphy was performed after 4 injection of 10mCi of Tc-MAA in multiple views that a segment mismatched perfusion was detected in right lung and left lung showed uniform perfusion and pulmonary embolism established, she

treated with heparin. In May 2014, mammography showed a medium to high density lesion in the left breast which was erratic and included small calcification areas that needed to fine-needle aspiration (FNA) for neoplastic lesions (Figure 2).

FNA from left breast mass reveals hypercellular smears containing many clusters of atypical cells and macrophages in the proteinaceous background. The pathology report showed invasive ductal carcinoma with grade I, tumor size: 2cm, no vascular and perineural invasion, and in situ component consists 20% of the Tumor, Benign fibrocystic change and margin involvement was seen. In IHC report, ER, PR, p53 were positive, HER2 was 2+ and Ki67 was positive in 20% of tumoral cells. In July 2014, she was treated with docetaxel 140 mg/day and epirubicin 150 mg/day. In her past history, she had two sisters with the diagnosis of breast cancer. Last time she was seen alive

in February 2016. We recommended to her family go to the genetic analysis such as BRCA1 and APC

evaluation.



Fig-2: A hyper dense irregular lesion in the left breast

DISCUSSION

The identification of the genetic basis of familial breast cancer and familial forms of colon cancer has resulted in the development of much improved screening strategies for disease prevention and has altered our awareness to disease susceptibility. Notwithstanding, only a very small proportion of colon and breast cancers are attributed to the inheritance of a predisposing gene (approximately 2-7% and 5%, respectively) [5, 6]. Multiple cancers may occur in an individual because of a genetic predisposition, environmental exposure, cancer therapy, or immunological deficiency. Colorectal cancer is one of the most commonly diagnosed cancers, and inherited factors play an important role in its aetiology [3]. Overall, women with previous breast cancer were 5% less likely to develop colon and 13% less likely to develop rectal cancer than women in the general population [1]. In spite of the relatively small number of studied cases, there is the hypothesis of a correlation between breast cancer and colorectal cancer [7]. The risk of colorectal cancer is increased in female carriers of BRCA1 mutations below the age of 50 years but not in women with BRCA2 mutations or in older women [4]. Therefore, the incidence of colorectal cancer was associated with a family history of breast cancer [8]. In our study, two cases developed the second cancer after colon or breast cancer, especially in case 2, there was a familial history of breast cancer in the patient.

One study [9], reported that the anti-estrogen tamoxifen may also be associated with colon cancer incidence. An analysis combining data from several clinical trials has raised concern that tamoxifen therapy may increase the risk of a subsequent colorectal malignancy [10]. In case 1, the patient was treated with tamoxifen and appeared rectal cancer in the patient. Therefore, tamoxifen therapy can increase the risk of second cancer in patients with metastatic breast cancer.

CONCLUSIONS

There is a correlation between breast cancer and colorectal cancer genetically. Also, hormone therapy in metastatic breast cancer can increase the risk of colorectal cancer in patients.

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