Synchronous carcinoma breast with chronic myelogenous leukemia: A rare presentation

Sir,

A 45-year-old woman was diagnosed as a case of carcinoma (CA) left breast. She had a 5-cm lump in left breast; fine-needle aspiration cytology revealed infiltrating ductal carcinoma. On investigation, she was found to have leukocytosis of 105 × 10^9/L with shift to left and blast 5%, peripheral smear was suggestive of myeloproliferative disorder. Further investigation by bone marrow aspiration was suggestive of chronic myelogenous leukemia (CML) [Figure 1], BCR-ABL by real-time reverse transcriptase polymerase chain reaction (RT-PCR) quantitative assay was positive, with 81.9% on fluorescence in situ hybridization analysis. She was finally diagnosed as synchronous CML and carcinoma breast [Figure 1].

Subsequently, before surgery, cytoreduction was done with hydroxyurea followed by imatinib in the dose of 400 mg/d. Left modified radical mastectomy was performed and on HPE, the tumor was invasive ductal carcinoma grade II [Figure 2], pT2N3M0 with 21/26 lymph node positives at levels I–III with extracapsular extension. Breast prognostic profile was estrogen receptor 100% and progesterone receptor 80%, and HER2/neu score was not overexpressed [Figure 2].

She was planned for adjuvant chemotherapy for intraductal breast concurrently with imatinib. She was continued on imatinib 400 mg once a day. TAC regimen

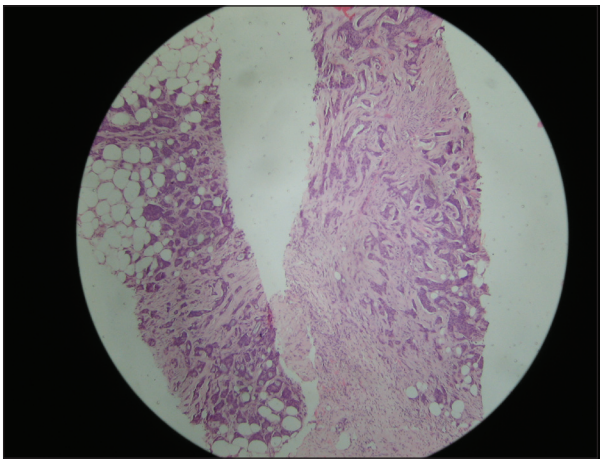

Figure 1: Bone marrow aspiration suggestive of chronic myelogenous leukemia (H and E, ×10)

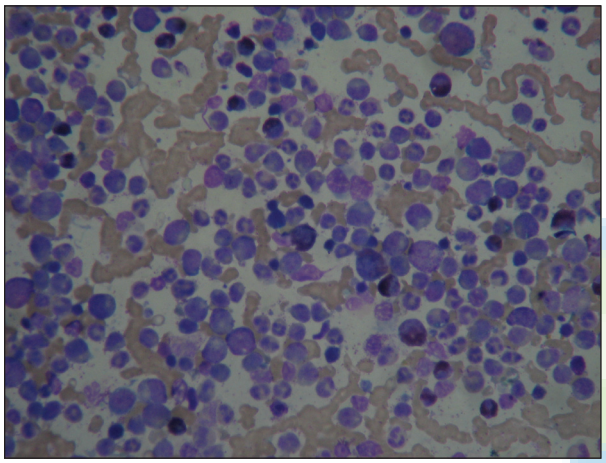

Figure 2: Histopathology of the breast showing inflammatory duct carcinoma (H and E, ×100)

(docetaxel, adriamycin, cyclophosphamide) was instituted and supported with granulocyte colony-stimulating factor, whenever required.

Imatinib was withheld whenever neutropenia was encountered, and G-CSF support was given. Chemotherapy was completed over a period of 22 weeks with an inadvertent delay of 4 weeks.

Subsequently, the patient was planned for adjuvant hormonal manipulation with tamoxifen 20 mg daily and radiation therapy while continuing with imatinib 400 mg once daily. After 6 months on imatinib, BCR-ABL was 3.01% with RT-PCR method. During the treatment duration, imatinib was withheld 3 times because of neutropenia and 1 episode of febrile neutropenia. BCR-ABL done after 12 months and 18 months with RT-PCR method was 0.0% and 0.03%, respectively. She has now completed 2 years of follow-up and is presently on imatinib and tamoxifen.

Although a number of case reports are in literature that leukemia either CML, acute lymphocytic leukemia, chronic myelomonocytic leukemia occurred after anthracycline-based therapy of CA breast or synchronously with adenocarcinoma stomach/hairy cell leukemia but simultaneous occurrence of CML and CA breast has not been reported in the literature.[1]

In general, a person with one malignancy is at an increased risk of developing another malignancy. Nineteen cases of second malignancies (CA prostate—4 cases, CA breast—1 case, adenocarcinoma stomach—1 case, lymphoma—1 case, CA ovary—2 cases, CA cervix 1 case, small cell lung cancer —1 case, CA rectum—1 case, basal cell cancer skin—1 case) in CML patients have been reported but only 1 case of synchronous CML with gastric adenocarcinoma.[2] Moertal *et al* reported 17 cases of CML occurring in association with a second malignancy. In one study with age- and sex-matched controls, patients who were 40–60 years old when CML was diagnosed had an approximately 10-fold higher frequency of other malignancies than did age-matched controls. Patients younger than 40 years did not have a second malignancy.[3]

Studies have shown that in CML, mutation at the stem level, that is, in ph chromosome, occurs around 6 years before the presentation of the disease, whereas carcinoma breast occurs many years prior to its presentation.[4]

In summary, our case of CA breast with CML is a rare presentation and it appears to be more of a coincidence than any association.

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