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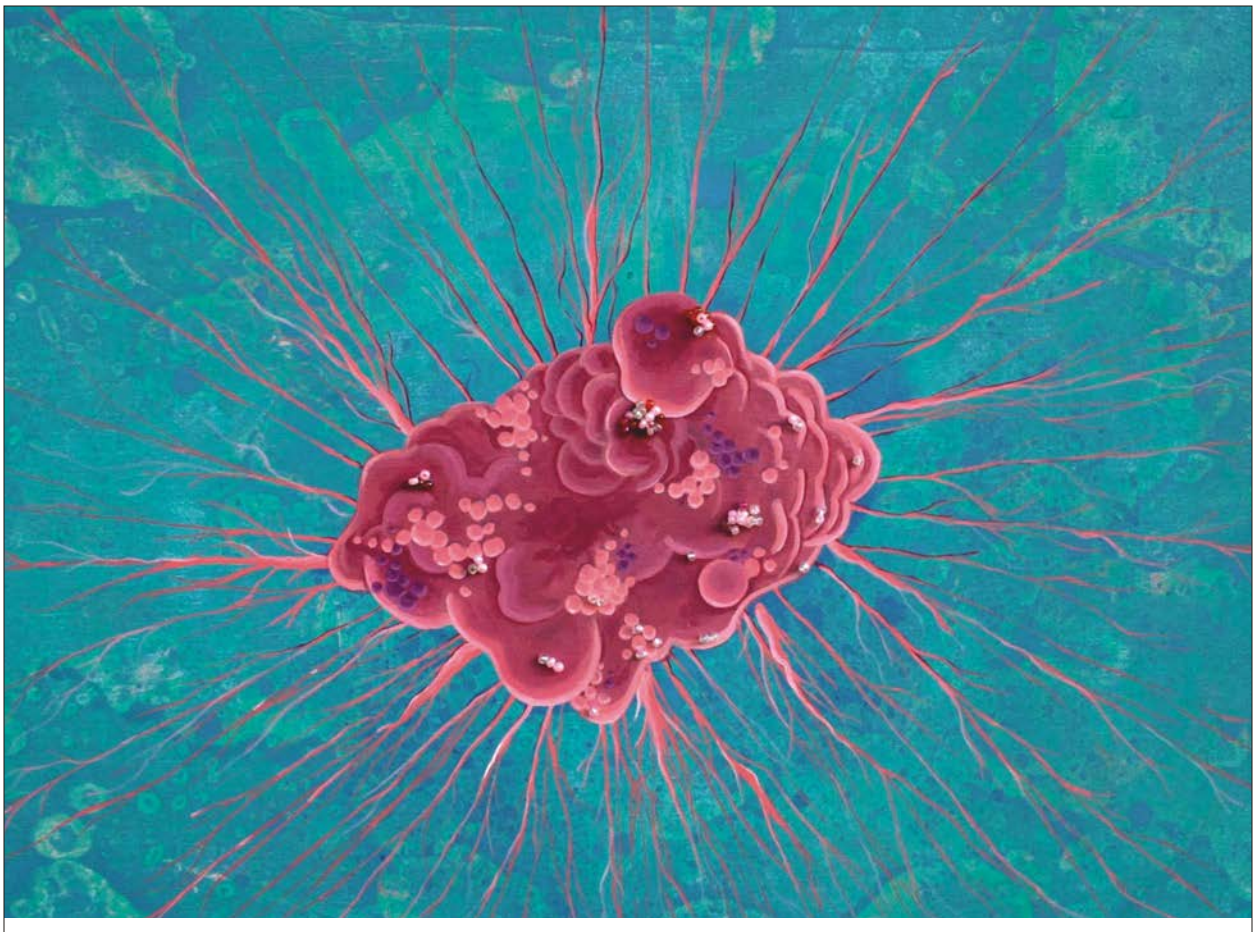

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Chronic Myeloid Leukemia in Patient with Local Recurrence Colon Cancer: A Case Report

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ABSTRACT

Chronic Myeloid Leukemia (CML) is a chronic disease that about 50% of patients are more than 60 years old and about 50% of patients are asymptomatic. In this study, It is reported that, a case of CML after colon cancer chemotherapy in a 52 year old male from Iran who diagnosed locally advanced poorly differentiation colon adenocarcinoma with extension to prostate for him that had undergone to chemotherapy induction, then chemoradiation with surgery for mid-rectal cancer in the follow-up with picture of local recurrence and rectovesical-fistula. His first regimen in induction chemotherapy phase been oxaliplatin plus capecitabine and follow with chemoradiation for one month. The KRAS was mutation for the patient. He treated with combination of capecitabine with bevacizumab. After new progression he treated with Xeloda+irinotecan regimen. In routine follow-up in complete blood count analysis, It was found that shift to left with immature granulocytopoietic forms. Analysis by RT-PCR peripheral blood showed that Philadelphia chromosome was positive, so CML was diagnosed for him and was add imatinib to his treatment policy. Combination of oxaliplatin and irinotecan can be carcinogenic even they can probably create secondary hematological malignancy like CML and also irradiation can be other risk factor in patients with colorectal cancer following chemotherapy.

Key words: Chemotherapy, CML, colon cancer, radiotherapy

INTRODUCTION

Cancer is one of the major public health problems in the world. Globally, among common cancers, colorectal cancer is the fourth most common cancer in men and the third most common in women (Payandeh *et al*., 2015a). On the other hand, therapy-related myeloid neoplasms are one of the most important concerns among oncologists/hematologists (Manabe *et al*., 2013). Also Chronic Myeloid Leukemia (CML) is a chronic disease that about 50% of patients are more than 60 years old and about 50% of patients are asymptomatic (Payandeh *et al*., 2015b). The CML is characterized by anemia, extreme blood granulocytosis and granulocytic immaturity, basophilia, often thrombocytosis and splenomegaly (Kadikoylu *et al*., 2008). There has been a lot of discussion on the likelihood of development of a non-hematological second malignancy in patients with CML

receiving chemotherapy or other immunosuppressive drugs (Kanellopoulou *et al*., 2011). In this paper, reported a case of CML after colon cancer chemotherapy in a 52-year-old male from Iran.

CASE PRESENTATION

A 52 year old male referred to our clinic who diagnosed locally advanced poorly differentiation colon adenocarcinoma with extension to prostate for him that had undergone to chemotherapy induction, then chemoradiation with surgery for mid-rectal cancer in the follow-up with picture of local recurrence and rectovesical-fistula. His first regimen in induction chemotherapy phase was oxaliplatin plus capecitabine (Capox) in 3 week treatment cycles: intravenous oxaliplatin 130 mg m^{-1} twice (day 1) followed by oral capecitabine 1,000 mg m^{-1} twice daily (day 1, evening, today 15, morning) to three cycle, that follow with chemoradiation (with XELODA) for one month. After surgery he was treated with three courses of Capox regimen every three weeks. The most common side effect of treatment policy has been diarrhea. In local recurrence phase that was done after six months, KRAS/NRAS was check on the pathology that was KRAS mutation. At this phase, he treated with combination of capecitabine (1000 mg m^{-1} orally twice a day on days 1-14) with bevacizumab (7.5 mg kg^{-1} intravenously on day 1), given every 3 weeks for nearly 8 months with regression of disease, until disease progression. After new progression he was treated with Xeloda plus irinotecan regimen that in radiologic evaluation after three months show to us a sign of stable disease. In routine follow-up in complete blood count analysis, we find shift to left with immature granulocytopoietic forms (Fig. 1). Analysis by RT-PCR peripheral blood showed that Philadelphia chromosome was positive, so CML was diagnosed for him and was add imatinib to his treatment policy.

DISCUSSION

Solid tumors may occur in 3% of the patients with CML (Kanellopoulou *et al*., 2011). It has been reported that mainly elderly patients with hematologic malignancies, including CML are likely to

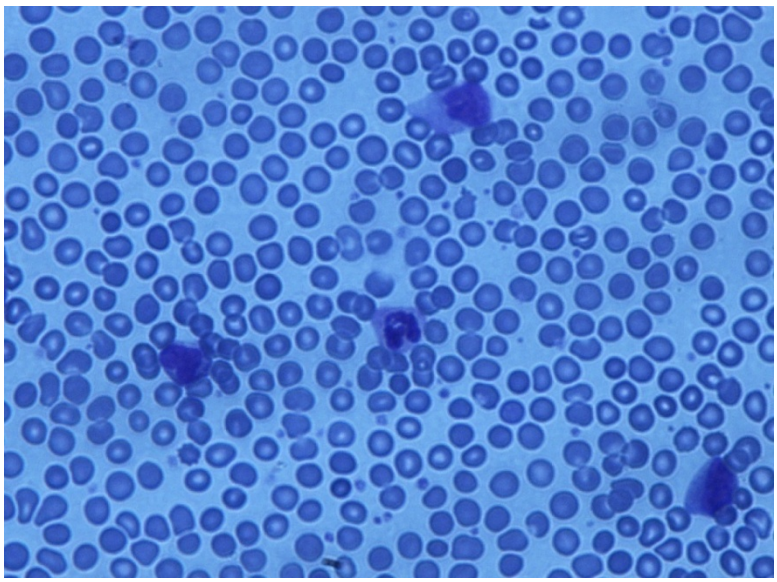

Fig. 1: Shift to left with immature granulocytopoietic forms in chronic lymphocytic leukemia (×400)

have multiple malignant neoplasms, mainly of the gastrointestinal tract (Kanellopoulou *et al*., 2011). Only four patients with CML following colorectal treatment were reported that three of them were males and more than 60 years old and another patient also he was male but with 27 years old (Vakili-Sadeghi and Omranpour, 2013). Our patient was a 52 year old male. Therefore, CML after colon cancer accrues more in men and age>50 years. A causal relationship between chemotherapy and the development of Philadelphia chromosome-positive leukemia has been suggested to exist (Pedersen-Bjergaard *et al*., 1997).

There are three possibilities conditions for secondary malignancy: (1) Therapy-related secondary malignancy, (2) Coincidence and (3) An increased susceptibility to secondary malignancy (Ural *et al*., 2007) due to the malignant process itself. Although CML accounts for a small percentage of secondary leukemia, reports on treatment-related CML are increasing and several cases of CML in patients treated for thyroid cancers, esophageal, gastric, lung, cervical, malignant fibrous histiocytoma and breast cancers have been reported (Vakili-Sadeghi and Omranpour, 2013). Cancer treatment modalities, including radiotherapy and chemotherapy, could themselves increase the risk of developing secondary malignancies (Kadikoylu *et al*., 2008). NRAS/BRAF mutation probably is effective in treatment of colorectal cancer patients with KRAS wild-type and in patients with KRAS wild-type should be specified NRAS/BRAF testing to determine which patients will benefit from anti-EGFR therapy (Payandeh *et al*., 2015a). Our case was treated with bevacizumab because KRAS mutation. A study (Kadikoylu *et al*., 2008), reported that 5-flurouracil, oxaliplatin, irinotecan, each of them can be carcinogenic and also in other case report (Vakili-Sadeghi and Omranpour, 2013) the case received these drugs during colon cancer that developed CML. In this study, the patient for colon cancer was treated with capecitabine, oxaliplatin and irinotecan. Radiation as an etiology for CML was known for many years (Lichtman and Liesveld, 2010) but reports have showed that radiotherapy alone (Bauduer *et al*., 2002), or in combination with chemotherapy (Waller *et al*., 1999) can cause the second malignancies. Our patient received chemoradiation for one month.

CONCLUSION

Combination of oxaliplatin and irinotecan can be carcinogenic even they can probably create secondary hematological malignancy like CML and also irradiation can be other risk factor in patients with colorectal cancer following chemotherapy. We recommend that blood count analysis in colorectal cancer follow-up (despite a simple test) is very important for diagnosis of malignant hematology disorders.

REFERENCES

Bauduer, F., L.D. Jensen, N. Dastugue and J.P. Marolleau, 2002. Chronic myeloid leukemia as a secondary neoplasm after anti-cancer radiotherapy: A report of three cases and a brief review of the literature. Leukemia Lymphoma, 43: 1057-1060.

Kadikoylu, G., I. Yavasoglu, S. Barutca, N. Meydan and Z. Bolaman, 2008. Chronic myeloid leukemia following the treatment of rectal adenocarcinoma. Med. Oncol., 25: 467-470.

Kanellopoulou, T., F.N. Kontopidou, M. Skondra, K. Pliarchopoulou and D. Pectasides, 2011. Chronic myelogenous leukemia and colon cancer: A causal relationship or coincidence? Ann. Gastroenterol., 24: 140-141.

Lichtman, M.A. and J.L. Liesveld, 2010. Chronic Myelogenous Leukemia and Related Disorders. In: Williamshematology, Kaushnsky, K., M.A. Lichtman, E. Beutler, T.J. Kipps, U. Seligsohn and J.T. Prchal (Eds.). McGraw Hill, New York.

Manabe, M., T. Nishii, J. Okita, J. Nagasaki and N. Harada *et al*., 2013. Chronic myelogenous leukemia after postoperative adjuvant S-1 therapy for rectal cancer: A case report. Am. J. Blood Res., 3: 286-289.

Payandeh, M., E. Sadeghi and M. Sadeghi, 2015a. Non-hematological adverse events of imatinib in patients with Chronic Myeloid Leukemia in Chronic Phase (CML-CP). J. Applied Pharmaceut. Sci., 5: 87-90.

Payandeh, M., M. Sadeghi, E. Sadeghi and F. Gholami, 2015b. Analysis of KRAS, BRAF and NRAS in patients with colorectal cancer: The first report of Western Iran. Am. J. Cancer Prev., 3: 19-22.

Pedersen-Bjergaard, J., K. Brondum-Nielsen, H. Karle and B. Johansson, 1997. Chemotherapy-related- and late occurring-Philadelphia chromosome in AML, ALL and CML. Similar events related to treatment with DNA topoisomerase II inhibitors? Leukemia, 11: 1571-1574.

Ural, A.U., M. Beyzadeoglu, F. Avcu and O. Nevruz, 2007. Chronic myeloid leukemia following radiotherapy for carcinoma of the cervix: Report of a case and brief review of the literature. Am. J. Hematol., 82: 415-416.

Vakili-Sadeghi, M. and M. Omranpour, 2013. Chronic myeloid leukemia following colon cancer treatment: A case report and literature review. Caspian J. Internal Med., 4: 739-742.

Waller, C.F., S. Fetscher and W. Lange, 1999. Secondary chronic myelogenous leukemia after chemotherapy followed by adjuvant radiotherapy for small cell lung cancer. Leukemia Res., 23: 961-964.