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Case Report

Docetaxel–induced ischemic colitis in a breast cancer patient: A case report

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Ischemic colitis is a rare and serious complication of taxane-based chemotherapy. Experience, in terms of clinical presentation, diagnosis, and treatment, is lacking due to a limited number of cases. Here, we report a case of a female breast cancer patient who developed ischemic colitis, after receiving neoadjuvant chemotherapy with docetaxel, and recovered following conservative management.

Keywords: docetaxel, breast cancer, ischemic colitis

1. Introduction

Taxane-based chemotherapy has been widely used for the treatment of several cancers including breast cancer. Some well-known side effects of docetaxel include neutropenia, anemia, alopecia, anorexia, mucositis, fatigue, weakness, and peripheral edema triggered by fluid retention. Nausea, vomiting, diarrhea, and constipation have also been documented, although severe gastrointestinal symptoms are uncommon.

To date, there is very little information available on this topic and the diagnosis of taxane-induced ischemic colitis remains controversial. For example, some authors have suggested that endoscopic manifestations are the gold standard, [1] while others have suggested that abdominal CT is adequate for establishing diagnosis. [2] Moreover, no consensus on how to manage such cases has been reached as different treatments may be adapted depending on disease severity. [2, 3, 4] Herein, we report a case of a female breast cancer patient who developed ischemic colitis after receiving five cycles of neoadjuvant chemotherapy containing docetaxel. Diagnostic methods and treatments are also discussed.

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2. Case presentation

A 57-year-old woman without other systemic disease history was newly diagnosed with left breast invasive ductal carcinoma, grade 2, ER (negative), PR (negative), Her-2(3+), Ki-67 (20%). Sentinel lymph node biopsy was performed on October 16, 2020 to determine lymph node staging. Based on the pathology report, there was one metastatic node. Consequently, based on the AJCC breast cancer staging system, eighth edition, her disease was categorized as cT2N1M0, stage IIB. She was scheduled for six cycles of neoadjuvant targeted therapy and chemotherapy (regimen of trastuzumab, pertuzumab, docetaxel and carboplatin) beginning in October 2020. Careful monitoring was carried out during the therapy period. At first, the patient did not complain of any remarkable discomfort and

demonstrated fair tolerance.

She presented with abdominal pain and bloody stool passage for one day after receiving the fifth cycle of neoadjuvant therapy in January 2021. The pain was persistent, located mainly in the periumbilical region, and not affected by dietary pattern. She mentioned performing a bowel enema at home due to constipation and hard stool passage with blood was observed. There was no fever, chest tightness, dyspnea, nausea, vomiting, diarrhea, or dysuria. The patient denied specific TOCCC (travel, occupation, contact, cluster, cough) history.

Upon admission, physical examination showed pale conjunctiva, anicteric sclera, and soft abdomen without tenderness. Laboratory data revealed mild hypokalemia and significant pancytopenia (WBC 990, ANC 549, Hb 8.3, PLT 76000). Chest x-ray was clear without obvious lesions or pneumonia patch. On KUB radiograph, intestinal gas and fecal material were observed. Thereafter, the patient was hospitalized under the tentative diagnosis of suspicious lower gastrointestinal tract bleeding.

Initial supportive care included empiric antimicrobial therapy, proton pump inhibitor with tranexamic acid infusion, blood transfusion, and G-CSF supplement. Symptoms of hematochezia with hard stool passage persisted despite the fact that only blood on glove with no hemorrhoids was discovered on digital rectal exam.

Sigmoidoscopy was arranged and revealed ischemic colitis at descending colon without other evidence of pseudomembranous colitis (Figure 1). Clostridium difficile toxins and stool cultures were not checked, as pseudomembranous colitis was deemed unlikely based on endoscopic findings. The patient was managed with intravenous fluid support and NPO for bowel rest.

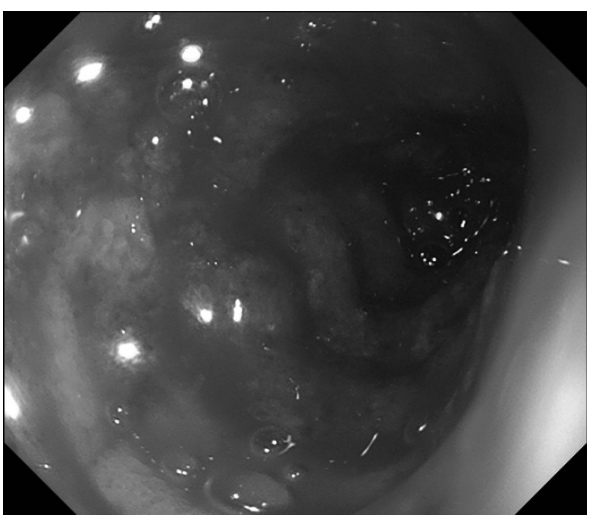

Figure 1. Sigmoidoscopic image showing features of ischemic colitis

Fortunately, she recovered well and was discharged in stable condition. The length of stay for the whole clinical course was nine days in total. The sixth cycle of neoadjuvant chemotherapy (regimen of trastuzumab, pertuzumab, docetaxel, and carboplatin) was completed 10 days following discharge.

3. Discussion

Gastrointestinal toxicities are relatively common in patients receiving taxane-based chemotherapy and present as nausea, vomiting, or diarrhea. In contrast, pseudomembranous colitis or ischemic colitis after systemic chemotherapy with paclitaxel, docetaxel, or nab-paclitaxel is quite rare with a limited number of cases reported around the world. Only a few cases of ischemic colitis caused specifically by docetaxel have been described. [3, 5, 6, 7]

According to the literature, typical symptoms of patients with taxane-induced colitis include abdominal pain and bloody diarrhea. [1] Definite diagnosis is based on endoscopic findings but, on occasion, may rely on pathology. Clostridium difficile toxins and stool cultures can be used to exclude pseudomembranous colitis. [1]

It should also be pointed out that endoscopic diagnosis of taxane-induced ischemic colitis remains controversial. Some authors favor endoscopy over abdominal CT as the gold standard, [1] while some believe that abdominal CT is adequate and essential for establishing diagnosis. Colonoscopy should not be attempted due to risk of perforation. [2]

The pathophysiology of the association between docetaxel and ischemic colitis is unclear, although a potential contributing factor is mesenteric venous thrombosis due to docetaxel therapy. [8]

Treatment options vary based on clinician's experience and disease severity, but usually include immunosuppressive therapy, antibiotics, antimotility agents, and octreotide or somatostatin. [4] Surgical

intervention or admission to the intensive care unit (ICU) may be necessary in the presence of colonic perforation or unstable vital signs. [2, 3, 4]

As for prevention, based on the results of a retrospective study, the risk of developing docetaxel-induced enterocolitis is dose-related. [5] Most patients are able to resume docetaxel upon complete resolution of symptoms. In some patients, treatment with docetaxel may need to be reduced or discontinued to prevent recurrence of colitis. [9] Dose reduction in the first cycle may also reduce the risk of such events. [5]

4. Conclusion

Taxane-induced colitis may present as ischemic colitis or pseudomembranous colitis on endoscopy. It is clinically rare but can be fatal if severe and, thus, requires more attention. It should be considered in patients presenting with gastrointestinal events after receiving taxane-based chemotherapy.

References

1. B Daniele, G B Rossi, S Losito et al. Ischemic colitis associated with paclitaxel. J Clin Gastroenterol. 2001 Aug;33(2):159-60.
2. K S Sodhi, S K Aiyappan, G Singh et al. Colitis and colonic perforation in a patient with breast carcinoma treated with taxane based chemotherapy. Indian J Cancer. Jan-Mar 2011;48(1):134-5.
3. Andres F Carrion, Peter J Hosein, Eugene M Cooper et al. Severe colitis associated with docetaxel use: A report of four cases. World J Gastrointest Oncol. 2010 Oct 15;2(10):390-4.
4. Ellie Chen, Hamzah Abu-Sbeih, Selvi Thirumurthi et al. Clinical characteristics of colitis induced by taxane-based chemotherapy. Ann Gastroenterol. Jan-Feb 2020;33(1):59-67.
5. Frédéric Fiteni, Marie-Justine Paillard, Emeline Orillard et al. Enterocolitis in Patients with Cancer Treated with Docetaxel. Anticancer Res. 2018 Apr;38(4):2443-2446.
6. N K Ibrahim, A A Sahin, R A Dubrow et al. Colitis associated with docetaxel-based chemotherapy in patients with metastatic breast cancer. Lancet. 2000 Jan 22;355(9200):281-3.
7. O Sezer, J Eucker, K Possinger. Colitis associated with docetaxel-based chemotherapy. Lancet. 2000 May 20;355(9217):1823-4.
8. J Feenstra, R J Vermeer, B H Stricker. Mesenteric venous thrombosis attributed to docetaxel. Am J Clin Oncol. 2000 Aug;23(4):353-4.
9. Zhiyong Li, Nuhad K Ibrahim, Jay K Wathen et al. Colitis in patients with breast carcinoma treated with taxane-based chemotherapy. Cancer. 2004 Oct 1;101(7):1508-13.