Introduction

Chemotherapy for malignant tumors causes various adverse events that require treatment. Ovarian cancer treatment employs several drugs, including paclitaxel, carboplatin, and bevacizumab. Here the authors report a rare case of cystoid macular edema induced by treatment with paclitaxel and bevacizumab for recurrent ovarian cancer, which significantly reduces patients’ quality of life.

Case Report

The present patient was a 63-year-old female. Primary debulking surgery was performed two years previously, and she was diagnosed with ovarian clear cell carcinoma pT2cN1M0, FIGO Stage 3A1 [2] (complete surgery). Six courses of first-line chemotherapy with paclitaxel and carboplatin were postoperatively administered without any severe adverse events.

Two recurrent lesions of the peritoneum were observed seven months after the first course of treatment; the patient was again treated with paclitaxel and carboplatin. However, the lesions progressed during the six additional courses of treatment; hence, the recurrence was re-diagnosed with platinum resistant.

Weekly paclitaxel and tri-weekly bevacizumab; paclitaxel-bevacizumab treatment was initiated. For the first three weeks, the patient was treated as an inpatient, whereas from the second course onwards, the patient was again treated with paclitaxel and carboplatin. However, the lesions progressed during the six additional courses of treatment; hence, the recurrence was re-diagnosed with platinum resistant.

Weekly paclitaxel and tri-weekly bevacizumab; paclitaxel-bevacizumab treatment was initiated. For the first three weeks, the patient was treated as an inpatient, whereas from the second course onwards, the patient was again treated as an outpatient. Exertional dyspnea, eyelid edema, lower thigh edema, and visual abnormality began to appear during the second course of the treatment. Cardiac function was assessed via ultrasound examination for those symptoms, and mildly reduced ejection fraction (58%) was observed.

Up to six courses of chemotherapy were administered with strict follow-up. No change in blood pressure was observed, and cardiac function improved, as revealed by the increase in the ejection fraction (67%). However, her visual abnormality did not improve; the authors consulted an ophthalmologist, and she was diagnosed with cystoid macular edema based on the results of optical coherence tomography and angiography (Figure 1). The recurrent lesion was stable for 21 weeks, during which seven

Figure 1. — (A) Fundus photography. (B) Fluorescein angiography. (C) Optical coherence tomography (OCT) of both eyes during paclitaxel–bevacizumab treatment. Macular edema at the fovea is seen. OCT scans reveal large cysts in the inner retinal layers, but no leakage is seen on angiography.

Summary

Cystoid macular edema is a rare adverse event induced by chemotherapy that significantly reduces patient’s quality of life; however, symptoms of visual abnormalities may be indistinguishable from age-related changes. The authors report a case of cystoid macular edema that occurred during chemotherapy for recurrent ovarian cancer. The patient was treated with paclitaxel and carboplatin for six months; however, because of increased tumor size, the authors switched to paclitaxel and bevacizumab. Visual disturbance appeared about one month after the switch. The patient was diagnosed with cystoid macular edema and requested a change in her treatment regimen because of other adverse events, and the macular edema improved within about two months after the change.

Key words: Cystoid macular edema; Ovarian cancer; Paclitaxel; Bevacizumab.
courses of paclitaxel–bevacizumab were prescribed until she was diagnosed as having cystoid macular edema. She requested a change in her treatment regimen because of the other adverse events, such as peripheral neuropathy, shortness of breath, and fatigue due to paclitaxel. Thus, the authors changed the treatment regimen to gemcitabine.

Two weeks following the end of treatment with paclitaxel–bevacizumab, shortness of breath was resolved, and the macular edema improved within about two months (Figure 2). After changing her treatment regimen to gemcitabine, a new lesion appeared during the course of nine months. In an attempt to abate this new lesion, the authors switched her treatment to liposomal doxorubicin, which was unsuccessful. She died 14 months after the end of treatment with paclitaxel–bevacizumab.

Discussion

Although rare, cystoid macular edema has been previously reported as an adverse event of paclitaxel [1-5]. This adverse event generally occurs within 6-12 months from the start of paclitaxel treatment [3]; in the present patient, it is highly likely that the symptoms appeared due to the multiple courses of paclitaxel treatment. In contrast, the visual abnormality caused by cystic macular edema occurred just after the treatment regimen was changed to bevacizumab. Therefore, the regimen change of paclitaxel or bevacizumab might itself be the cause of macular edema.

Some cases with macular edema caused by using paclitaxel and bevacizumab have been reported in patients with breast cancer, and in one case, such symptoms improved by simply terminating paclitaxel and using bevacizumab alone [3].

Topical administration of bevacizumab to the macula is reportedly more effective than systemic bevacizumab treatment. Although only one such case has been reported, with thickening of the macula associated with paclitaxel during pretreatment paclitaxel and carboplatin therapy. Thus, it is possible that the macula edema was caused by changing the dose of paclitaxel or possibly the beginning of bevacizumab administration.

In the present patient, although the lesion appeared stable, the treatment regimen was changed primarily due to the additional symptoms of peripheral neuropathy and malaise, and not necessarily due to the macular edema. However, if the treatment is to be continued, carbonic anhydrase inhibitor could be administered as a countermeasure against macular edema. Indeed, successful cases have been reported [8], and it is thus possible that treatment could continue and therefore prolong the progression-free survival time.

Patients with ovarian cancer are often elderly, and the symptoms of visual abnormalities may be indistinguishable to age-related changes, thereby leading to obscuring visual symptoms associated with drug administration. Because macular edema caused by paclitaxel is reversible, most cases should improve after the termination of paclitaxel.

The authors expect that future studies could attempt to treat cystoid macular edema with other treatments.

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References


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