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Case report

Unilateral serous retinal detachment with choroidal thickening as a first presenting sign of acute myeloid leukemia

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ABSTRACT

Purpose: Serous retinal detachment is rare in leukemia, but bilateral or unilateral cases have been reported as the presenting sign of acute leukemia or the first sign of relapsing leukemia. We here report a case of unilateral serous retinal detachment with choroidal thickening before the detection of atypical lymphocytes or myeloblasts as the initial manifestation of subsequently diagnosed acute myeloid leukemia.

Observations: A 43-year-old woman presented with serous retinal detachment in her left eye. Choroidal thickening was also revealed by B-scan ultrasonography and optical coherence tomography. Atypical lymphocytes or myeloblasts were not apparent on hematologic analysis at initial presentation, but an increased leukocyte count and the presence of 40% blasts in a peripheral smear were detected 1 month later. A bone marrow biopsy led to a diagnosis of acute promyelocytic leukemia. The retinal detachment and choroidal thickening showed amelioration 4 days after the onset of chemotherapy and had resolved 2 months later.

Conclusions and importance: The present findings suggest that, although retinal detachment is not a common manifestation in patients with leukemia, unilateral serous retinal detachment with choroidal thickening may be a presenting sign of acute myeloid leukemia.

1. Introduction

Common ocular manifestations of leukemia include retinal hemorrhage, Roth's spot, cotton wool patches, and tortuosity and angiectasis of retinal vessels. Serous retinal detachment is rare in leukemia, but bilateral or unilateral cases have been reported as the presenting sign of acute leukemia or the first sign of relapsing leukemia.[1] We here report a case of unilateral retinal detachment with choroidal thickening that presented before the detection of atypical lymphocytes or myeloblasts as the initial manifestation of subsequently diagnosed acute myeloid leukemia.

2. Case report

A 43-year-old Japanese woman was referred to an eye clinic with complaints of vision loss and anorthopia in her left eye. Serous retinal detachment was apparent in the left eye, and she was diagnosed with Vogt-Koyanagi-Harada disease. Systemic corticosteroid treatment for 3 weeks did not attenuate her symptoms, and she was referred to our hospital. On presentation, her best corrected visual acuity (BCVA) was 20/13 OD and 20/25 OS. Slitlamp examination and optical coherence tomography (OCT) of the right eye were unremarkable, but those of the left eye showed serous retinal detachment with choroidal thickening (Fig. 1). B-scan ultrasonography revealed left retinal detachment with superior choroidal thickening and effusion (Fig. 2). Hematologic analysis detected increased numbers of leukocytes (12,800/mm^3) and neutrophils (88%), but atypical lymphocytes or myeloblasts were not apparent. Her left axillary and bilateral mammary lymph nodes were enlarged. A diagnosis of breast cancer with choroidal metastasis was suspected, and a lymph node biopsy was performed. Pathological examination revealed small atypical cells in both left axillary and bilateral mammary lymph nodes. The patient was referred to a hematologist 1

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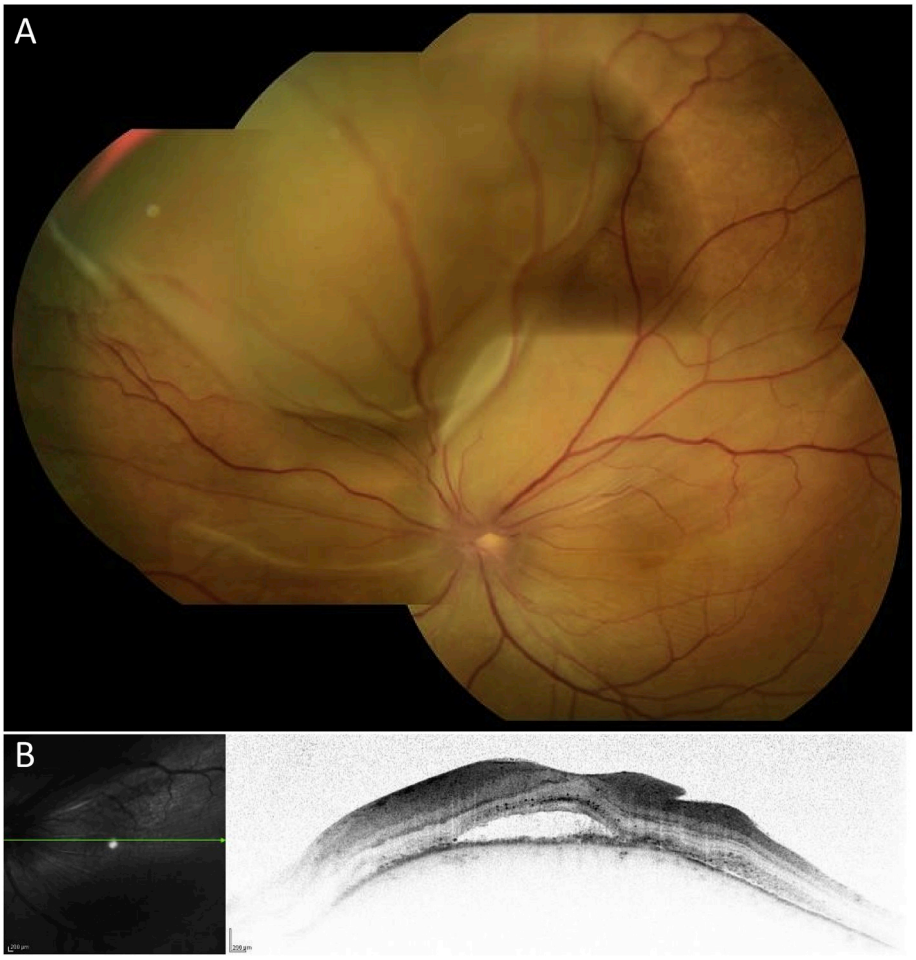

Fig. 1. Fundus photograph and OCT image of the left eye on the first visit of the patient to our hospital. Serous retinal detachment was apparent in both the fundus photograph (A) and OCT image (B), and choroidal thickening was detected in the latter.

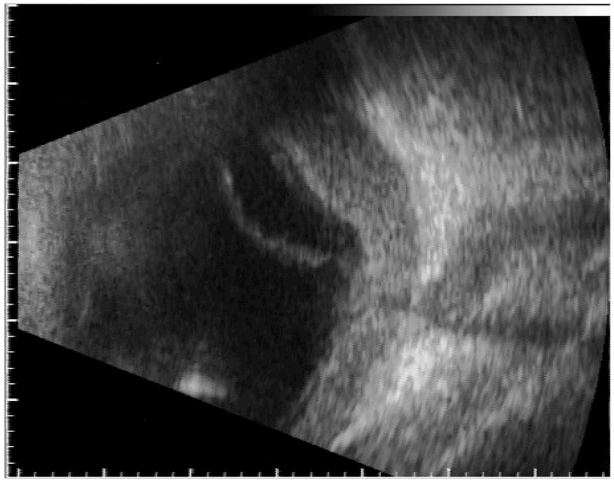

Fig. 2. B-scan ultrasound of the left eye on the first visit of the patient to our hospital. Retinal detachment with choroidal thickening was apparent.

month after her initial visit to our hospital, with a new hematologic analysis revealing a further increase in the leukocyte count (22,600/mm^3) and 40% blasts in a peripheral smear. A bone marrow biopsy performed on the same day showed 92.8% blasts, and the patient was diagnosed with acute promyelocytic leukemia. Chemotherapy with all-*trans* retinoic acid, cytarabine, and idarubicin was initiated the next day. The retinal detachment showed amelioration 4 days after the onset of chemotherapy (Fig. 3) and had resolved after 2 months (Fig. 4). OCT confirmed that infiltration of the choroid was also attenuated by chemotherapy (Figs. 3 and 4). Leukemia cells were not detected by bone marrow biopsy after completion of chemotherapy. One year after treatment onset, however, the leukocyte count and the proportion of blasts in a peripheral smear had increased to 8000/mm^3 and 40%, respectively, and the patient was restarted on chemotherapy with daunorubicin and cytarabine for her relapsed disease. No recurrence of retinal detachment occurred during the subsequent 2 years, and her BCVA improved to 20/13 OD and 20/20 OS.

3. Discussion

As far as we are aware, this is the first reported case of acute

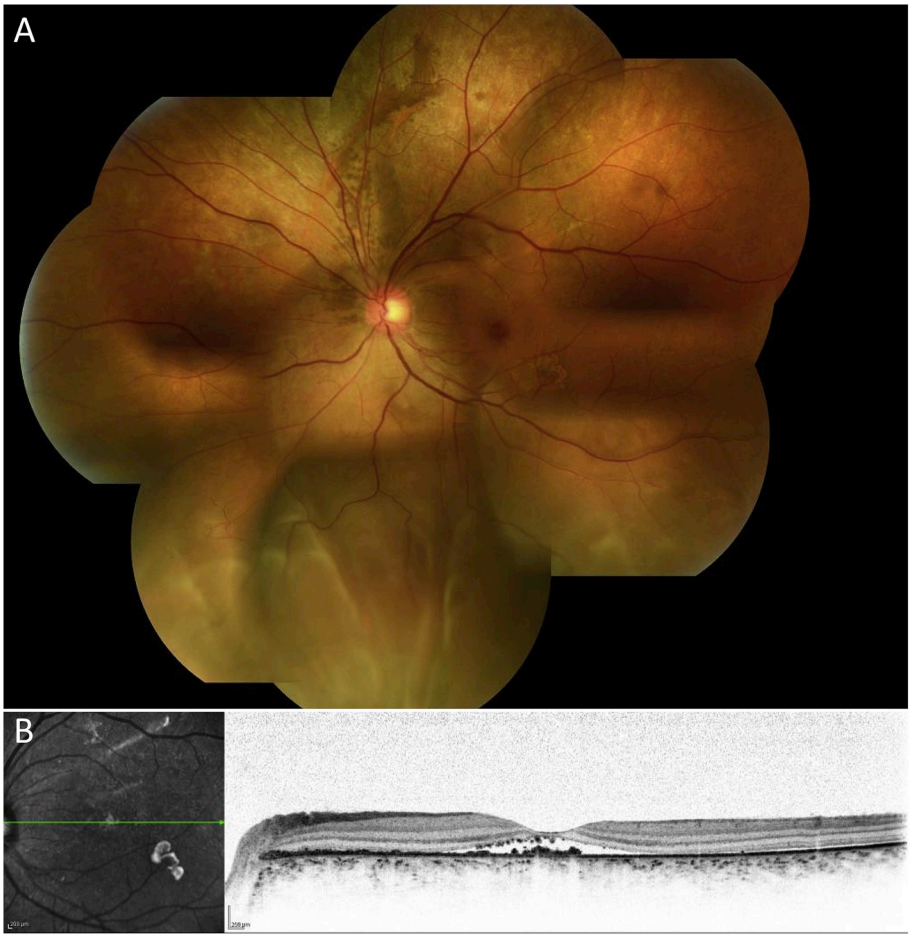

Fig. 3. Fundus photograph and OCT image of the left eye 4 days after the onset of chemotherapy. The retinal detachment showed amelioration in both the fundus photograph (A) and OCT image (B), and the choroidal thickening was attenuated in the latter.

leukemia manifesting as unilateral retinal detachment with choroidal thickening before the appearance of atypical lymphocytes or myeloblasts in peripheral blood. Although eye manifestations occur in up to 90% of leukemia patients over the course of the disease,[2] retinal detachment is a rare ocular complication.[2,3] In all previous reports of such rare cases, retinal detachment was detected after the diagnosis of leukemia (or relapse) or simultaneously with the detection of a peripheral blood abnormality. In the present case, an increased leukocyte count and a predominance of neutrophils without atypical lymphocytes or myeloblasts were apparent at the initial visit of the patient to our hospital. However, the increased proportion of neutrophils may have been due to the systemic corticosteroid treatment administered before the visit to our hospital rather than to leukemia. Histopathology has revealed diffuse cellular infiltrates in the choroid of leukemia patients with exudative retinal detachment.[4,5] In the present patient, choroidal infiltrates were detected by OCT and B-scan ultrasonography without prior evidence of a blood abnormality; myeloblasts became apparent 2 months after the initial detection of retinal detachment. Although we were not able to demonstrate the presence of leukemia cells in the choroid because of the difficulty of biopsy, we diagnosed her condition as retinal detachment caused by acute promyelocytic leukemia based on her response to chemotherapy.

4. Conclusions

Unilateral retinal detachment without a hole should be examined by ultrasound and OCT for choroidal thickening that may mimic Vogt-Koyanagi-Harada disease but actually be a presenting sign of leukemia.

5. Patient consent

Consent to publish the case report was not obtained. This report does not contain any personal information that could lead to the identification of the patient.

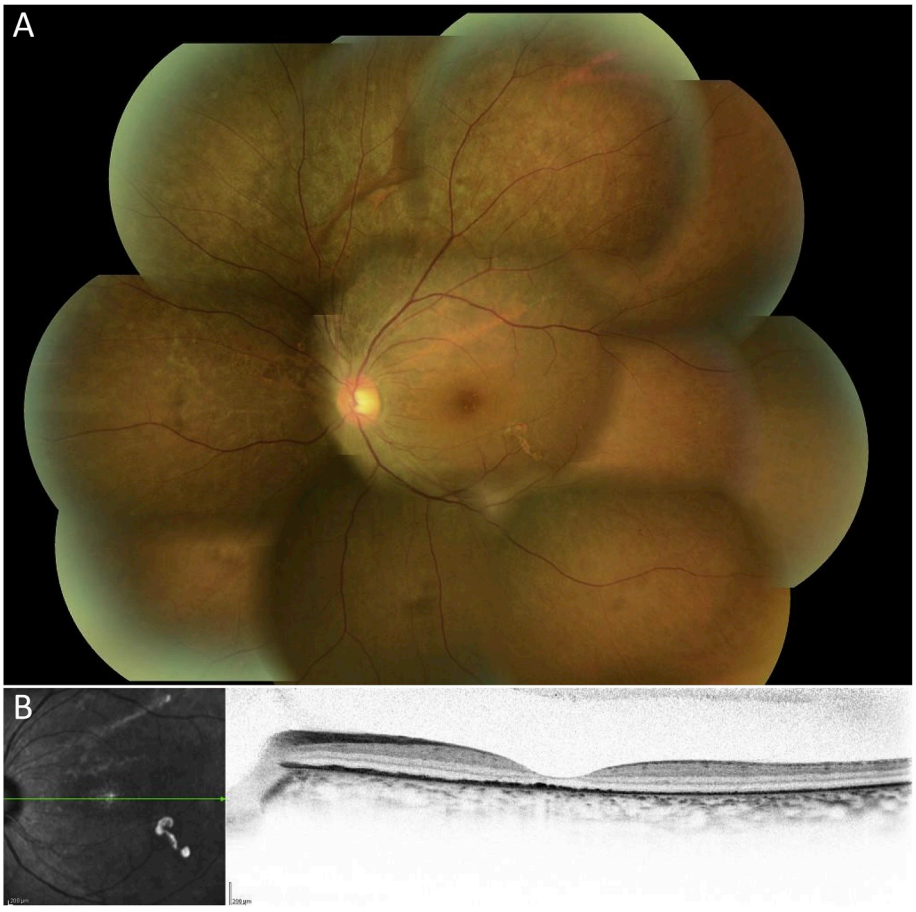

Fig. 4. Fundus photograph and OCT image of the left eye 2 months after the onset of chemotherapy. Resolution of the retinal detachment was apparent in both the fundus photograph (A) and OCT image (B), and that of the choroidal thickening was apparent in the latter.

Acknowledgments and disclosures

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Conflicts of interest

The following authors have no financial disclosures: TK, KF, TN, NH, AF.

Authorship

All authors attest that they meet the current ICMJE criteria for Authorship.

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