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Sclerouveitis with exudative retinal detachment associated with chronic myelomonocytic leukemia

Kristine M. Nachbor, MD [a], Caroline L. Minkus, MD [a,*]

[a] Department of Ophthalmology and Visual Neurosciences, University of Minnesota, Minneapolis, MN, USA

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ABSTRACT

Purpose: To describe a case of sclerouveitis with exudative retinal detachment in a patient with chronic myelomonocytic leukemia.

Observations: An 82-year-old woman with chronic myelomonocytic leukemia (CMML) presented with acute painful right eye redness and decreased visual acuity. Examination revealed right eye anterior and posterior scleritis with exudative retinal detachment, as well as 2+ anterior chamber cell in the right eye and 0.5+ in the left eye. Workup was negative for infectious etiologies and chest imaging revealed no pulmonary nodules. She was treated with prednisolone drops and a tapering course of oral prednisone as she started therapy with ruxolitinib for CMML. Inflammation resolved with treatment, and she remained quiet off steroids while on ruxolitinib.

Conclusions and importance: This is the first case report to specifically describe sclerouveitis associated with CMML, despite the known association of this cancer with various inflammatory manifestations. This case demonstrates that CMML may present with scleritis and uveitis, and should be considered as the underlying etiology of inflammatory eye disease in patients with a diagnosis of CMML.

1. Introduction

Chronic myelomonocytic leukemia (CMML) is a heterogeneous malignancy of hematopoietic stem cells that is characterized by peripheral monocytosis.[1,2] It is rare, with an estimated incidence of 0.35 cases per 100,000 people, occurring more often in men and frequently presenting in the seventh decade of life.[3–5] CMML is characterized by features of myelodysplastic syndromes (MDS) and myeloproliferative neoplasms, and is considered to be part of the spectrum of MDS.[1,2,5] MDS, including CMML, are frequently associated with systemic autoimmune and inflammatory disease: about 10–20% of cases are followed by, preceded by, or concomitant with inflammatory manifestations, such as systemic vasculitis, inflammatory arthritis, connective tissue disease, and inflammatory skin manifestations.[6–8] Though CMML has known associations with inflammation, reports of ocular involvement are uncommon. We describe a case of sclerouveitis with exudative retinal detachment in a patient with diagnosed CMML, which remained quiescent with systemic ruxolitinib therapy.

2. Case report

An 82-year-old woman with CMML presented with right eye pain, redness, and blurred vision that worsened over the course of three days. She was initially evaluated by an optometrist and her general ophthalmologist, and treated with fluorometholone drops and then prednisolone acetate drops for chemosis. With increasing pain and swelling, and decrease in visual acuity from 20/20 to 20/70, she was referred to the emergency department with concern for orbital inflammation. CT orbits revealed right intraorbital fat stranding, scleral thickening, and mild proptosis. A bedside ultrasound showed posterior scleritis, and she was diagnosed with right eye anterior and posterior scleritis and started on oral prednisone 60mg daily. Laboratory workup at that time showed an elevated erythrocyte sedimentation rate of 35. Testing was negative for tuberculosis, syphilis, and Lyme, and inflammatory markers including anti-neutrophil antibody, anti-neutrophil cytoplasmic antibodies, anti-cyclic citrullinated peptide, and rheumatoid factor. Lysozyme was normal. The next day her symptoms were improving, and she was found to have anterior chamber cell in the right eye, so prednisolone acetate drops were started 4 times daily, and oral prednisone was tapered to

* Corresponding author. University of Minnesota Medical School, 420 Delaware Street SE, Minneapolis, MN 55455, USA.
E-mail addresses: nach0028@umn.edu (K.M. Nachbor), minkus@umn.edu (C.L. Minkus).

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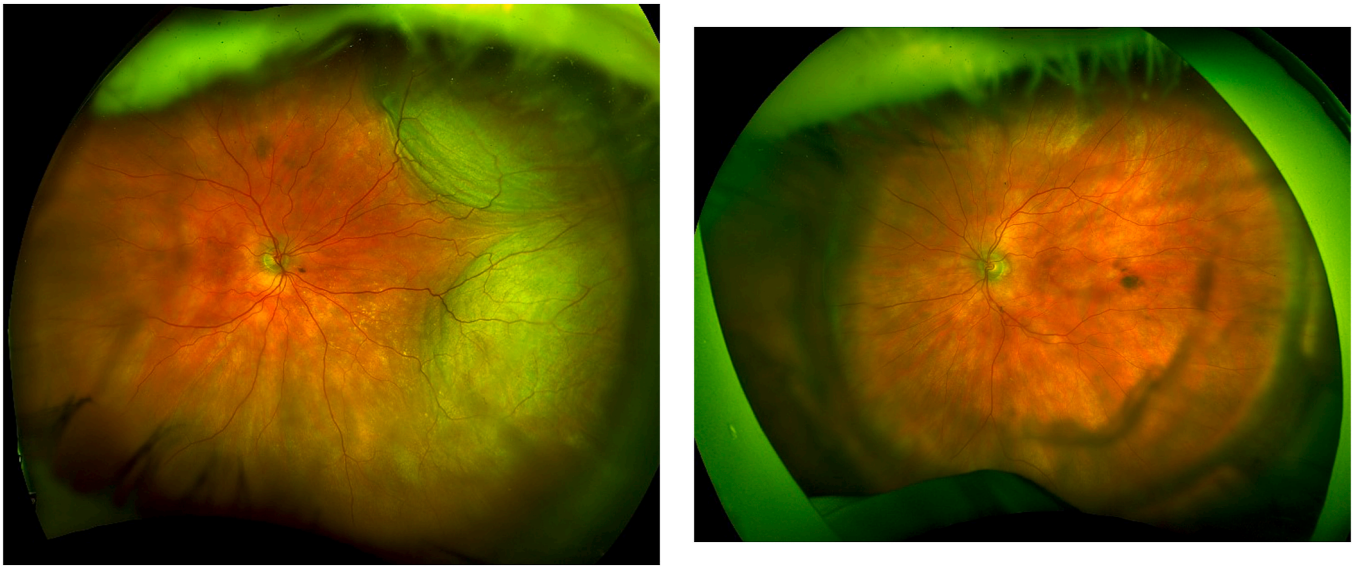

Fig. 1. Fundus photographs on initial presentation to uveitis clinic. Color fundus photographs of A) Right eye showing a large superonasal exudative retinal detachment and nasal bullous detachment extending inferiorly and B) Left eye showing a small, flat temporal choroidal nevus and a few central and peripheral inferonasal drusen. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

50mg daily. She was recommended to follow up for uveitis consultation.

On presentation to the uveitis specialist, she reported continued improvement of right eye pain and redness, and improving blurred vision. Review of systems was positive for generalized pruritus previously diagnosed as secondary to CMML, and chronic shortness of breath. She had been recommended to start ruxolitinib for CMML with symptomatic pruritus, but had deferred this treatment. She was receiving ultraviolet lightbox therapy for itching.

On examination, corrected visual acuity was 20/20 in each eye, pupils were symmetric without relative afferent pupillary defect, and confrontational visual fields and extraocular movements were full. External exam of the right eye showed 2+ inferior conjunctival injection and scattered inferior subconjunctival hemorrhages, mild chemosis, mild tenderness to palpation, and reactive ptosis. The left eye was white and quiet without tenderness to palpation. On slit lamp examination, there was 2+ cell and no flare in the anterior chamber of the right eye and 0.5+ anterior chamber cell without flare in the left eye. The cornea was clear in each eye. She was pseudophakic bilaterally and there was no vitreous cell or haze in either eye. Fundus examination revealed a few fine drusen in each eye without any macular edema, retinal vascular sheathing, or hemorrhages. There was a large superonasal and nasal exudative retinal detachment in the right eye extending inferiorly without retinal tears or other lesions (Fig. 1A). In the left eye there was a small, flat choroidal nevus temporally (Fig. 1B).

Since her symptoms had improved and her body weight was 47kg, her prednisone was tapered to 40 mg daily. Prednisolone drops were continued four times daily in the right eye. Angiotensin converting enzyme (ACE) level and a chest x-ray were ordered in the setting of eye inflammation and chronic shortness of breath, showing a low normal ACE and concern for possible hilar fullness. A follow up chest CT was normal without concern for pulmonary inflammation or nodules.

At her one week follow up, her symptoms had completely resolved. Slit lamp exam revealed no cell or flare in either eye, and resolution of the right eye retinal detachment. The day prior to this visit, her oncologist had started ruxolitinib 5 mg twice daily for CMML. Oral prednisone was further tapered, and prednisolone drops were tapered and stopped.

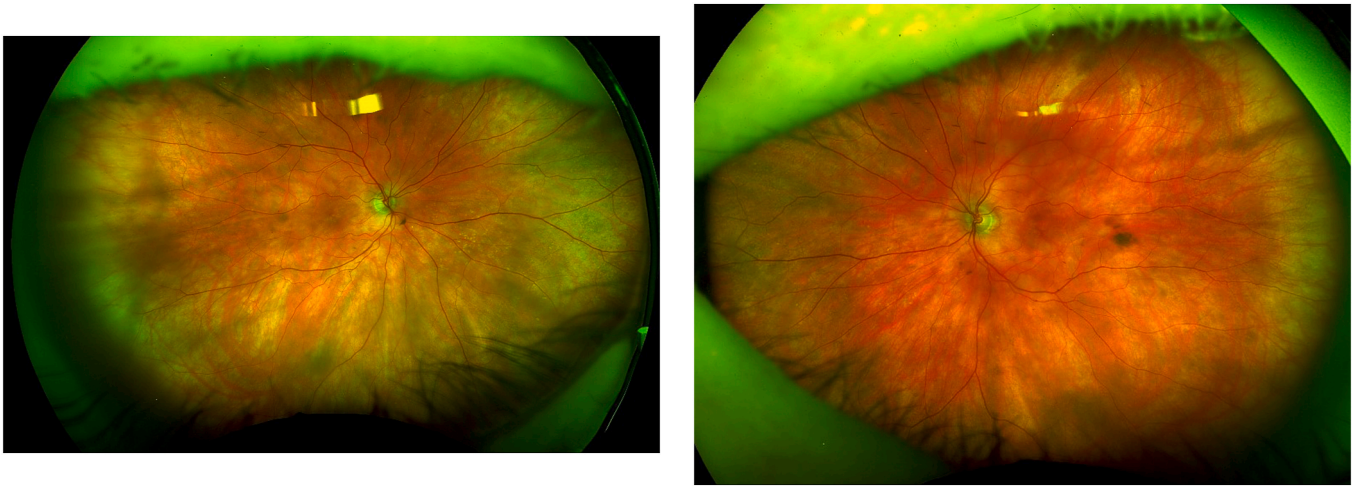

Fig. 2. Fundus photographs four months after initial presentation demonstrating quiescence. Color fundus photographs of A) Right eye showing resolved exudative retinal detachments superonasal and nasally and B) Left eye showing stable flat temporal choroidal nevus and stable small drusen. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

Her symptoms remained stable with minimal recurrence of subretinal fluid in the right eye and trace anterior chamber cell in both eyes two weeks later. Prednisone taper was slowed as ruxolitinib took effect, and eye inflammation had again resolved by her 6 week follow up visit. She was tapered off oral prednisone 10 weeks after initial presentation, with maintained ocular quiescence. One week later, ruxolitinib was increased to 10mg twice daily for increasing c-reactive protein values. Four months after initial presentation, she remained asymptomatic, inflammation was quiet, and there was no subretinal fluid off steroids while on 10mg ruxolitinib daily (Fig. 2A and B). Generalized pruritus had also resolved. At her follow up appointment nine months after initial presentation, she remained quiet off steroids while on ruxolitinib.

3. Discussion

We report a case of sclerouveitis with exudative retinal detachment associated with CMML.

Although CMML has a well-documented association with systemic inflammatory disease, and these diseases often present with ocular manifestations, there are few reports of ocular inflammation in CMML patients. In 1986, Wijetunga et al. first described a patient who presented with keratitis and anterior uveitis, subsequently diagnosed with CMML, whose eye findings resolved with topical corticosteroids and systemic chemotherapy.[9] Malecha and Holland reported a similar case of peripheral keratitis and iritis in a CMML patient.[10] Spontaneous suprachoroidal hemorrhage with associated anterior uveitis,[11] and two cases of ischemic optic neuropathy have also been reported.[12,13] Wolff-Korrmann et al. described a case of dense vitritis and choroidal infiltration with overlying exudative retinal detachment in a patient with CMML,[14] and Head et al. confirmed choroidal involvement on pathologic postmortem examination of eyes from a patient with CMML.[15]

To our knowledge this is the first report of sclerouveitis with exudative retinal detachment presumed secondary to CMML. In this case, the patient had already been diagnosed with CMML, which was thought to be the underlying cause of her inflammation, especially in light of a negative workup; however, as her serum ACE level and chest CT scan were obtained after she was started on systemic corticosteroids, sarcoidosis should still be considered. Serratrice et al. reported two cases of patients with anterior uveitis and skin involvement diagnosed as sarcoidosis, who subsequently developed CMML.[16] The authors posited a potential association between these entities, as both involve proliferation of monocytes.[16] These cases emphasize the importance of maintaining a broad differential diagnosis in patients with inflammatory eye disease, and the potential overlap between multiple diagnoses associated with eye inflammation. While CMML is rare and uncommonly associated with eye involvement, evaluation for CMML should be considered in patients with ocular inflammation associated with persistent monocytosis and a negative infectious workup.[1,2]

Intraocular inflammation requires prompt treatment to prevent scarring and permanent vision loss. In this patient, eye involvement precipitated initiation of ruxolitinib therapy, as prescribed by the patient's hematologist, with subsequent control of ocular inflammation as well as dermatologic symptoms, suggesting both as inflammatory manifestations of underlying CMML. Ruxolitinib is a JAK inhibitor that has recently shown promise in the treatment of CMML.[1] The mainstays of CMML treatment are hypomethylating agents, which remain the only FDA-approved therapeutics for CMML, and hydroxyurea as supportive care to treat myeloproliferative symptoms.[1,2] Stem cell transplantation is the only curative treatment for CMML, but is associated with a high risk of complications.[1,2] Treatment of patients with CMML and eye inflammation should be coordinated between the patient's hematologist and ophthalmologist.

4. Conclusions

Ocular inflammatory manifestations of CMML are rare. This is the first case report to specifically describe sclerouveitis with exudative retinal detachment associated with CMML, and supports the importance of monitoring for eye inflammation in patients with CMML.

Patient consent

The patient consented to the publication of the case orally. This report does not contain any personal identifying information.

Declaration of competing interest

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