A 72-year-old male patient presented with 2 days of conjunctival injection in the right eye, chemosis, eyelid edema, and pain with eye movements. His medical history included hypothyroidism, psoriasis, and recent diagnosis of multiple myeloma, and he was taking daratumumab and zoledronic acid. He denied eye trauma, dental surgery, or sinus disease. Examination of the right eye was notable for visual acuity of 20/50, reduced ocular motility in all gazes, proptosis, and chemosis. There was no afferent pupillary defect. Examination of the left eye was unremarkable. Computed tomography of the orbits with contrast demonstrated right preseptal edema and intraorbital fat stranding of the extraconal and intraconal fat without sinus disease. Nasal endoscopy performed by the otolaryngology service showed no evidence of invasive fungal sinusitis. The patient received a single dose of intravenous vancomycin and ceftriaxone, then was transitioned to ampicillin-sulbactam for presumed orbital cellulitis. After 48 hours, motility, proptosis, and chemosis worsened (Figure 1A).

Magnetic resonance imaging of the orbits with and without contrast (Figure 1B) was remarkable for proptosis with optic nerve straightening, enhancement of the intraconal and extraconal fat, edema and enhancement of the right extraocular muscles, new thickening of the left sphenoid sinus with internal air-fluid level, and new inflammation of the left masticator space. A follow-up computed tomography of the sinus with contrast showed no evidence of osseous structure destruction to suggest invasive fungal sinusitis. Under guidance from the infectious disease service, antibiotics were broadened back to vancomycin and ceftriaxone with continued worsening.

What Would You Do Next?

1. Start antifungal therapy
2. Sinus biopsies
3. Start corticosteroids
4. Orbital biopsy