Relapsing Polychondritis Mimicking Orbital Cellulitis
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Introduction
Relapsing Polychondritis is a rare autoimmune condition characterized by episodic, progressive inflammatory destruction of cartilaginous structures, including the eye, which can mimic orbital cellulitis. This case presented the question of using high dose steroids in a patient with orbital cellulitis that was not responsive to antibiotics.

Case Description
A 78 year-old man with a history of recurrent, episodic, self-limiting, infections or inflammatory events with negative rheumatologic work up, presented with a three day history of progressive left eye pain with extracocular movements, redness, swelling, watery discharge, photophobia, slightly blunted vision, and pruritus.

Pertinent PMH:
- Nasal bridge injury and collapse
- Acute urticaria
- Disagreement with laryngeal edema
- Periocular cellulitis
- Episcleritis
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- Migratory arthritis
- HLA-B27 positive
- Anti-CCP and ANA negative
- Anti-neutrophil cytoplasmic antibodies (ANCAs) negative

Pertinent Physical Exam:
- Nasal bridge malformation
- Left eye injection, conjunctivitis, extracocular movements painful through intact, petrous bone swelling, mild antecubital space with purple round and reactive to touch, acuity of OS 20/200, OD 20/25.
- Mouth: Left buccal mucosa fullness
- Nose: Nasal bridge malformation
- Ear: Visible scarring at superior portion of the left auricle, hearing aids in place

Lungs: Clear to auscultation bilaterally
- Heart: Orderly, S1, S2.
- Abdomen: Soft, non-tender, females.

Clinical course:
Day 1:
- Evaluation by oral maxillary facial surgery and ophthalmology determined no dental nor sinus etiology.
- Started on 3g ampicillin/sulbactam IV q8hrs for suspected peri-orbital cellulitis.

Day 2:
- Vision became more blurry and visual acuity of the right eye declined from 20/20 to 20/200 and pupillary reaction to light became less brisk.
- Repeat CT scan of orbits (Figure 4) showed worsening left periocular cellulitis with increased inflammation involving the post septal space, presumably surrounding the globe, with scleral thickening suggesting scleritis.

Day 3:
- Antibiotic coverage was broadened to vancomycin and piperacillin/tazobactum to treat suspected orbital cellulitis
- The following day the edema progressed.
- On corneal ultrasound (see fig 5), ophthalmology found diffuse scleral thickening and sub-Tenons edema (the "T-sign") and significant tenderness to palpation of the globe, all characteristic of posterior scleritis.
- Given this patient’s history of episodic cartilaginous inflammation, ophthalmology and rheumatology agreed to start IV dacantrim for suspected relapsing polychondritis.

Day 4:
- Within 24 hours, the patient’s vision, pain with extraocular movements, and peri-orbital edema improved and remained stable after 48 hours without antibiotics.
- Blood cultures showed no growth after five days.

Follow up:
- Prednisone was tapered down and Azathioprine was started in the outpatient setting.
- Given this patient’s presentation later in life, and relapsing polychondritis’ association with malignancy and myelodysplastic syndrome, he was worked up for MDS given his unexplained macrocytosis.
- PFTs ordered to evaluate tracheobronchial involvement.

Discussion
This case demonstrates the differential diagnostic pitfalls of orbital and peri-orbital cellulitis beyond infectious causes to include relapsing polychondritis and/or reactive arthritis. Recognition of rheumatologic causes is important in proper treating scientists in time to avoid progression to blindness.

DDx of Orbital (Post-septal) Cellulitis:
- Preseptal cellulitis
- Mucomycosis or aspergillosis
- Cavernous sinus thrombosis
- Herpes simplex or varicella zoster
- Tuberculosis
- Posterior scleritis

DDx of Posterior Scleritis:
- Tumors
- Orbital pseudotumor
- Tolosa-Hunt syndrome
- Periocular dermoid cyst
- Wegener’s disease
- Trauma, including insect bites
- Allergic reaction
- Histiocytosis (tyke)
- Sarcoidosis
- Systemic diseases
- Muscular
- Thrombolysis orbital varix
- Graves’ disease

Cartilaginous Involvement of Relapsing Polychondritis

Extraluminal space
- Internal ear
- Auditory
- Vestibular
- Eye
- Nasal cartilage
- Laryngotraheobronchial space
- Periorbital
- Thoracic cage
- Vascular head and neck
- Anurysm formation
- Systemic vasculitis
- Various skin lesions

References:
- Emskida Multimedia library: saddle nose
- UpToDate: Clinical Manifestations of Relapsing Polychondritis, figure 6. Clinical manifestations and diagnosis of scleritis.