

AMSER Case of the Month

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52 year old man presents with facial, periorbital, and scalp swelling

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Patient Presentation

- 52 year old male with a past medical history of alcohol abuse and liver disease presented to the Emergency Department with 1 day of left periorbital edema that rapidly spread bilaterally
- He presented to an outside hospital the day prior and was treated with IM Prednisone and Benadryl for a presumed allergic reaction. Swelling briefly improved but worsened significantly overnight prompting ED visit
- He can no longer open his left eye so visual deficits could not be assessed

Pertinent Labs

- WBC – 21.35
- CRP – 2.6 mg/L (<0.5 wnl)
- ESR – 42 mm/hr (0-30 wnl)
- Lactic acid 6.1

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 3: Suspected orbital cellulitis, uveitis, or scleritis. Initial imaging.

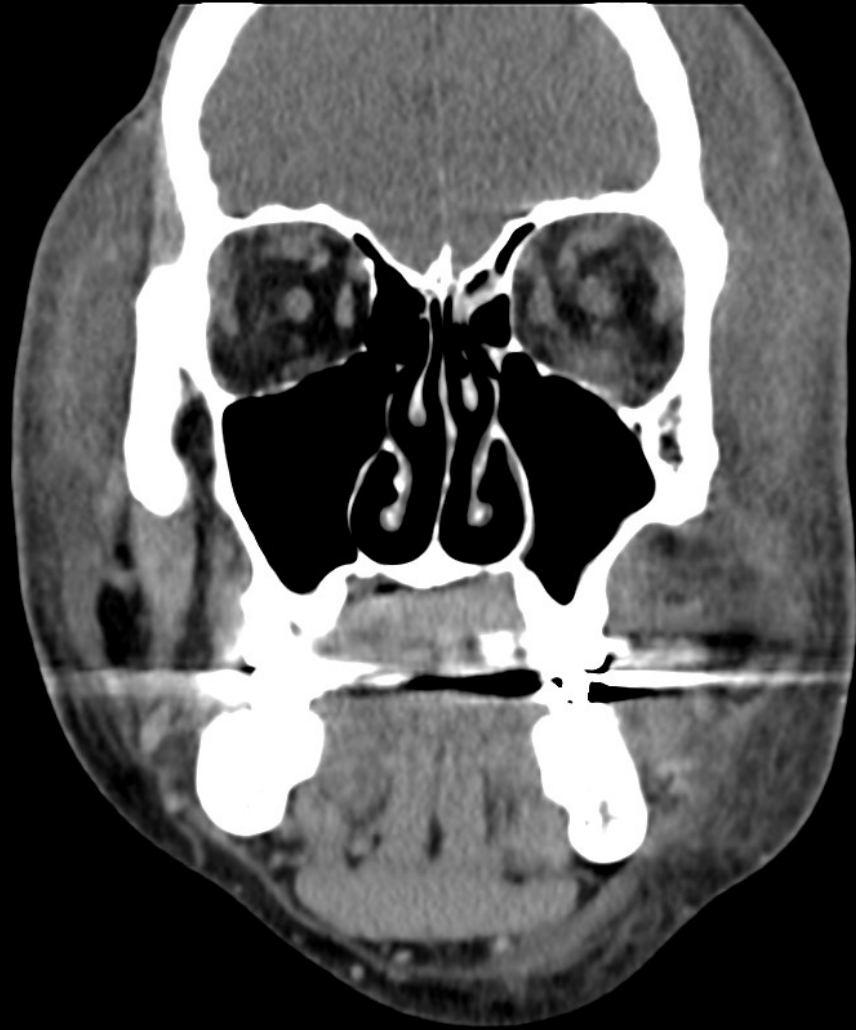
Procedure	Appropriateness Category	RRL
CT orbits with IV contrast	Usually Appropriate	⊗ ⊗ ⊗
MRI orbits without and with IV contrast	Usually Appropriate	○
CT orbits without IV contrast	May Be Appropriate	⊗ ⊗ ⊗
MRI head without and with IV contrast	May Be Appropriate	○
MRI orbits without IV contrast	May Be Appropriate	○
CTA head and neck with IV contrast	May Be Appropriate	⊗ ⊗ ⊗
MRA head and neck without and with IV contrast	May Be Appropriate	○
MRI head without IV contrast	May Be Appropriate	○
CT head with IV contrast	May Be Appropriate	⊗ ⊗ ⊗
MRA head and neck without IV contrast	May Be Appropriate	○
Arteriography cervicocerebral	Usually Not Appropriate	⊗ ⊗ ⊗
CT head without IV contrast	Usually Not Appropriate	⊗ ⊗ ⊗
CT orbits without and with IV contrast	Usually Not Appropriate	⊗ ⊗ ⊗
CT head without and with IV contrast	Usually Not Appropriate	⊗ ⊗ ⊗
X-ray orbit	Usually Not Appropriate	⊗



This imaging modality was ordered by the ER physician



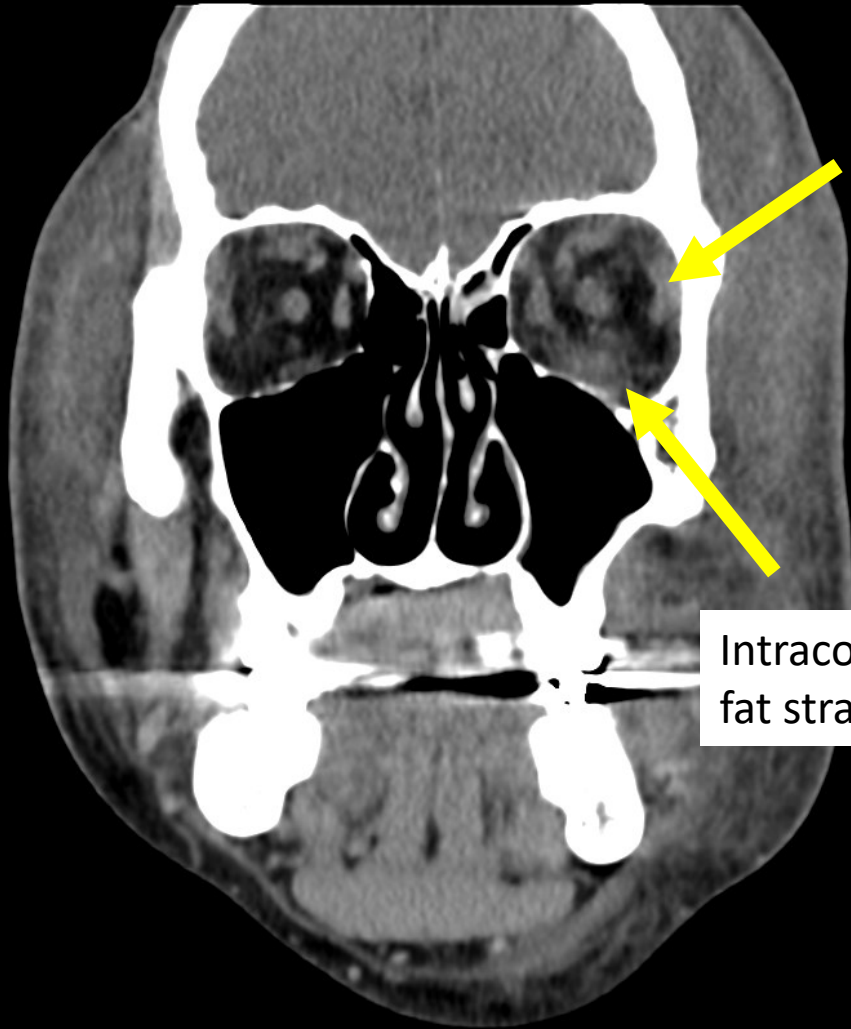
Findings (unlabeled)



Findings (unlabeled)

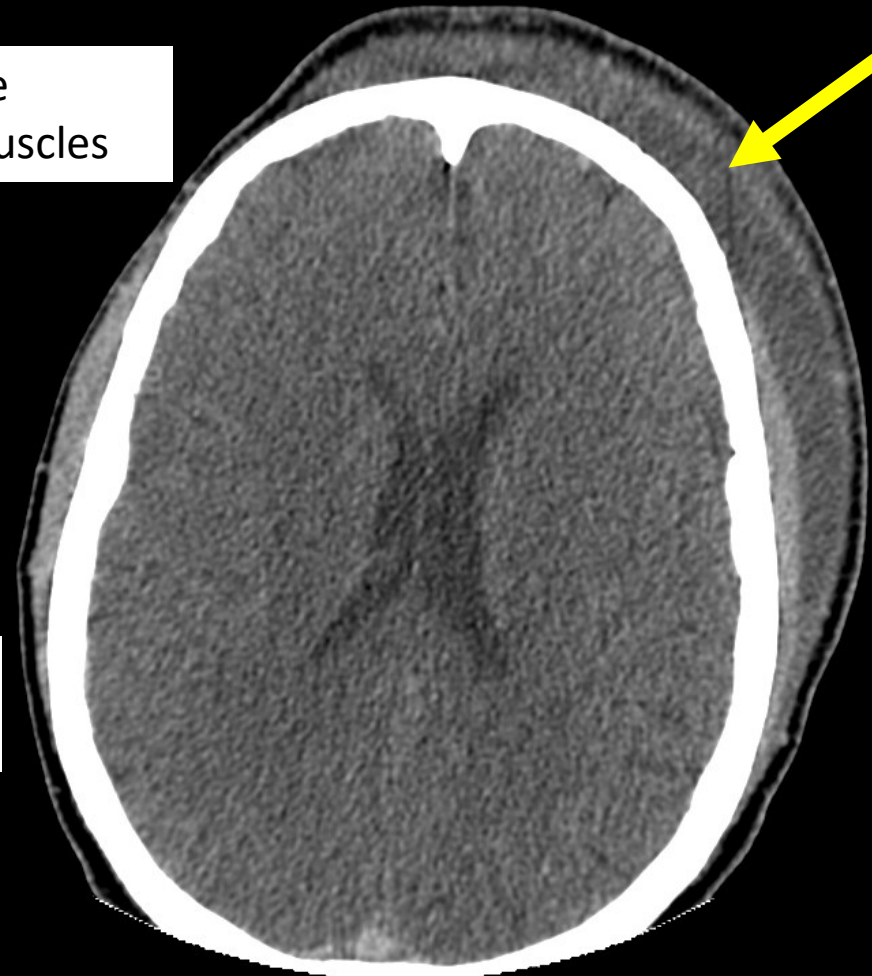


Findings: (labeled)



Swelling of the extraocular muscles

Intraconal/extraconal fat stranding



Subcutaneous fluid collection along the left frontal parietal scalp

Findings: (labeled)



Tenting of the globe

Final Dx:

Orbital Compartment Syndrome
associated with Necrotizing Fasciitis

Orbital Compartment Syndrome

- A Medical Emergency

- If not diagnosed and treated immediately, damage to the optic disc and retina will lead to irreversible vision loss

- **Caused by acute rise in intra-orbital pressure**

- Most commonly trauma, hemorrhage, abscess, tumor, orbital edema, emphysema, orbital cellulitis, and iatrogenic (i.e. retrobulbar injection)
- The orbit has limited capacity to expand. Any increase in pressure can cause compression and damage to the optic nerve and artery

- **Diagnosis**

- Can be diagnosed clinically but imaging can be used to confirm or find cause
- Signs of high orbital compartment pressure include decreased visual acuity, resistance to retropulsion of the globe, proptosis, restricted movement of the extraocular muscles, and an afferent pupillary defect

Orbital Compartment Syndrome

- **Radiographic signs – Globe tenting**

- Often associated with acute increased orbital pressure presenting as acute proptosis
- Defined as a posterior globe angle <130 degrees
- An angle <120 with acute proptosis is a surgical emergency. Requires urgent orbital decompression and is associated with a poorer prognosis and a greater risk of permanent vision loss



- **Management**

- Vision should be assessed to evaluate for damage to optic nerve/artery
- A lateral canthotomy and inferior cantholysis (LCIC) should be performed immediately to provide emergent orbital decompression to attempt to preserve vision

Peri-orbital Necrotizing Fasciitis

- **Definition**

- A severe soft tissue infection characterized by rapidly progressing necrotizing infection of the superficial fascia. It typically travels quickly along the fascial plane, which has a poor blood supply
- The organism responsible is Group A strep over half the time
- This is a surgical diagnosis. On imaging subcutaneous emphysema is suggestive but not seen in this case. The lack of this feature does not exclude the diagnosis
- **Predisposing factors**
- Alcoholism, hepatitis C, diabetes mellitus, cancer, chemotherapy, intravenous drug use, human immunodeficiency virus infection, corticosteroid use, and radiation treatment

- **Management**

- Early diagnosis is imperative, and patients should immediately begin broad spectrum antibiotics and undergo debridement of the necrotic tissue for source control

References:

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