67-year-old with double vision.

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Patient Presentation

• 67-year-old patient in assisted living presenting with persistent double vision. No known trauma, eye pain, swelling, or erythema. No fevers or chills.

• Physical exam is notable for enophthalmos.

• Relevant labs, including WBC and CRP, were normal.
What Imaging Should We Order?
Select the applicable ACR Appropriateness Criteria

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<tr>
<th>Procedure</th>
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<tr>
<td>MRI orbits without and with IV contrast</td>
<td>Usually Appropriate</td>
<td>O</td>
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<tr>
<td>CT orbits with IV contrast</td>
<td>Usually Appropriate</td>
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<tr>
<td>CT orbits without IV contrast</td>
<td>May Be Appropriate</td>
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<td>CTA head and neck with IV contrast</td>
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<td>MRA head and neck without and with IV contrast</td>
<td>May Be Appropriate</td>
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<tr>
<td>MRI head without and with IV contrast</td>
<td>May Be Appropriate</td>
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<tr>
<td>MRI orbits without IV contrast</td>
<td>May Be Appropriate</td>
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<tr>
<td>MRA head and neck without IV contrast</td>
<td>May Be Appropriate (Disagreement)</td>
<td>O</td>
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<tr>
<td>MRI head without IV contrast</td>
<td>May Be Appropriate</td>
<td>O</td>
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<tr>
<td>Arteriography cervicocerebral</td>
<td>May Be Appropriate</td>
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This exam was ordered by the PCP.
Findings (unlabeled)
Coronal MR imaging shows **mucosal thickening in the left maxillary and ethmoid sinuses** with a **left maxillary sinus retention cyst** as well as **left maxillary sinus T1 intermediate proteinaceous fluid**. There is antral atelectasis with **medial bowing of the lateral left maxillary sinus wall** and **inferior bowing of the left orbital floor**, resulting in expansion of the left bony orbit.
Findings (unlabeled)
Axial imaging shows **mucosal thickening** and **proteinaceous fluid** in the left maxillary sinus, consistent with sinusitis.

There is **bowing of the lateral left maxillary sinus wall**, an **expanded retroantral fat pad**, and **enophthalmos of the left globe** secondary to sinus atelectasis.
Final Dx:

Silent Sinus Syndrome
Case Discussion

• Pathophysiology
  • Silent sinus syndrome is characterized by chronic maxillary sinus atelectasis related to chronic obstruction of the sinus ostium leading to negative pressure in the cavity.
  • The orbital floor and maxillary sinus walls are affected, resulting in enophthalmos and hypoglobus.
  • Primary silent sinus syndrome is idiopathic, while secondary silent sinus syndrome can result from mid-face trauma or prior surgical procedures. Up to 1% of patients with Graves ophthalmopathy present after undergoing orbital decompression.
  • This pathology almost exclusively occurs in the maxillary sinus and is commonly unilateral.
Case Discussion

- **Clinical Presentation**
  - Patients have a prolonged history of painless eye or facial asymmetry, diplopia, or both.
  - Physical exam findings may show enophthalmos and hypoglobus.
  - Patients may or may not present with prior or current sinus symptoms.

- **Radiologic Findings**
  - Maxillary sinus atelectasis or reduced sinus cavity volume, with thinning of the sinus walls and compensatory expansion of the ipsilateral orbital volume
  - Lateralized ipsilateral uncinate process
  - Commonly enlarged middle meatus, with varying degrees of middle turbinate retraction and nasal septum deviation
  - Expanded ipsilateral retroantral fat pad
  - Visualization of osseous thinning, infundibulum blockage, and lateralized uncinate process clearer by CT compared to MRI
• **Treatment**
  
  • Initial treatment may be conservative, with surgical intervention pursued if patient’s symptomatology is significant or progresses.
  
  • Surgical intervention aims to restore sinus ventilation and drainage, prevent further sinus wall collapse, restore eye position and orbital floor height, as well as avoid sinus infection.
  
  • The surgical approach involves opening the maxillary sinus ostium with a nasal antral window or maxillary antrostomy.
References:


