

AMSER Case of the Month

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67-year-old man undergoing treatment for metastatic melanoma

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Patient Presentation

- **HPI:** 67-year-old male with metastatic melanoma. Treatment was initiated with ipilimumab and nivolumab. CT chest, abdomen, and pelvis were obtained to evaluate for disease progression.
- **PMHx:** Stage IV melanoma of anorectal primary (BRAF negative, NRAS G12R positive), ulcerative colitis
- **Surg Hx:** No abdominal surgeries
- **Medications:** ipilimumab/nivolumab (immune checkpoint inhibitors)

Pertinent Presentation

- **Physical exam:** Vital signs within normal limits, no increased work of breathing, abdomen soft, non-distended. No skin changes.
- **Labs:**
 - WBC – 8
 - Hgb – 12.4 (L)
 - PLT – 241
 - LDH – 242
- **Prior Chest CT:** No acute abnormality and no metastatic disease.

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

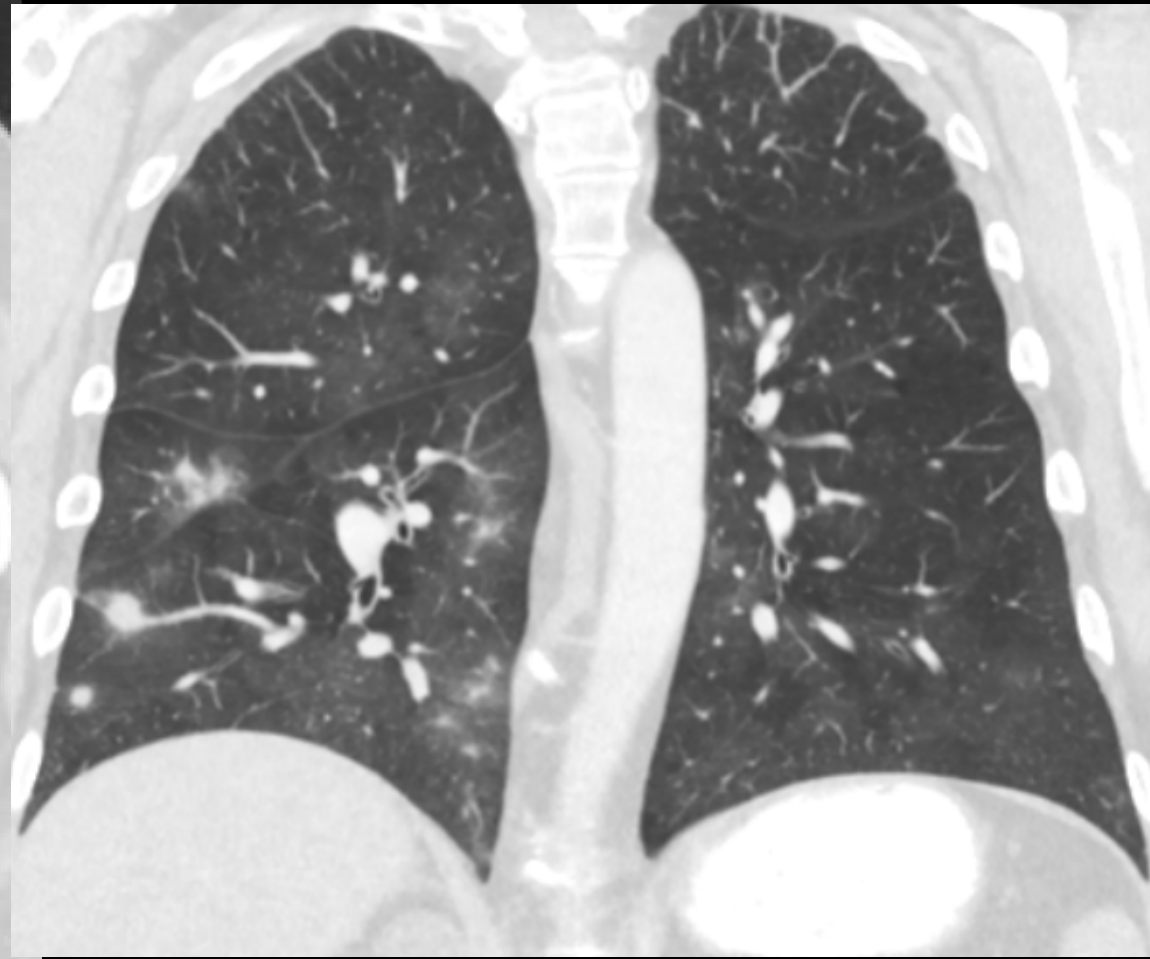
Variant 3: Colorectal cancer. Staging for distant metastases. Initial imaging.*

Procedure	Appropriateness Category	Relative Radiation Level
CT chest with IV contrast and MRI abdomen with IV contrast	Usually Appropriate	☼☼☼
CT chest abdomen pelvis with IV contrast	Usually Appropriate	☼☼☼☼
CT chest with IV contrast and MRI abdomen without IV contrast	May Be Appropriate	☼☼☼
CT chest without IV contrast and MRI abdomen with IV contrast	May Be Appropriate	☼☼☼
CT chest without IV contrast and MRI abdomen without IV contrast	May Be Appropriate	☼☼☼
CT chest abdomen pelvis without IV contrast	May Be Appropriate	☼☼☼☼
FDG-PET/CT skull base to mid-thigh	May Be Appropriate	☼☼☼☼
CT chest without and with IV contrast and MRI abdomen without and with IV contrast	Usually Not Appropriate	☼☼☼
CT chest abdomen pelvis without and with IV contrast	Usually Not Appropriate	☼☼☼☼

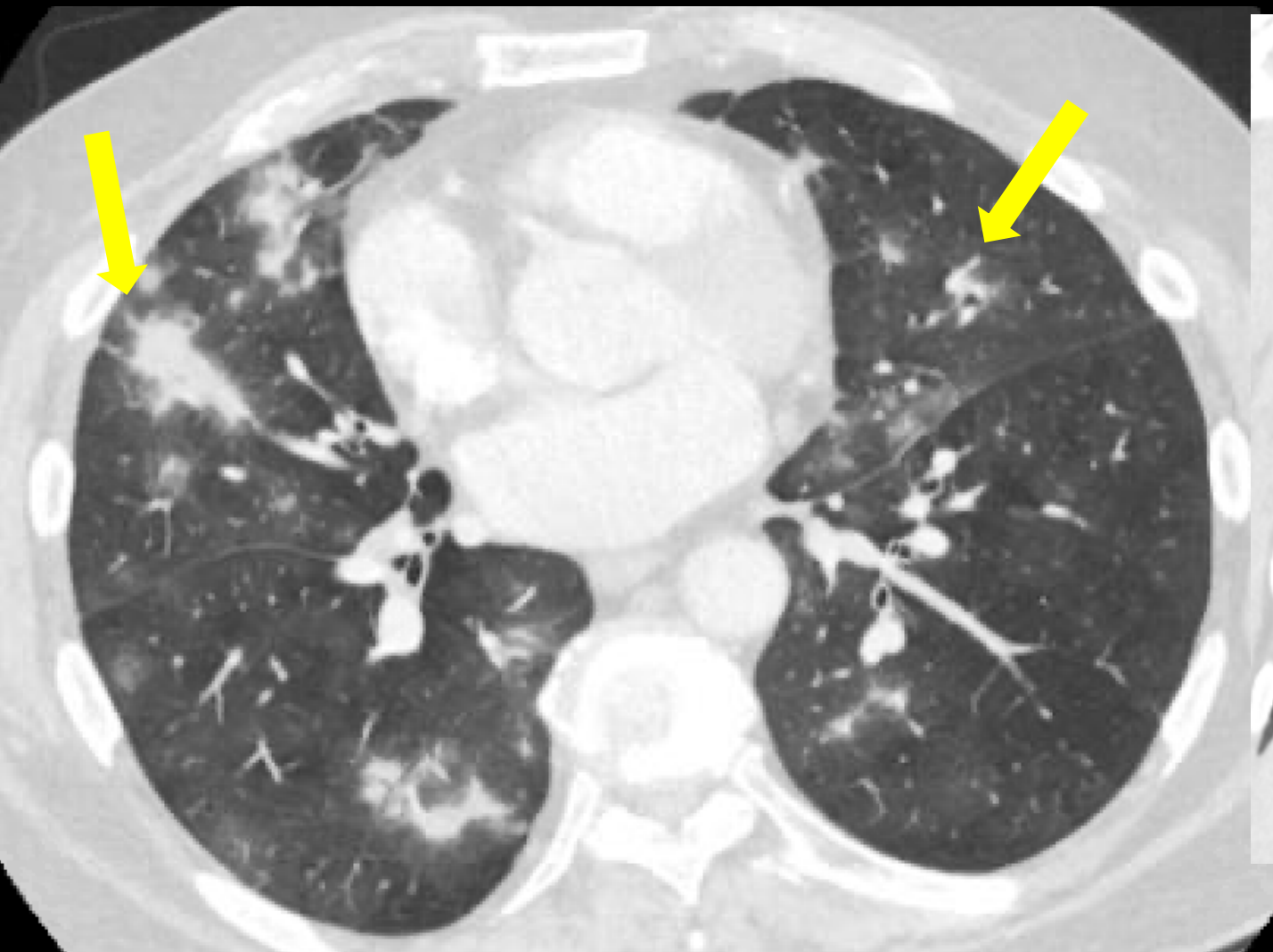
This imaging modality was ordered by the oncologist

*Colorectal cancer criteria was selected as patient's primary melanoma was anorectal. Dedicated ACR guidelines for melanoma staging and follow up currently not available.

Findings (Unlabeled)



Findings (Labeled)



Findings: New nodular consolidation and groundglass bilaterally in the lower lungs.

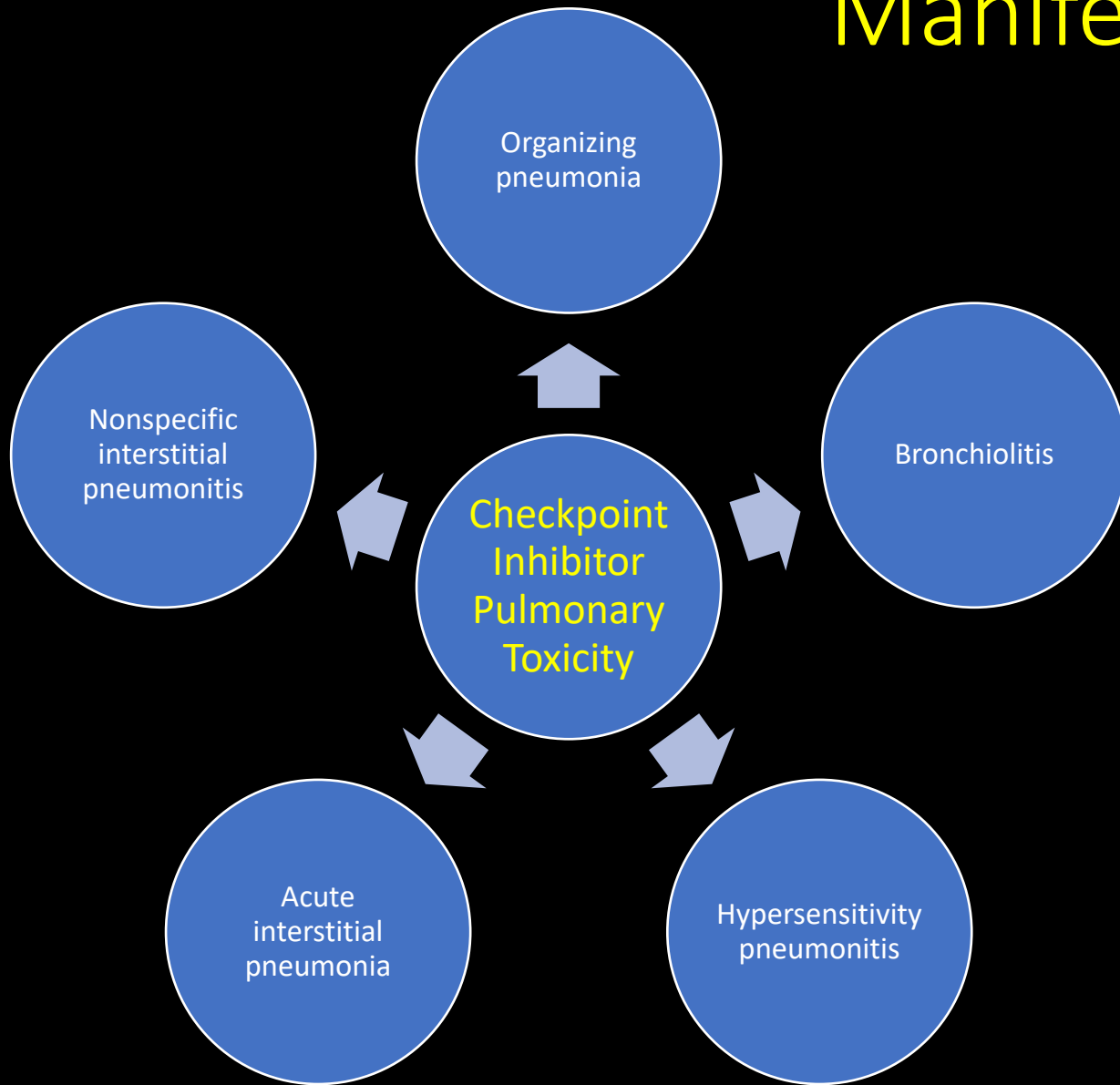
Final Dx:

Drug-induced Pneumonitis (organizing pneumonia pattern)/ Checkpoint Inhibitor Pulmonary Toxicity

Checkpoint Inhibitor Pulmonary Toxicity: Pneumonitis

- **Pathology:** Focal inflammation of the lung parenchyma
- **Symptoms:** New/worsening cough, shortness of breath, chest pain, fever
- **Incidence:** 10% of participants receiving combination checkpoint inhibitor therapy (in this case ipilimumab/nivolumab)
- **Median onset:** 34 weeks (ranges from 1.5 to 127 weeks)
- **Treatment of pneumonitis:** Discontinue medication. Prednisone taper if patient is symptomatic or if >25% of lung parenchymal involvement

Checkpoint Inhibitor Toxicity: Pulmonary Manifestations



Multiple studies have attempted to classify the patterns of lung injury that can occur from checkpoint inhibitors.

Overall, there is a wide variety of radiologic patterns which can be seen. The radiologist can play a role in identification of lung toxicities and should be aware of therapy patients receive in order to suggest this diagnosis.

Case Conclusion

- Checkpoint inhibitors were held. No steroids initiated.
- Follow up chest CTs demonstrated improvement. He subsequently resumed therapy on nivolumab.
- He continues single therapy checkpoint inhibitor without complications and has no findings of thoracic metastatic disease.



Follow up coronal CT images with resolution of opacities after therapy was held.

References:

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