Back Pain with a Vascular Twist

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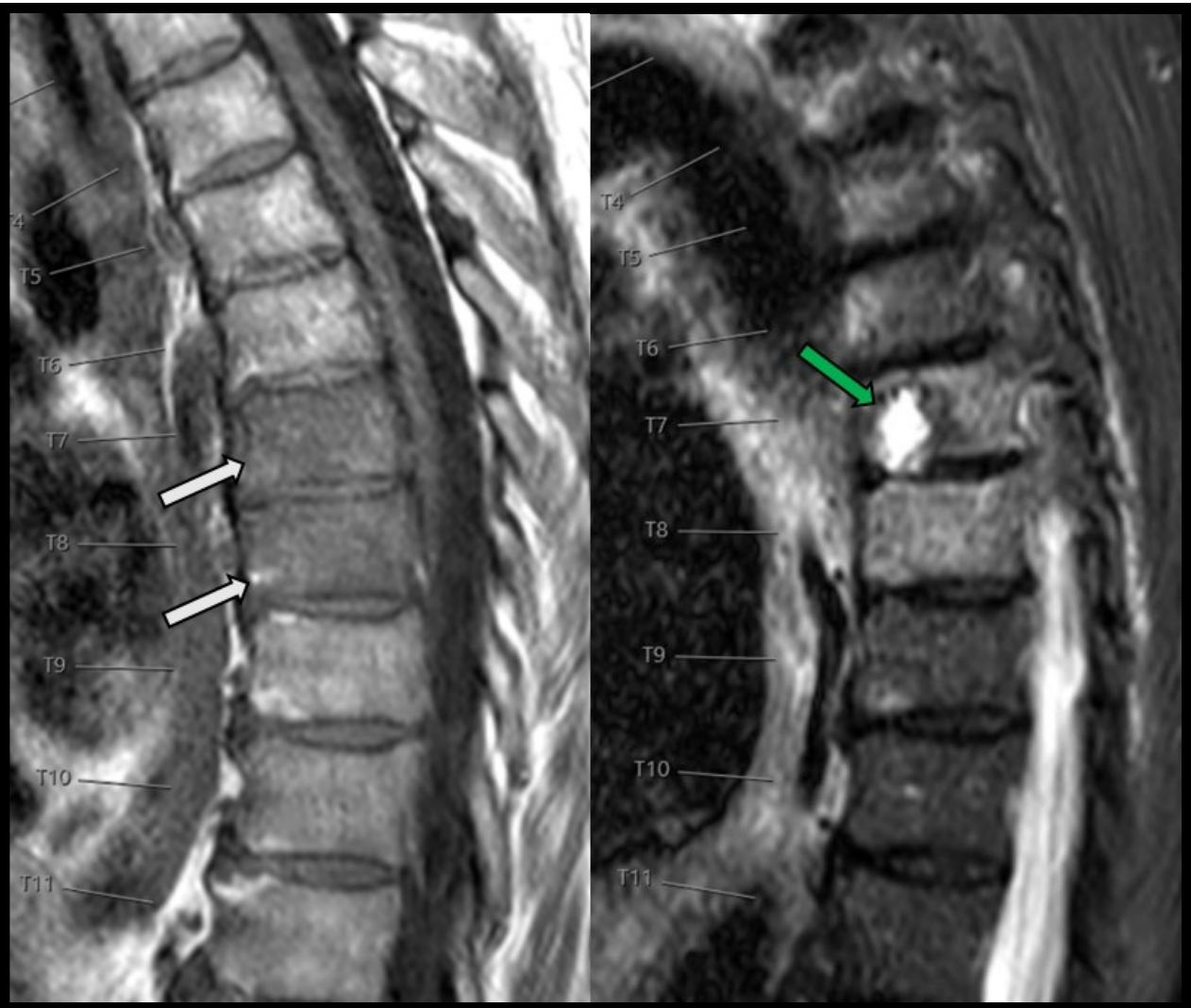
Clinical Presentation

78-year-old woman – 3+ months of worsening upper back pain

- 20-lb unintentional weight loss
- Exertional dyspnea
- No fever, chills, or night sweats

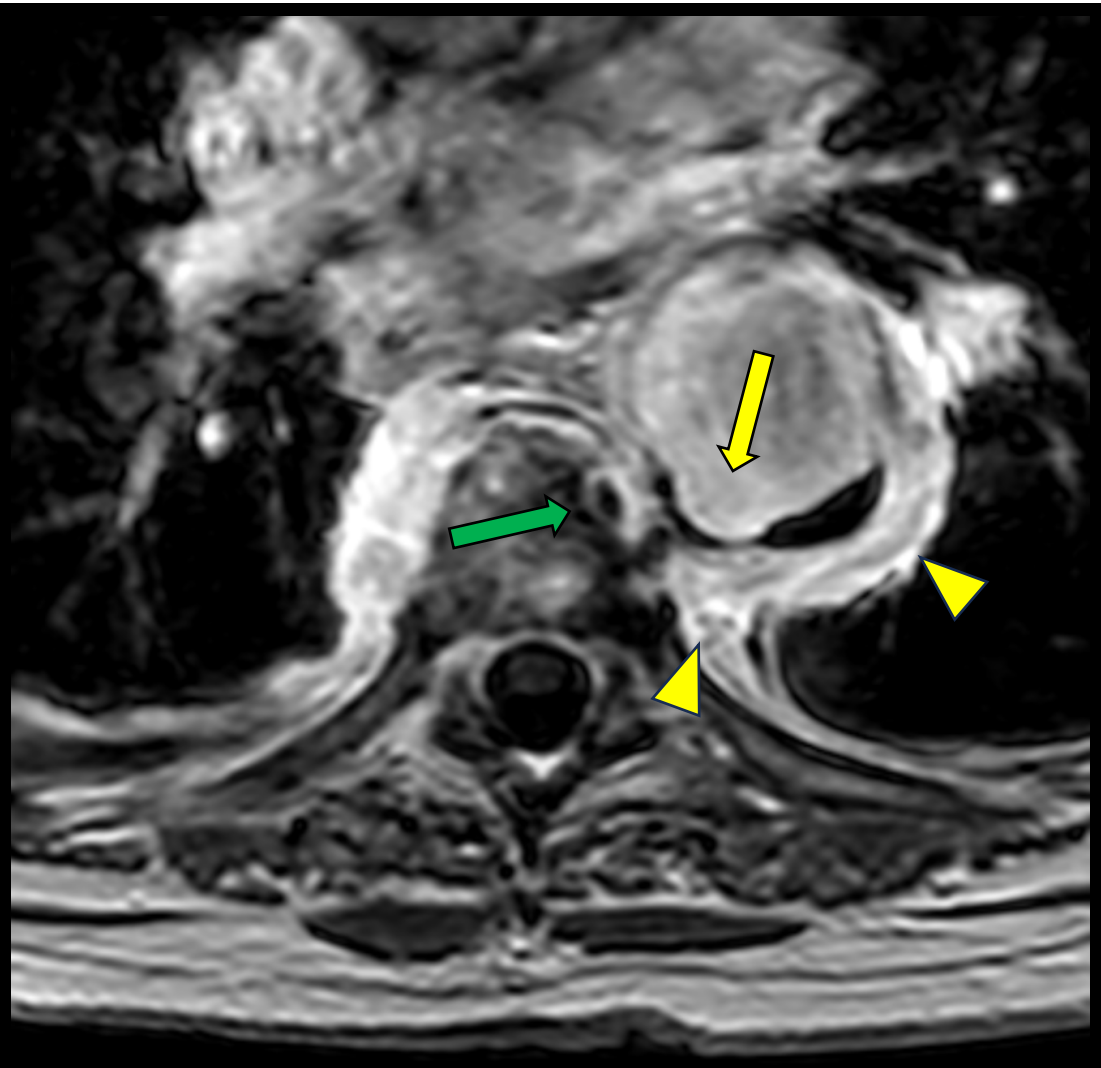
Osteomyelitis: marrow replacing process at T7 and T8 (⇨) with a focal intraosseous collection (➡) consistent with **abscess**.

Vertebral abscess (➡), phlegmon (△) extending to the thoracic aorta to a **focal outpouching** (➡).



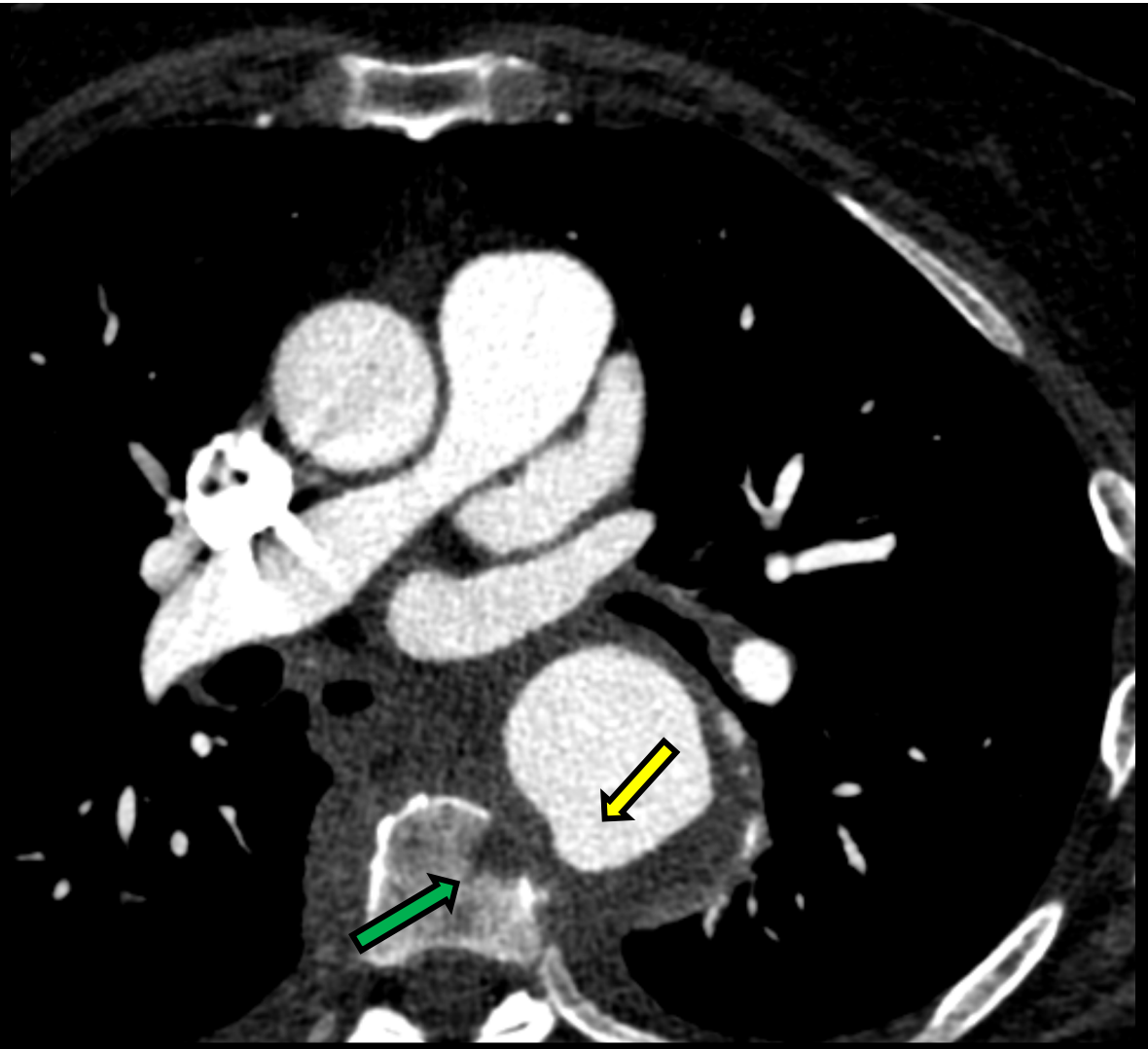
Sagittal MRI T1W

Sagittal MRI STIR



Axial MRI T1W Post-Contrast

Aortic outpouching (⟶) with adjacent aortic wall thickening and inflammatory stranding at the level of vertebral abscess (⟶), suggesting **infectious aneurysm**.



Axial CTA Chest

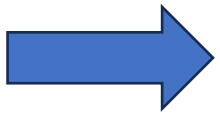
Oblique and 3-D reconstructions demonstrating **extensive thoracic aortitis** with **multifocal infectious aneurysms** (⟹).



Imaging Synthesis

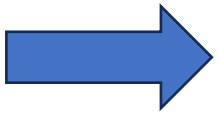
THORACIC SPINE

T7–T8
Osteomyelitis with **relatively preserved disc space**



EXTENSION

Intraosseous abscess
+
Contiguous mediastinal phlegmon



AORTA

Focal outpouchings (**infectious aneurysms**)
+
Extensive aortic wall thickening (**aortitis**)

Multiple **features concerning for atypical or mycobacterial infection**.

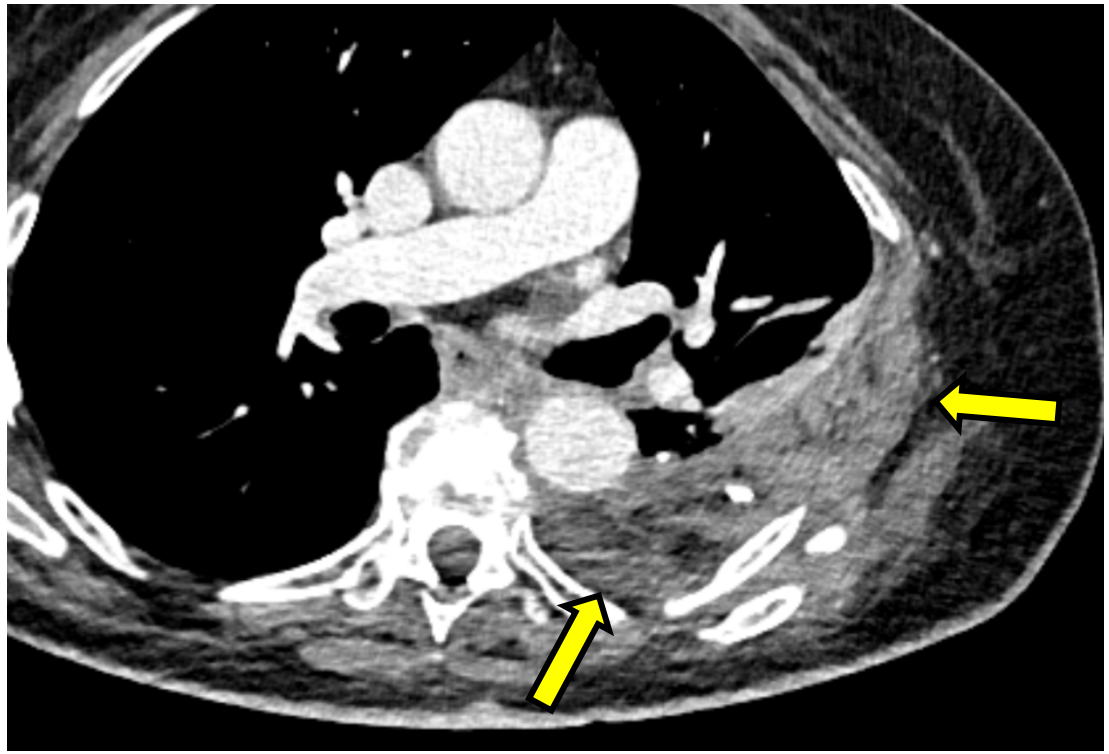
Possible mechanisms for infectious (mycotic) aneurysm [1]:

1. Hematogenous seeding.
2. Contiguous extension from adjacent infection (classic for tuberculosis).

****in patients with **aortic grafts**, more common to get **initial vascular graft infection** which then extends to vertebral body****

Management

- Open thoracic aortic repair, spinal debridement, **latissimus flap** (⟹).
  - **Omental or muscle flaps** are often wrapped around grafts to create a well-vascularized immunocompetent envelope, reducing mortality risk [2].
  - **Don’t mistake a flap for a recurrent abscess!**



- Lumbar drain placed intraoperatively – indicated in high-risk open repairs to reduce risk of spinal cord infarcts (spinal cord perfusion pressure = MAP – intraspinal pressure).
- Intraoperative cultures grew ***Haemophilus influenzae*** — a rare cause for infectious spondylitis in adults.

Outcome

- Several week hospitalization, extended IV antibiotic course.
  - Course complicated by recurrent pleural effusions
- Discharged to a skilled nursing facility.
- Subsequently returned home.

CT and MRI Are Complementary

CT

- Osseous destruction
- Aortic morphology / complications
- Image-guided procedural planning

MRI

- Marrow and Disc abnormalities
- Epidural / Paravertebral extension
- Soft Tissue extent of infection

Use both to define the full extent of spinal and adjacent vascular disease.

Take-Home Points

- *H. influenzae* is a very rare cause of adult vertebral osteomyelitis—**H**ACEK organisms only account for <1% of vertebral osteomyelitis [3].
  - Most common = S. aureus, Streptococcus, E. coli, and Salmonella
- Infection can go both ways! (spine → aorta / aorta → spine)
  - Evaluate the aorta in cases of vertebral OM and recommend CTA with any encroaching paraspinal infection.
  - Evaluate the disc/endplates on any vascular graft infection or aortitis/mycotic aneurysm case.
- Guidelines now prefer "infectious aortitis" over "mycotic aneurysm," since most organisms are nonfungal.
- Don’t mistake an omental or muscle flap for recurrent abscess!

References

1. Wilson WR, Bower TC, Creager MA, et al. Vascular Graft Infections, Mycotic Aneurysms, and Endovascular Infections: A Scientific Statement From the American Heart Association. *Circulation*. 2016;134(20):e412-e460. doi:10.1161/CIR.0000000000000457

2. Shijo T, Matsuda H, Yokawa K, et al. The impact of vascularized tissue flap coverage on aortic graft infection with and without infected graft excision. *Eur J Cardiothorac Surg*. 2021;60(5):1043-1050. doi:10.1093/ejcts/ezab179

3. Matsuo T, Borgonovo F, Lahr BD, et al. Clinical Manifestations, Long-Term Trends, and Risk Factors for Treatment Failure in Native Vertebral Osteomyelitis: A 26-Year Mayo Clinic Experience. *Clin Infect Dis*. 2026;82(6):e1171-e1180. doi:10.1093/cid/ciag048