Thoracic Disc Protrusion Mimicking Cardiac Chest Pain
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Clinical History
A 54 year old female with history of hypertension, hyperlipidemia and family history of coronary artery disease (CAD) presented to the emergency department (ED) with chest pain. Symptoms were intermittent, left anterior chest pain similar to past episodes, more intense around the left shoulder and mid back, radiating to the anterior chest. Her pain was worse when lifting objects or bending forward. A workup approximately 4 years prior was negative, including a normal exercise SPECT exam at 8 minutes, 26 seconds achieving 10 METS. However, symptoms had returned and gradually worsened during the past 2 weeks. On the day of presentation, she awoke with a constant, non-radiating central chest pain, which felt different than her prior chest pains. In the ED, initial electrocardiogram revealed no ischemic changes and initial serum troponin was not elevated. She was referred for a CCTA to exclude significant coronary disease.

Findings
Prospectively ECG-triggered coronary computed tomography angiography (CCTA) demonstrated normal coronary arteries, with no evidence of plaque nor luminal stenosis. Calcium score was 0. Resting left ventricle systolic function was normal. Incidental note was made of a prominent left-sided vertebral osteophytes with a left paracentral fibrous (non-calcified) posterior disc protrusion in the mid thoracic spine (at the T7-T8 level) resulting in effacement of the anterior thecal sac, which could explain the left lower chest pain.

A follow-up elective MRI of the thoracic spine was performed (not shown) confirming the disc protrusion, which deformed the left anterior margin of the thoracic spinal cord with preserved dorsal epidural space, with additional minor central disc bulges at T5-T6 and T6-T7.

Discussion
In this patient, CCTA confirmed normal coronary arteries, thus obviating the need for further cardiac
workup. Incidental findings on cardiac CT images are relatively frequent (with extracoronary finding rates of 5% to 50%), although clinically significant findings requiring follow-up are relatively uncommon, but can include significant diagnoses such as pulmonary embolism, pneumonia, rib fractures, and pneumothorax. However, incidental noncardiac causes of chest pain can be helpful to explain a patient’s symptoms, and in this case CT identified a thoracic disc protrusion. Thoracic discogenic disease is relatively rare as compared to lumbar and cervical disease. A T7-8 disc protrusion can cause cutaneous nerve impingement of the dermatome supplying left anterior chest wall and symptoms can mimic more ominous lesions such as ischemic chest pain or pulmonary embolism.

This patient underwent a course of physical therapy, including a daily stretching and strengthening program and recovered uneventfully.

**Figure 1:** 3D-volume rendered image from the CTA portion of the CCTA exam, which confirmed normal coronary arteries without plaque, stenosis, nor left ventricular wall motion abnormality.

**Figure 2:** Axial CT image at the level of T7-T8, demonstrating a posterior left paracentral disc bulge (yellow arrows).

**Figure 3:** Parsagittal image of the spine at the same level demonstrates loss of disc height at T7-T8, and posterior osteophytes, with a noncalcified posterior disc retropulsion (yellow arrows).

**Figure 4:** Oblique coronal thick multiplanar reconstruction (MPR) reconstruction, demonstrating lateral narrowing of the spinal canal at the T7-T8 level (yellow arrow).

**REFERENCES**

