CT and MR Imaging of Pericardial Diseases

Kristopher W. Cummings, MD

Assistant Professor
Cardiothoracic Imaging
Mallinckrodt Institute of Radiology

Financial Disclosures

• None pertaining to this lecture
• Research Consultant
  – Biomedical Systems
  – Medtronic

*** Gadolinium is an off-label use contrast agent widely used in cardiac imaging.

Learning Objectives

• List three common causes of pericarditis in the US
• Describe two imaging features of malignant pericardial involvement
• Describe protocol modifications/additions that are useful in constrictive pericarditis evaluation

70 year-old man with CAD presents with chest pain and nonspecific EKG changes
Pericarditis

- Viral >> Bacterial or TB in US
- Supportive clinical features
  - EKG changes, positional, viral prodrome
- Myriad of noninfectious etiologies
  - Autoimmune, XRT
- Imaging
  - Typically uniform pericardial enhancement
  - Pericardial and epicardial fat stranding
  - Pericardial effusion

50 year-old man with fatigue and chest pain
Pericardial Masses

- Pericardial cyst most common benign lesion
- Neoplasm more commonly malignant than benign
  - Metastasis, Metastasis, Metastasis
  - Mesothelioma, Sarcoma
- Imaging
  - Nodularity, particularly extending into epicardial fat
  - Often more delayed phase enhancement

70 year-old man with progressive dyspnea on exertion and leg swelling
48 year-old woman with progressive dyspnea and chest pain

Constrictive Pericarditis
- Prior cardiac surgery and XRT in US
- 20% may have normal pericardial thickness
  - Chronic fibrosing form
- Effusive-Constrictive pericarditis
  - Overlapping features of tamponade and constriction
- Imaging
  - Pericardial thickening
  - Septal bounce
  - Inhalational septal flattening
  - Enhancement

MRSA pericarditis now 2 months later