Non-neoplastic Conditions in the Mediastinum

Mi Young Kim, MD, PhD
Hyun Jung Koo, MD
Jae Woo Song, MD, PhD

Department of Radiology and Research Institute of Radiology
Asan Medical Center, University of Ulsan College of Medicine, South Korea
Contents

1. Acute mediastinitis
2. Mesenchymal lesion
3. Vascular lesion
4. LN disease, other than tumor
5. Mediastinal cysts
6. Others

- Perforation or rupture of esophagus
- Descending necrotizing mediastinitis
- Direct extension by adjacent infections
- Fibrosing mediastinitis
- Perforation or rupture of airways
- Post surgical complication-mc
Acute Mediastinitis

68/F
Perforation of esophagus, fish bone (red arrow), UI 24cm

Abscess pocket
Gas bubbles
Esophageal wall thickening
Increased attenuation of mediastinal fat
Acute Mediastinitis

65/M
Iatrogenic rupture of esophagus during S-B tube insertion

Extraluminal gas, pneumomediastinum
Single or multiple mediastinal abscesses with fluid collection
Acute Mediastinitis

39/M
C.C. vomiting  Distal esophageal rupture with acute mediastinitis

Pleural effusion
Pericardial effusion
Pneumomediastinum
Acute Mediastinitis

55/M  Esophageal dissection and perforation

Mucosal flap with submucosal distribution of gas or contrast, the classic **double-barreled appearance**
Occur posterior to the true lumen of the esophagus
Acute Mediastinitis

56/M  C.C. fever  Descending necrotizing mediastinitis and retropharyngeal abscess caused by K. pneumoniae

Multiple retropharyngeal and mediastinal abscesses
Increased soft tissue density and obliteration of normal fat planes, neck and mediastinum
Acute Mediastinitis

56/M  S/P MV repair  Mediastinitis after cardiac surgery, S. aureus on pus culture

Retrosternal complicated fluid collection
Air bubbles
Fistula  Focal osteomyelitis, nonunion of bone
Mediastinitis

20/M  Trauma  Post traumatic bronchial rupture

Pneumomediastinum

Contour deformity of airway or airway narrowing

Atelectasis or aspiration pneumonia
20/M  C.C. dyspnea  Fibrosing mediastinitis

- Diffuse mediastinal soft tissue attenuation
- Hilar or mediastinal mass
- Obstruction or narrowing of a pulmonary artery
- Obstruction or narrowing of SVC
- Tracheobronchial narrowing or irregularities
- Calcification
- Multiple collateral veins
- Enlarged left superior intercostals vein
Mediastinitis

C.C. dyspnea  Fibrosing mediastinitis, companion case

Soft tissue, (mediastinum), biopsy: Sclerosing inflammation

→ Steroid Tx.
1. Acute mediastinitis
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Contents

- Thymolipoma
- Hemangioma
- Lymphangioma
Hemangioma

Occur in the first four decades of life (75 %)
Arise in the anterior mediastinum (68 %).
Smoothly outlined
Contain punctate calcification; phleboliths
Lymphangioma

47/F

Well-circumscribed lesion of low (or water) attenuation molding to the mediastinal contours and enveloping the great vessels

3 types, unilocular (most common), cavernous, and intermediate types
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Dilatation of mediastinal veins, pulmonary artery, and bronchial artery
Vascular injury
Acute aortic disease
Iatrogenic aortic injury

Focal contrast extravasation, active bleeding.
Pericardial effusion
Diffuse high attenuation at mediastinum, hematoma

73/F
Aneurysms of bronchial arteries

Right bronchial artery: Hypertrophic and tortuous appearance.
Left bronchial artery: Hypertrophic, tortuous appearance and aneurysm at the orifice of left bronchial artery. ➔ embolization
Bilateral hilar lymph node enlargement is the most common finding, followed by interstitial lung disease. Sarcoidosis is a multisystem disorder that is characterized by noncaseous epithelioid cell granulomas.
Tuberculous lymphadenopathy

Young adult
Preponderance of involvement of the right paratracheal and subcarinal lymph nodes. Nodes larger than 2 cm in diameter invariably show central areas of relative low density and peripheral rim enhancement after injection of contrast medium.
Nodo-Esophago-bronchial fistula caused by TB lymphadenitis

36/M
A solitary, well-circumscribed mediastinal mass
Strong enhancement
The hyaline-vascular type (90%, unicentric form)
Castleman's disease, Plasma cell type

Disseminated Castleman’s disease manifests with diffuse mediastinal lymphadenopathy
Plasma cell type (10%, multicentric form, systemic)
Mediastinal cysts, Common findings

- Smooth and sharply marginated masses
- Water density (about 50%) or homogeneous soft tissue density on CT
- Do not enhance after IV administration of contrast
- Variable pattern on T1-weighted sequence
- Hyperintense on T2-weighted sequence regardless of the nature of the cyst content

60/F Thymic cyst, ant. mediastinum
39/M Pericardial cyst, Rt cardiophrenic angle

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- Bronchogenic cyst
- Thymic cyst
- Pericardial cyst
- For gut duplication cyst
- Thoracic duct cyst
- Mediastinal pancreatic pseudocyst
Bronchogenic cyst

38/M Mediastinal, paratracheal

57/M Lung

54/F posterior mediastinum

59/M Mediastinal, subcarinal, complicated
Esophageal duplication cyst

Esophageal cyst: intramural or adjacent to the wall of esophagus
Thoracic duct cyst

Weakness in the wall allows formation of a cyst.

Chyle in the fluid of the cyst

Symptomless or compression of surrounding structures
Mediastinal extension of pseudocyst can occur through anatomical openings of diaphragm. The posterior mediastinum is the most common location of the mediastinal pseudocysts through esophageal and aortic hiatus.
Intrathoracic goiter
Continuity with the cervical gland
Focal calcification
Arise in the posterolateral portion of the thyroid gland and descend inferiorly to the posterior mediastinum

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Intrathoracic goiter
Diverticulum
Mediastinal lipomatosis
Extramedullary hematopoiesis
Intrathoracic goiter

45/F

Pre enhanced Post enhanced

Sharp borders (>90%)
High attenuation on unenhanced CT (>100 HU)
After IV contrast administration, thyroid tissue exhibits early and prolonged enhancement
Continuity with the cervical gland
Protrusion of esophageal mucosa through the posterior muscle layers of the pharynx through a defect in the hypopharyngeal wall. Found on the posterior wall of the hypopharynx. Fluid-filled, characteristic.

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Esophageal diverticulum

68/M, UI 30cm
middle esophageal diverticulum

72/M, UI 37cm
distal esophageal diverticulum
Thymic lymphoid hyperplasia

Increased number of lymphoid follicles, seen in immune disorders including systemic lupus erythematosus, rheumatoid arthritis, scleroderma, thyrotoxicosis, and Grave’s disease
Commonly associated with myasthenia gravis
60/M S/P left nephrectomy d/t RCC

Soft tissue, (mediastinum), excision

: Low grade lipogenic tumor, favor lipoma
Extramedullary hematopoiesis

Well-circumscribed, smooth, soft tissue attenuation masses, usually at multiple levels in a paraspinal location without erosion or pressure changes on the adjacent ribs or vertebral bodies.

Hypertrophy of the medullary cavity of the ribs
Rare cause of posterior mediastinal masses and is usually seen in patients with severe, long-standing anemia.
Summary

• CT is most often used in the assessment of mediastinal non-neoplastic diseases, with MR imaging usually being used as an adjunct to CT
• An awareness of the CT findings associated with the spectrum of mediastinal non-neoplastic diseases facilitates the accurate and prompt diagnosis
• The compartments of the mediastinum may help narrow the differential diagnosis.

Thank you for your attention.