Mr. M: A Case Study of Pulmonary Pathology

Payal Kohli, Harvard Medical School Year III
Gillian Lieberman, MD
Mr. M: 33 yo Kenyan M with cough and SOB
Mediastinal Lymph nodes

Patient 2: Lymphadenopathy

http://www.bartleby.com/107/illus621.html

http://rad.usuhs.mil/medpix/medpix.html?mode=tsearch2#top
Differential Diagnosis for “Hilar Lymphadenopathy”

Mr. M: Chest CT with contrast

- Lymphadenitis, infectious
- Lymphoma, lymphosarcoma
- Mets (esp. undifferentiated or small cell ca of lung)
- Sarcoidosis

Sub-carinal nodes
Pre-carinal
Para-bronchial nodes

http://rad.usuhs.mil/medpix/medpix.html?mode=default
Sarcoidosis

- Multi-system granulomatous disease
- Unknown etiology
- Peaks in third decade; F>M
- Can also get pleural effusions, cor pulmonale, mycetoma, infection and pneumothorax
- Clinical, pathological and radiological diagnosis

Stage I:
Lymphadenopathy

Stage II:
Lymphadenopathy + parenchymal opacity

Stage III:
Parenchymal opacity alone

Stage IV:
Pulmonary fibrosis

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Menu of tests for imaging lung in Sarcoidosis

• Plain Film and CT: Staging
  – hilar lymphadenopathy
  – parenchymal opacities/fibrotic changes

• MR: mediastinal fat and nodes

• Gallium-67 scanning
  – direct relationship between number of macrophages in lung during alveolitis and uptake of Gallium-67
  – Non-specific, low neg. predictive value, difficult to interpret
Mr. M’s chest CTs with lung windows

3 months after steroid Rx:
(Stage II Sarcoid)
traction bronchiectasis, ground glass lungs, consolidation with bubbly cystic change

6 months later with hemoptysis:
Thick-walled cavitary lesion in LUL, internal dependent debris, adjacent pleural thickening
DDX of cavitary lung lesion

- Infection or abscess (bacteria, mycobacteria, fungi, parasites)
- Neoplasms (bronchogenic cancer, lymphoma, mets)
- Pulmonary infarct
- Septic embolism
- Vasculitidies (Wegener’s granulomatosis)

Mr. M’s diagnosis: Aspergilloma

- Dependent conglomeration of intertwined fungal hyphae admixed with mucus and cellular debris within a cavity or ectatic bronchus
- Air crescent sign aka Monod’s sign
- Pleural thickening

Saprophytic Aspergillosis

Patient 3: Plain Film

Patient 4: Linear Tomogram

Surgical Specimen

Dependent debris

Other types of Aspergilloses

Allergic bronchopulmonary (Asthmatics)

Semi-invasive/ Chronic necrotizing (Diabetics, Alcoholics, COPD)

Airway invasive (Immunocompromised/AIDS)

Angioinvasive (Neutropenic)

Treatment of Aspergilloma

• Primary: Surgical intervention
• Secondary:
  – anti-fungal therapy
    • Systemic Itraconazole
    • Topical Amphoterecin B (CT-guided)
    • Limited efficacy
  – Bronchial artery embolization for hemoptysis

Back to Mr. M…

- Presented with cough, SOB $\rightarrow$ sarcoidosis
- Developed left upper lobe aspergilloma $\rightarrow$ left upper lobectomy
- Developed right upper lobe aspergilloma $\rightarrow$ right main bronchial artery embolization
- Right upper lobectomy
Mr. M: Another complication...

Pneumothorax with pleural effusion
Mr. M: other complications…

CT-guided decompression of pneumothorax

Air embolism to right posterotemporal lobe

Signal abnormalities in temporo-occipital region due to stroke

All images: PACS, BIDMC
Radiological care of Mr. M, a patient with sarcoidosis

Screened and followed with …

– Doppler U/S of carotids and femorals to detect for thrombus formation
– MRA of Circle of Willis to detect embolic events
– CT of maxillofacial sinuses to evaluate for infection
– Routine (monthly) chest CTs and plain films for staging of sarcoidosis and screening for infections
References


- [http://www.bartleby.com/107/illus621.html](http://www.bartleby.com/107/illus621.html)


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