GREAT CASES

Clinical, Radiologic & Pathologic Correlations
by Master Physicians
Great Cases:
Clinical, Radiologic & Pathologic Correlations
by Master Physicians

Organized by the Council of Chapter Representatives

Sunday, May 19, 2019
2:15 p.m. – 4:15 p.m.
KBHCCD
BALLROOM C THREE-FOUR (LEVEL 2)

Chairing: Jag Sunderram, MD, ATS, New Brunswick, NJ
Angela C. Wang, MD, La Jolla, CA

Master Clinicians:
Sharon I. Rounds, MD, Providence, RI
Marvin I. Schwarz, MD, Aurora, CO
Paul C. Stillwell, MD, Aurora, CO

Master Radiologist: Alison G. Wilcox, MD, Los Angeles, CA

Master Pathologist: Jeffrey L. Myers, MD, Ann Arbor, MI

Contents

Case 1  Of Scars and Mysteries
Presented by Ria Edwina. M. Gripaldo, MD
Rochester, MN

Case 2  This Shall Not Pass
Presented by David Villafuerte, MD
San Antonio, TX

Case 3  This Zebra Has Spots
Presented by John Huston, MD
New Haven, CT

Case 4  When Hoof Beats Means Unicorns
Presented by Claire Shappell, MD
Boston, MA

Case 5  Beauty and the Beast
Presented by Pi Chun Cheng, MD, MS
Philadelphia, PA

Case 6  The Imitation Game
Presented by Waasil Kareem, MD
Los Angeles, CA

Case 7  When Calcifications Belie Trouble
Presented by Tabitha Ku, MD
Kansas City, KS
Case 1

Of Scars and Mysteries

Presented by Ria Edwina M. Gripaldo

A 67-year-old woman presented with a chronic non-productive cough of one year's duration that had been preceded by a flu-like syndrome. She was a former smoker, but otherwise without prior history of lung disease.

Although her systemic symptoms resolved, her cough persisted. Initial chest radiographs and CT chest revealed right upper lobe and right lower lobe opacities that over the next 16 months, evolved into fibrotic and cystic areas of lung (Figures A and B). An infectious work up, including a bronchoscopy with bronchoalveolar lavage, was unrevealing. Transbronchial biopsies revealed fragments of benign bronchiolar tissue and respiratory epithelium. A PET-CT demonstrated mild FDG avidity with a maximum SUV of 4.7 in the consolidative and fibrotic areas (Figure C). She had a three-month trial of steroid therapy without significant improvement.

Questions:

What is your diagnosis?

1. Cryptogenic organizing pneumonia
2. IgG 4 disease
3. Recurrent aspiration pneumonia
4. Cystic bronchiectasis
5. Primary pulmonary malignancy

What is the next step in management?

1. Steroid therapy for at least 6 months
2. Rituximab
3. Broad spectrum antibiotic therapy
4. Sweat chloride test
5. Surgical lung biopsy
Case 2

This Shall Not Pass

Presented by David Villafuerte, MD

A 23-year-old man presented with a 2-year history of progressive dyspnea on exertion significantly limiting his daily activities to the extent that he withdrew from college. He is a life-long non-smoker and denied any occupational or environmental exposures. Additionally, he denied any family history of lung disease. His exam was remarkable for hypoxemia requiring 6 liters of supplemental oxygen to maintain a resting oxygen saturation of 94%. Physical exam revealed diminished lung sounds bilaterally with diffuse faint crackles and grade 2 clubbing of his fingers.

Computed tomography of the chest is shown (figure 1-3). He underwent right heart catheterization which revealed a mean pulmonary artery pressure of 43 mmHg, a pulmonary artery occlusion of 12 mmHg and a pulmonary vascular resistance of 6.0 woods units.

Questions:

1) What is your diagnosis?
   1. Pulmonary hemosiderosis
   2. Metastatic pulmonary calcification
   3. Idiopathic “crack” lung
   4. Pulmonary alveolar microlithiasis

2) How would you manage this patient?
   1. Bronchoscopy with bronchoalveolar lavage
   2. Bone scintigraphy with 99mTc-MDP radiotracer
   3. Extracorporeal membrane oxygenation
   4. Lung transplantation

Figure 1  Figure 2  Figure 3
Case 3

This Zebra Has Spots

Presented by John Huston, MD

A 25-year-old man with a history of orthotopic liver transplant at age seventeen for biliary atresia, recurrent chronic abdominal pain, and opiate addiction on methadone maintenance therapy was admitted to the liver service for abdominal pain, intractable nausea, and vomiting. Because of the concern for opioid-induced gastroparesis, his pain was initially managed with tramadol and acetaminophen.

He subsequently developed intermittent and recurrent high grade fevers associated with hypoxemic respiratory failure, ARDS, and septic shock from Streptococcus mitis and Streptococcus oralis bacteremia. Despite treatment with appropriate intravenous antibiotics through a peripherally inserted central catheter, he continued to have evanescent fevers and migratory lung infiltrates resulting in multiple transfers in and out of the intensive care unit.

Laboratory data showed a labile white blood cell count as high as 46.8 x 1000/uL during these episodes of hypoxemia. Chemistries and renal function were within normal limits. His liver function tests showed baseline mild elevations in his AST, ALT and alkaline phosphatase. A transthoracic echo revealed a normal left ventricle and ejection fraction, a moderately dilated right ventricle with an RVSP of 60 mmHg. A chest CT scan demonstrated diffuse scattered centrilobular nodules with mild interlobular septal thickening (Figure A & B).

Bronchoscopy with bronchoalveolar lavage was non-diagnostic. Video-assisted thoracoscopic surgery was performed with lung biopsy.

Questions:

What is your diagnosis?
1. Lymphangitic carcinomatosis
2. Pulmonary histoplasmosis
3. Pulmonary sarcoidosis
4. Foreign body granulomatosis
5. Milliary tuberculosis

What is this patient at risk for developing?
1. CNS metastases
2. Nephrotoxicity from anti-fungal treatment
3. Uveitis and retinal vasculitis
4. Panlobular emphysema
5. Disseminated mycobacterial infection
A 56-year-old woman presented to urgent care with pleuritic chest pain. She has a remote history of rheumatic heart disease requiring mechanical mitral- and aortic-valve replacements and has previously been treated for breast cancer with lumpectomy, radiation, and adjuvant chemotherapy. A chest X-ray demonstrated multiple pulmonary nodules and a subsequent chest CT scan revealed many nodular ground glass opacities throughout both lungs with intra-nodular cystic changes and cavitation (Figure 1).

CRP and ESR were elevated at 72 mg/L and 58 mm/hr. Anti-nuclear antibody and anti-CCP IgG were weakly positive at 1:40 with diffuse pattern and 8.3 EIA U/mL. Work up was otherwise unremarkable, including the following tests that were either negative or within normal limits: CBC and differential; blood cultures; T-spot; HIV; fungal serologies; rheumatoid factor, SS-A, SS-B, and ANCA; SPEP and IgG subtypes.

Video-assisted thoracoscopy with biopsy of two nodules in the left lower lobe was performed. Pathology demonstrated peribronchiolar reactive lymphoid hyperplasia with germinal center formation and atypical lambda-predominant plasma cell infiltrate.

**Questions:**

What is your diagnosis?

1. Lymphoid interstitial pneumonia
2. Pulmonary Langerhans cell histiocytosis
3. IgG4-related disease
4. Multiple Myeloma
5. Lymphangioleiomyomatosis

Repeat CT scan 4 months later demonstrated mild increase in size of many nodules. What is the next step in management?

1. Observation, repeat CT in 4 months
2. Repeat video-assisted thoracoscopic biopsy
3. Rituximab
4. Bortezomib-containing chemotherapy followed by stem cell transplant
5. Sirolimus
Case 5

Beauty and the Beast

Presented by Pi Chun Cheng, MD, MS

A 13-year-old previously healthy female with history of mild asthma presented to an outside institution with several months of dry cough and dyspnea. Her chest CT showed nodular ground glass opacities predominantly in the left lower lobe (Figure 1). An open lung biopsy of the left lower lobe revealed nonspecific interstitial pneumonia (NSIP). She was treated with two courses of steroids and azathioprine with resolution of opacities. She was referred to our center due to recurrence of lung disease after each therapy cessation.

Review of system was negative for fever, joint pain, rash, or weight loss. Her symptoms were not relieved by albuterol. Her vitals and physical exam were normal. Her oxyhemoglobin saturation was 100% on room air. Her spirometry and plethysmography were normal; however, diffusing capacity was mildly decreased. A follow up chest CT revealed progression of nodular ground glass opacities in the right lower lobe with complete resolution of opacities in the left lower lobe (Figure 2).

She denied history of smoking, chemical ingestion, recent travel, reflux, or aspiration. Like many of her peers, she enjoys using cosmetic products.

Questions:

What is your diagnosis?

1. Community acquired pneumonia
2. Bronchiolitis obliterans
3. Pulmonary lymphoma
4. Exogenous lipid pneumonia
5. Hypersensitivity pneumonitis

What is the most appropriate treatment for this diagnosis?

1. Antibiotics
2. Whole lung lavage
3. Removal of the offending agent
4. Bronchodilator
5. Lung lobectomy
Case 6

The Imitation Game

Presented by Waasil Kareem, MD

A 55-year-old Filipino female with a history of COPD and hypertension presented to the hospital with 1 week of progressive dyspnea associated with productive cough and night sweats. Upon presentation the patient was in mild distress with tachycardia and tachypnea. Physical exam was notable for decreased breath sounds in the right lung with rhonchi in the right lung base. Her labs revealed a normal white blood cell count. The patient continued to have progressive symptoms and was intubated. A chest x-ray was performed (Figure 1).

Of note, the patient moved to the greater Los Angeles area over 30 years ago. She is a former smoker with a 25-pack year smoking history and quit 5 years ago. The patient works as an office clerk and has never had occupational exposures. The patient has also not travelled outside of California in the past 10 years.

Questions:

What is your diagnosis?

1. Bronchogenic carcinoma
2. Non-tuberculosis mycobacterium
3. Mycobacterium tuberculosis
4. Nocardia

What is the next best step in your management?

1. Obtain Tracheal aspirate specimens
2. Open Lung biopsy
3. Fiberoptic Bronchoscopy
4. Begin broad spectrum antibiotics
5. Begin 4 drug anti-TB regimen

Figure 1
Case 7

When Calcifications Belie Trouble

Presented by Tabitha Ku, MD

A 75-year-old male presented with shortness of breath and productive cough of five months duration. His past medical history included hypertension, large hiatal hernia, gastroesophageal reflux disease, and remote tobacco use. His family history was remarkable for leukemia in his father. Review of systems was unremarkable for occupational or environmental exposures. Physical examination was remarkable for poor dentition, rales in the right middle and lower lung fields, and egophony as well as dullness to percussion at the left lung base.

Chest X-ray (figure 1) and CT chest (figure 2) are shown below.

His symptoms persisted despite multiple courses of antibiotics. Negative diagnostic studies included an autoimmune panel, blood and sputum cultures, fungal serologies, and cultures and cytology from thoracentesis and bronchoscopy.

Questions:

What is your diagnosis?

1. Adenocarcinoma
2. Chronic aspiration
3. Indolent atypical infection
4. Organizing pneumonia
5. Pulmonary alveolar microlithiasis

At this point, which of the following diagnostic procedures would you perform next?

1. Bronchoscopy with cryobiopsy
2. Esophageal manometry with pH probe
3. Repeat bronchoscopy with lavage and transbronchial biopsy
4. Video assisted thoracoscopy

Figure 1

Figure 2
Let’s discover together.

Discover at the ATS Center