Case Presentation

- 28 year old male transferred from an outside hospital with worsening hypoxemia and dyspnea
Case Presentation

- 6 month history of progressive dyspnea and coughing that subacutely worsened over the two weeks prior to his admission
- Worsening productive cough with thin milky/green colored sputum
- He has been treated as an outpatient with at least 3 courses of antibiotics for “bronchitis” (amoxicillin, azithromycin, augmentin)
Case Presentation

• He feels most comfortable in the sitting position, and recently feels more short of breath when lying down

• He reports feeling “out of it” for the last few weeks, “spacy”, but not lightheaded or dizzy
Case Presentation

- Denies fevers, chills, chest pain, weight changes, nausea, vomiting, bowel changes, rashes, joint pains, headaches, numbness, weakness, tingling, swelling, difficulty swallowing, choking, reflux

- Denies any exposures to birds, silica, asbestos, mining, chemicals or TB
Case Presentation

- Past Medical History
  - Morbid Obesity (BMI=52)
  - Bipolar disorder
  - Motor vehicle accident several years ago resulting in chronic back pain
  - Asthma (no documented PFTs)
  - Hypertension
  - Type II DM
Case Presentation

- Allergic to penicillin - Rash
- Home Medications
  - Lamictal
Case Presentation

- Social history
  - Smokes 1/2 pack per day for 10 years
  - No EtOH
  - Occasional marijuana use (few times a month)
  - No IV drugs
  - Former methamphetamine user (clean for 6 years)
  - Unemployed, lives with girlfriend
  - No history of STDs
Case Presentation

• Family history
  • Mother has COPD on home oxygen
  • Diabetes, hypertension, coronary artery disease run in the family
Case Presentation

• Outside Hospital in Idaho
  - Oxygen saturation 74% on RA started on CPAP 10 100% FIO2
  - Work up included labs, CXR, Chest CT and BAL
  - “The PAS on the BAL was positive, so we’re transferring him to get a lung lavage for pulmonary alveolar proteinosis”

Transfering Physician
Case Presentation

- Vs-T-36.3, BP-155/87, P-85, RR-25, Sat-96% on CPAP 10 100% FIO2, Wt-170kg
- Gen-A&O x 3, mild resp distress, pleasant, resting comfortably in bed
- HEEN- ATNC, EOMI, PERRL, MMM, Mallampati III
- Neck-Large circumference, supple, Trachea midline, no LAD
- CV-Distant, RRR, no M/R/G
- Resp-Diffuse rhonchi in all lung fields, Decreased tactile fremitus in the RUL, normal diaphragmatic excursion by percussion
- Abd-hypoactive BS, otherwise normal
- Extremities-No c/c/e, normal joints, no rashes
- Neuro-CN II-XII intact, no neurologic deficits noted, strength and sensation intact, normal reflexes
Case Presentation

- WBC-20.1 (N-89%)
- H&H-16/47
- Plt-294
- ABG-7.38/41/55
- Na-141
- K-4.4
- Cl-107
- CO2-23
- BUN-15
- Creatinine-1
- Gluc-199
- Ca-8.4
- Total protein-5.9
- Alb-2.6
- AST-27
- ALT-35
- Alk Phos-52
- Total Bili-0.8
- CPK-66, MB-3
- CRP-<1
- procalcitonin<.05
- BAL-PAS+
- Lactate-0.7
Case Presentation

- Echo- LVEF- 66%, mild LVH and hyperdynamic mobility, normal PA pressures
Case Presentation

• On hospital day 2, the patient was intubated for hypoxic respiratory failure
Thoughts?

- Missing information?
- Additional Tests?
- Differential Diagnosis?
Thoughts?

- Missing information?
- Additional Tests?
- Differential Diagnosis?
# Fluid Analysis

<table>
<thead>
<tr>
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<th>Bronchoscopy Culture</th>
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<tbody>
<tr>
<td>Cholesterol, Fluid</td>
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<tr>
<td>Chylomicron Screen, Body Fluid</td>
<td>Present * A</td>
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<tr>
<td>Triglyceride, Fluid</td>
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</table>

<table>
<thead>
<tr>
<th>Bronchoscopy Culture</th>
<th>Bronchoscopy Culture *</th>
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<tbody>
<tr>
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<td>Fungal Culture C</td>
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<tr>
<td>Legionella Culture</td>
<td>Legionella Culture</td>
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<tr>
<td>Aspergillus Fumigatus Abs, IgG by ELISA</td>
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<tr>
<td>Bronchoscopy Culture</td>
<td>Bronchoscopy Culture *</td>
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<tr>
<td>Fungal Culture</td>
<td>Fungal Culture * C</td>
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<tr>
<td>Adenovirus</td>
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<tr>
<td>Human Metapneumovirus</td>
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<tr>
<td>Influenza A</td>
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<tr>
<td>Influenza B</td>
<td>Negative *</td>
</tr>
<tr>
<td>Parainfluenza, Type 1</td>
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<tr>
<td>Parainfluenza, Type 2</td>
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<td>Parainfluenza, Type 3</td>
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<tr>
<td>Respiratory Syncytial Virus</td>
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<tr>
<td>HIV-1 and HIV-2 Antibodies</td>
<td>Negative *</td>
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Radionuclide Lymphangiogram
Chyloptysis

• Bronchial casts first described by Galen “venae arteriosae expektoratii”

• Chyloptysis coined by Kinmouth in 1982
  • Expectoration of chyle in sputum
Lymphatic Ducts

Right Lymphatic Duct empties at junction of right internal jugular and right subclavian veins

Thoracic Duct - empties into junction of left internal jugular and left subclavian veins

Cisterna Chyli – most inferior part of thoracic duct
Proposed Mechanism

- Servelle and Nogues, 1981
- Retrograde flow of the thoracic duct chyle via the bronchopulmonary lymphatics into the bronchial tree
- Bronchopleural fistula in the presence of a chylous effusion
Proposed Mechanism

- Retrograde flow
- Obstruction of the thoracic duct above the midmediastinal level
- Dysplastic lymphatics or incompetent valves
  - lymphangiectasis (abnormal dilatation)
  - lymphangiomatosus (abnormal proliferation)
Review of Literature

- Chyloptysis with Chylothorax
  - Maier 1968, described 6 cases
  - Servelle et al 1981, described 3 cases
  - Kinmouth 1982, described one case
  - Illamperuma 2009, described one case (RML)
Review of Literature

• Chyloptysis with bronchial casts
  • Wiggins 1989, described one case
    • RML resection, dilated lymphatics found in the hilum
  • Wetherill 1990, described one case
    • Sputum confirmed to be chylous by triglyceride analysis.
  • Nair 1996, described one case
  • Orliquat 2002, described one case
Bronchial Casts

Fig 1  One of the bronchial casts.

Wiggins et al, Thorax 1989
Review of Literature

• Chyloptysis without chylothorax

• Sanders et al describes one case in 1988

• Thought to be due to congenital lymphangectasis of the mediastinal lymphatics

• Cured after surgical resection

• Lim et al 2004, described 3 cases, including one due to yellow nail syndrome, the other two involved the RML
Differential of Isolated Chyloptysis

- Lymphangiomatosis
- Behcet’s Disease
- Thoracic lymphangioma
- Primary or congenital pulmonary lymphangiectasis
- Lymphatic dysplasia syndrome
  - Yellow nail syndrome
  - Primary chylothorax
Differential of Isolated Chyloptysis

- Secondary pulmonary lymphangiectasis
- Idiopathic
- Venous obstruction
- After cardiac surgery (Fontan operation)
- Radiation
- Trauma
Diagnosis

- Evaluation of sputum for cholesterol, chylomicrons, and triglycerides
- Radionuclide Lymphangiogram
Treatment

- Low fat diet with MCT supplementation
- Octreotide
- Surgical correction (supradiaphragmatic thoracic duct ligation)
- Pleuroperitoneal shunt
- Pleurodesis
Citations


