Suppurative pulmonary And Pleural Disease

Eoin O’ Sullivan
Guidelines for the Investigation of Unilateral Pleural Effusions

British Thoracic Society
Thorax May 2003
• Very Common
  • LVF
  • Cirrhosis
  • Hypoalbuminaemia
  • Peritoneal dialysis

• Less Common

🌟 Rare
  • Constrictive Pericarditis
  • SVC Obstruction
  • Meig’s Syndrome
  • Urinothorax
• Common
  • Malignancy
  • Parapneumonic

• Rare
  • Drugs

🌟 Less Common
  • Pulmonary Infarction
  • RA
  • Autoimmune Disease
  • Pancreatitis
  • Benign Asbestos Effusion
  • Post MI
• >100 cases reported globally
  • Amiodarone
  • Nitrofurantoin
  • Phenytoin
  • Methotrexate
• Microbiology
  • Blood Culture Bottles
  • Sterile Tubes
    • Gram Stain
    • AFB Stain

• Biochemistry
  • Protein, LDH, pH, +/-glucose, +/-amylase
- Transudate  < 25g/l
- Exudate  > 35g/l

Light’s criteria: A fluid is an exudate if one or more of the following criteria are met:
- Pleural fluid protein/serum protein < 0.5
- Pleural fluid LDH/serum LDH > 0.6
- Pleural fluid LDH > 2/3 upr limit N serum LDH
- PMN: Parapneumonic, PE, TB, asbestosis
- Lymphocytosis: TB, Malignancy
- Eosinophilic: Equivocal
• pH <7.2 infected effusion requires tube drainage

• pH <7.2 malignant effusion assoc. w/ poor px.

• Ddx of pH < 7.2 is same as that as pleural glucose <3.3:
  • Empyema
  • RA
  • SLE
• Request if acute pancreatitis or oesophageal rupture suspected

• Up in approx. 10% of malignant effusions
- PA CXR abnormal in presence of 200ml pleural fluid
- Only 50ml can blunt costophrenic angle
- U/S guided aspiration yields fluid in 97% of cases
- CT useful if loculated and to differentiate between benign and malignant pleural thickening
• Consider if
  • Haemoptysis
  • Clinical features suggestive of bronchial obstruction
  • Radiology suggests a mass
• Consider PE and TB

• May turn out to be pleural malignancy – consider thoracoscopy
Guidelines For Management of Community Acquired

British Thoracic Society
Thorax Dec 2001
• Incidence of CAP is 5-11/1000/yr.

• Incidence of CAP requiring hospital admission is 1-4/1000/yr.

• Mortality of those admitted with CAP is 6-12%

• £441 million in UK in 1992, with £100/patient treated in community vs. £1700-£5100/hospital treated patient
• Strep. Pneumonia (39%)
  • Penicillin resistance
• Chlamydia pneumonia (13%)
  • Direct pathogenic role
• Mycoplasma pneumonia (11%)
  • Epidemics spanning 3 winters every 4 years
• Influenza A and B (11%)
• Haemophilus influenza (5%)

• Legionella (3.5%)
  • Most common in Sept and Oct
  • 52% related to travel, 91% of which is foreign travel
  • Water containing systems

• Others
• Strep. Pneumonia
  • Older, comorbidity, acute onset, high fever, pleuritic chest pain

• Mycoplasma
  • Younger, prior antibiotics, less multisystem involvement

• Legionella
• Not possible to identify pathogen based on clinical features
• “Atypical pneumonia” no longer used
• Elderly
  • Non specific eg. Fever less common
  • Comorbidities
  • Higher mortality
• No reliable characteristic features to allow prediction of pathogen from CXR

• Radiological resolution often lags behind clinical improvement, esp. in elderly and when multilobe involvement

• Only need 6/52 repeat CXR if:
  • Persistent symptoms or signs
  • Higher risk of underlying malignancy (e.g., Smokers)
• All should have:
  • Fbc
  • U+Es, LFTs
  • CRP
  • More sensitive than pyrexia or wcc
  • Distinguish between exact. COPD if >100
• Blood cultures recommended for all
  • Yield 25% at best; lower if prev. antibiotics

• Sputum cultures usually indicated but:
  • Patient inability to produce sputum
  • Prior exposure to antibiotics
  • Upper airway contaminants

• Sputum Gram Stain
• “Atypical Pneumonia Screen”
  • M. pneumonia
  • Chlamydia spp.
  • C. burnetti
  • L. pneumophila
  • Influenza A + B
  • Adenovirus
• Who to test?
  • All with “severe” CAP
  • Those unresponsive to beta lactams
  • Those at increased epidemiological risk

• Alternative means of diagnosis
  • Pneumococcal antigen testing eg. Urine ELIZA
1. “Pre-existing” adverse prognostic features
   - >50 years
   - Comorbidity

2. “Core” adverse prognostic features – CURB!
   - Confusion: MTS <9/10 (New!)
   - Urea >7.0
3. “Additional” adverse prognostic features

- Hypoxaemia: $\text{SaO}_2 < 92\%$ or $\text{pO}_2 < 8\text{kPa}$ regardless of $\text{FiO}_2$

- Bilateral or multilobe appearance on CXR
• Two or more core features

• One core feature and other features from pre-existing and additional groups
• Non severe pneumonia
  • Amoxicillin + Clarythromycin PO
• Severe pneumonia
  • Co-amoxyclav or 2\textsuperscript{nd}/3\textsuperscript{rd} generation Cephalosporin IV + Macrolide IV
  • Alternative is Benzyl Penicillin IV + Fluoroquinolone(Levofloxacin) IV
• Switch from IV to PO once clinical improvement occurs and apyrexial x 24hrs.

• IV Cephalosporins to PO Co-amoxyclav

• IV Benzylpenicillin to PO Amoxicillin

• 7/7 for non severe pneumonia

• 10/7 if severe

• 14-21/7 if legionella, staphylococcal or gram
- Reassess!
- Change to a fluoroquinolone if non severe
- Add rifampicin if severe
• Recommended for those at “high risk” of mortality from influenza or complicating pneumonia

• High risk
  • Chronic lung, heart, renal and liver disease
  • Diabetes Mellitus
  • Immunosupression due to disease or treatment
• Recommended, once off, for “high risk” >2yrs. of age

• High risk
  • Hyposplenism
  • Chronic heart, lung, renal, and liver disease
  • Diabetes Mellitus
  • Immunosupression due to disease or treatment