

ASPIRATION PNEUMONIA

- An alveolar space infection resulting from the inhalation of pathogenic material from the oropharynx.
- An inflammatory chemical injury of the tracheobronchial tree & pulmonary parenchyma produced by inhalation of regurgitated sterile gastric contents.
- ~5-15% of CAP (or ~20% of CAP in the elderly) are due to aspiration
 - Majority of pneumonias in nursing home residence are aspiration related.
- ICU patients are also at risk.
 - Gastroparesis, intubation, prolonged-supine position, NGT/OGTs.

PATHOPHYSIOLOGY.

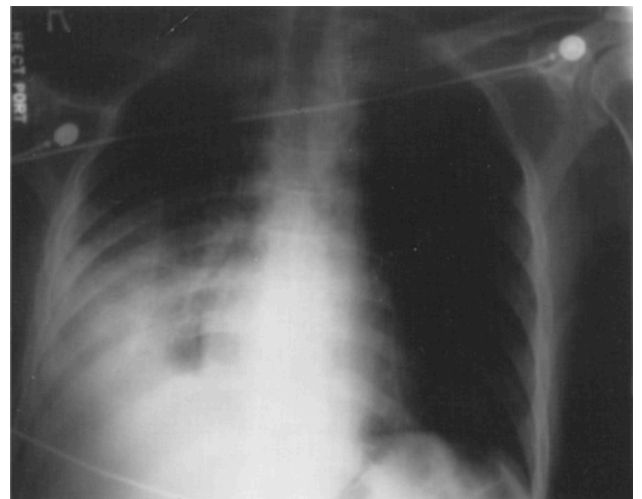
- Depends on volume & pH of aspirate.
 - pH < 2.5 *OR* volume > 0.3-0.4mL/kg (20-30mL) - required to develop aspiration pneumonitis.
- Direct caustic effect followed by inflammatory response to material.
 - Cytokines increase capillary permeability --> cellular infiltrates.
- Bacterial aspiration more likely w/ *periodontal disease*.
 - or w/ bowel obstruction, tube-feeding etc.
- In recumbent patients, the most dependent part of lung is involved.
 - Posterior upper lobes or superior lower lobes (when supine)
 - Basal lower lobes (when upright).

CLINICAL FEATURES.

- Witness or suspected aspiration.
 - Medical comorbidities, general debility, cough, dysphagia, hoarseness.
- Non-productive cough, tachypnoea --> bronchospasm, sputum --> respiratory failure.

- Fever, dyspnoea, productive cough.
- Reduced AE or crackles on auscultation.

- CXR:
 - Unilateral focal or patchy consolidations (in dependent lung segments).
- Lab tests:
 - Of little diagnostic value.
 - WCC may or may not be elevated.
 - ABG: hypoxia *or* hypoventilation.



TREATMENT.

- Prompt suctioning if aspiration episode is witnessed.
- Consider the appropriateness of ETT insertion.
 - Tracheobronchial lavage/toilet may be required.
- Bronchodilators may help reduced reactive bronchospasm.
- Prophylactic antibiotics are *NOT* recommended.
 - Steroid *DO NOT* prevent lung injury.
- *Low threshold for treating* the chronically ill or nursing home patients.

FROM THERAPEUTIC GUIDELINES.

Minor degrees of aspiration do not require antibiotic therapy. Established aspiration pneumonia is often due to anaerobes such as *Bacteroides* or aerobes such as *Streptococcus anginosus/milleri* group. Assess whether aspiration has resulted in the development of a lung abscess (see [Lung abscess](#)). For initial treatment of aspiration pneumonia, use:

benzylpenicillin 1.2 g (child: 30 mg/kg up to 1.2 g) IV, 6-hourly



PLUS

**metronidazole 500 mg (child: 12.5 mg/kg up to 500 mg) IV, 12-hourly
or metronidazole 400 mg (child: 10 mg/kg up to 400 mg) orally, 12-hourly.**



Aerobic Gram-negative bacilli are uncommon causes of aspiration pneumonia, despite frequent appearance on Gram stains of sputum. If Gram-negative pneumonia is suspected (eg in alcoholic patients), use:

- 1 metronidazole 500 mg (child: 12.5 mg/kg up to 500 mg) IV, 12-hourly
or metronidazole 400 mg (child: 10 mg/kg up to 400 mg) orally, 12-hourly**



PLUS EITHER

- 1 ceftriaxone 1 g (child: 25 mg/kg up to 1 g) IV, daily**



OR

- 2 cefotaxime 1 g (child: 25 mg/kg up to 1 g) IV, 8-hourly**



OR (as a single preparation)

- 1 piperacillin+tazobactam 4+0.5 g (child: 100+12.5 mg/kg up to 4+0.5 g) IV, 8-hourly**



OR

- 1 ticarcillin+clavulanate 3+0.1 g (child: 50+1.7 mg/kg up to 3+0.1 g) IV, 6-hourly.**

