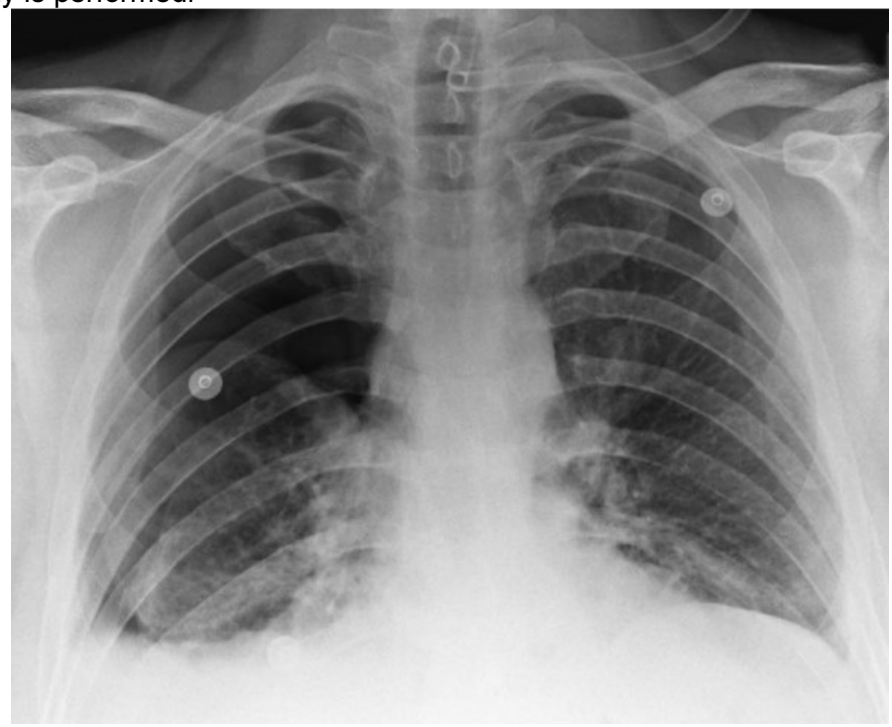
VAQ 2010.2.6 (XR)

A 55 year old man presents to the emergency department with chest pain and shortness of breath following vomiting four hours earlier.
On examination the patient is distressed by chest pain and has the following observations:

HR 110 /min
BP 130/60 mmHg
RR 25 /min
Temperature 38 0C
O2 Saturation 99 % on high flow oxygen.

An erect chest X-ray is performed.



a. Describe and interpret his X-ray (50%)
b. Outline your treatment (50%)

This chest radiograph shows a large right sided pneumothorax with a right basal effusion. A margin suggestive of a lung edge is seen in the left apex suggestive of a small left sided pneumothorax. His history suggests oesophageal rupture (Boerhaave Syndrome) which requires urgent surgical consultation and likely operative repair. He should have an ICC inserted, fluid resuscitation as per his clinical condition, appropriate titrated analgesia, broad spectrum antibiotics, and consideration of swallow studies or CT in consultation with the upper GI/thoracic surgical team. This is a high morbidity and mortality condition and requires prompt management.

CXR

tubing seen likely to be oxygen for mask delivery
ECG dots
large right pneumothorax
left sided apical margin seen suggestive of tiny pneumothorax
right sided effusion
right lung field changes likely related to degree of collapse/compression of lung markings
no subcutaneous emphysema see
no mediastinal air seen

Suggests pleural breach causing pneumothorax with right sided effusion +/- left sided pneumothorax

Pneumothorax
- primary
  - no underlying lung disease, generally lung pleural defect
- secondary
  - multiple causes including trauma, pre-existing lung disease, barotrauma

The vomiting preceding the chest pain and this patient's demographics are highly suggestive of **oesophageal rupture** being the underlying cause.

Treatment
- place in resuscitation area with team based care
- high flow **oxygen**, bilateral IV cannulae and **fluid resuscitation** as detailed below
- NBM
- **titrate analgesia** e.g. morphine 2mg aliquots IV
- **broad spectrum antimicrobial cover** e.g. augmentin 1.2g iv (likely oropharyngeal type flora rather than amp/gent/metronidazole for bowel organisms)

- **insertion of large bore (32F) intercostal catheter to right side** with underwater seal drainage and standard precautions (prep/drape/local anaesthesia/blunt dissection), confirm placement with repeat chest radiograph
- consider left sided ICC – radiograph ambiguous, repeat may clarify or CT (possibility of positive pressure ventilation)

- maintain adequate perfusion, goal directed therapy if any clinical suggestion of shock
  - MAP>65, urine output >1ml/kg/hr, adequate mentation
  - hypotension should prompt consideration of
    - pneumothorax or ICC complication
    - pneumopericardium and tamponade
  - else volume resuscitation / inotrope or vasopressor support escalation as required

- **surgical consultation** (upper GI / thoracic dependent on local practice) **and admission**
  - may require swallow studies / CT chest as part of consideration for surgery
  - admission under surgical team – ICU if requiring organ support