Olga Laur PGY2

Chest radiograph search pattern checklist:

1) A – assessment of
   Quality of image: PIER: position, inspiration, exposure, rotation
   Lines if they are present
2) B – BONES AND SOFT TISSUE
   - Rib fractures
   - Bone lesions
   - Soft tissue
     - Swelling
     - Subq air
3) CARDIAC
   - Change in cardiac silhouette
   - Pneumomediastinum/pneumopericardium
   - Aortic arch/Aortic knob
     - r/o aneurysm
     - r/o congenital abnormalities such as R sided aorta
4) DIAPHRAGM
   - Pneumoperitoneum
   - Dilated loops of bowel/pneumatosis intestinalis

5) HILUM/MEDIASTINUM
   - Adenopathy/mass (left hilum usually higher then right) – check for changes in AP window
   - Tracheal deviation

6) LUNGS
   - Effusions
   - Pneumothorax
   - Focal consolidation/nodules
   - Interstitial opacities

CT CHEST CHECKLIST

1. Lines if any
2. Thyroid
3. Lymph nodes (good RA article on it that you should read: http://www.radiologyassistant.nl/en/p42459cff38f02/lung-cancer-tnm-7th-edition.html)
   a. Supraclavicular
   b. Axillary
   c. Mediastinal
   d. Hilar
   e. Upper Abdominal
4. Mediastinum
   a. Aortic arch (expect 3 vessels, left sided)
   b. Course of aorta
      i. Aneurysm
      ii. Dissection/IMH (confirm with sagittal view)

    c. Pulmonary artery vs aorta – ratio should be < 1, otherwise suspect pulmonary hypertension
    d. Trachea/bronchi
        i. Deviation
        ii. Intraluminal defect such as in mucus plugging
    e. Esophagus
        i. r/o abnormal thickening, especially at the GE junction
5. Cardiac
    a. cardiomegaly
    b. Pericardial effusion
    c. CAD
    d. Intraluminal thrombus
6. Lungs
    a. Airspace disease
    b. Pleural effusion
    c. Nodules
        i. Fleishner criteria can help you guide what to do with incidental nodules and appropriate follow up – Look for Fleishner powerscribe statement (also check out this RA link http://www.radiologyassistant.nl/en/p5905aff4788ef/fleischner-2017-guideline-for-pulmonary-nodules.html)
    d. Pneumothorax
    e. Pleural thickening
7. Abdomen
    a. Liver
        i. Cirrhotic appearance
        ii. Fatty liver
        iii. Lesions
    b. Adrenal glands
    c. Spleen
    d. +/- Pancreas
    e. Stomach, +/- duodenum
8. Bones
    a. Ribs
    b. Spine
9. Soft tissue
    a. Weird masses/abscess

Quick note on CT PE studies:

1) Make sure study is adequate – PA should measure more then 250 HU for the study to be considered adequate.
2) Window to the level of being able to see the intraluminal content of the vessels
3) Go systematically through all of the pulmonary segments to r/o PE. Don't stop if you see one PE (avoid fallacy of satisfaction). Survey all of the vessels before calling anyone.
4) Once you find PE need to figure out whether it is:
    a. Central, main, lobar, segmental, subsegmental
    b. Occlusive vs. non occlusive
    c. New vs old (usually acute PE is more centrally located and forms acute angles with the wall and has associated dilated pulmonary vessel vs chronic PE is a peripherally located crescent shaped defect forming obtuse angles with the vessel wall and associated with decreased caliber of pulmonary vessel).

d. Always check if there is a wedge shaped parenchymal opacity that could represent an associated parenchymal infarct
e. If suspect chronic PE, survey for possible sequela
    i. Prominent collateral bronchial arteries
    ii. Mosaic perfusion of the lung (underperfused segments appear darker with smaller appearing caliber of the vessels)
    iii. Calcification of the pulmonary vessels
f. Always check for evidence of right heart strain
    i. If present, this may change clinical management
    ii. Look for right ventricular dilatation where right ventricle is larger than the left ventricle in short axis
    iii. Deviation of the interventricular septum toward the right ventricle
    iv. If large burden of pulmonary emboli but not direct evidence of right heart strain, patient is at risk for right heart strain