RADIOLOGY

Introduction

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pleurae
The pleurae

Pleurae effusion the presence of fluid in the pleural cavity, which can to transudate, exudates, pus or blood all have same radiographic features.

1. Pleural fluid free fluid collects in the most dependent part of the pleural cavity and always fills the costophrenic angles. Free fluid assumes 2 basic shapes usually in combination.
   - Usually the fluid surrounds the lung, higher laterally than medically at also runs in to the fissures particularly in to the lower end of the oblique fissures.
   - Sometimes oven with large pleural effusions, little or no fluid is seen running up the chest wall. The fluid is then known as (subpulmonary effusion). The upper border of the fluid is mush the same shape as the normal diaphragm and since the true diaphragm is obscured by the fluid. It may be very difficult or even impossible to tell from the standard erect film if any fluid is present all, so take the film the patient on his side (lateral decubitus view).

2. **Loculated pleural fluid** – pleural effusion may become loculated by pleural adhesion, although loculations occur in all types of effusion, it is a particular feature of empyema.
The role of U/S in pleural effusion

1. Infection: pleural effusion due to pneumonia is usually small and pneumonia is usually the dominant feature on CXR
   - Large loculated is usually the dominated with pneumonia often indicates empyema formation.
   - Also large effusion can be present with TB and it may be the only visible abnormality.
   - Sub phrenic abscess nearly always produce a pleural effusion.

2. Malignant neoplasm: malignant effusion are frequently large. They occur with pleural metastasis, but the pleural deposits themselves are not seen by CXR.

3. Pulmonary infarction: effusion are usually small and accompanied by the lung shadow caused by pulmonary infection.

4. Cardiac failure: effusions are usually bilateral, often larger on the RT than Lt.
5. **Collagen vascular disease**: pleural effusion, either unilateral or bilateral are common in collagen vascular disease.

6. **Nephrotic syndrome**, renal failure and ascites are all associated with pleural effusion.

**Pleural thickening (pleural fibrosis)**

Fibrotic pleural thickening (scarring), especially in the costophrenic angles may follow resolution of a pleural effusion it may be difficult on CXR so US or CT resolve the problem.

**Pleural tumors**

The commonest Pleural tumor is *metastatic*. Primary pleural tumor for example mesothelioma are uncommon pleural tumor produce lobulated musses bused on pleura.

▶ malignant pleural tumors (both primary and secondary frequently produce pleural effusion)

**Pleural calcification**

Either unilateral (due to old empyema or old hemothorax) or bilateral (often related to asbestos exposure).
Note: asbestos exposure is associated with pulmonary fibrosis pleural thickening, pleural calcification and mesothelioma.

Pleural calcification due to TB

PNEUMOTHORAX

► Air within the pleural cavity.
► The diagnosis of pneumothorax depends on recognizing
  ► A line of pleura separated by air from the chest wall. Mediastinum or diaphragm.
  ► Lack of vessels beyond this line-
► Unless the pneumothorax is very large, there may be no appreciable increase density of the underlying lung.
► Sometimes pneumothorax is more obvious on expiratory film.
► With tension pneumothorax, there will be mediastinal shift with Flattening of diaphragm and the pneumothorax is usually large.
**Causes of pneumothorax:**
- The majority occur in young people with no recognizable lung disease, these patients have small blebs or bullae at the Periphery of the lung that burst.
- Emphysema
- Certain forms of pulmonary fibrosis
- *Pneumocystis carinii* pneumonia.
- Metastases (rarely).
- TB
- Trauma

Hydropneumothorax, haemothorax and pyopneumothorax fluid in the pleural cavity (pleural effusion, blood, pus) assume different shape in the presence of pneumothorax, the diagnostic feature is *air fluid level.*

**Tension pneumothorax**

![Tension pneumothorax image]
**Hilar enlargement:**

The normal hilar shadow are composed of pulmonary arteries and veins, the hilar LN are too small to be seen when normal, and the walls of the central bronchi are too thin to contribute to hilur shadows.

- Enlarged hilum is either large blood vessels or mass. Hilar mass is either an enlarged LN or CA bronchus. To differentiate between the two:
  1. **Enlargement of pulmonary arteries** Is usually bilateral, and both hila show a branching pattern and accompanied by enlargement of main pulmonary artery and heart. Same causes of pulmonary artery enlargement are pulmonary artery hypertension, increase pulmonary blood flow.
  2. **Hilar LAP**: usually more than ONE lymph node is enlarged, so the hilum appears lobulated on outline, it is either unilateral or bilateral.

**Unilateral hilar enlargement:** may be due to

1. Metastasis from CA Bronchus
3. Infection (TB, histoplasmosis)

- TB is the commonest cause of unilateral hilar enlargement in children

**Bilateral hilar enlargement:** may be due to

1. Sarcoidosis
2. TB
3. Lymphoma
4. Fungal disease.

Neoplasm – primary CA broaches frequently present, if lobar collapse consolidation or narrowing of the adjacent bronchus is visible, the diagnosis of CA is virtually certain.
Hilar Mass

The END
البوروسيس هو هشاشة العظام لهذا تقل كثافة العظم وتبين على بياض خفيف بينما المرض الثاني هو الأوستيوبتروسس وهو تصدح العظام ويبين كثافة العظام لهذا تبين بالأشعة بياض أكثر لأن بي كالسيوم أكثر فيمتص أشعة سينية أكثر ويبين أكثر.

صور توضيحية قد تفيدكم
What is the location of the keys? On both the posteroanterior (PA) view of the chest (A) and the lateral view (B), the keys seem to be within the center of the chest. Actually if you look carefully, you will notice that the keys do not change position at all, even though the patient has rotated 90 degrees. The keys are located on the receptor cassette and are not in the patient.

**Figure 1-4** Typical x-ray projections. X-ray projections are typically listed as AP or PA. This depends on whether the x-ray beam passed to the patient from anterior to posterior (AP) or the reverse. Lateral (LAT) and oblique (OBL) views also are commonly obtained.
Normal anatomy of chest in PA view and lateral view
WHEN I’M EDITING THE LECTURE AND SO MANY CORRECT WORDS