### Differential diagnosis of hilar shadows and lung nodules

#### Introduction

- Hilar points are the angle formed by the descending upper lobe veins, as they cross behind the lower lobe arteries.
- These structures pass through the narrow hilar on each side and then branch as they widen out into the lungs. The hilar are not symmetrical but contain the same basic structures on each side.
- Both hila should be of similar size and density. If either hila is bigger and more dense, this is a good indication that there is an abnormality.

#### Hilar abnormalities

- Hilar enlargement may be unilateral or bilateral, symmetrical or asymmetrical.
- Bilateral, symmetrical hilar enlargement should raise the suspicion of sarcoidosis, particularly if there is evidence of paratracheal enlargement, or lung parenchymal shadowing.

**DDx of bilateral hilar enlargement**

1. Expiratory film
2. Lymphoma
3. Pulmonary arterial hypertension
4. Sarcoidosis
5. TB
6. Leukemia

**Asymmetrical hilar enlargement**

- Clinical details
  - Known breast cancer, increasing shortness of breath
- Diagnosis
  - Metastatic disease
  - Breast cancer
- Both hila are larger and denser than normal
- The right hilum is bigger than the left
- Multiple small lung nodules
- Missing right breast shadow (mastectomy)

#### Causes of unilateral hilar enlargement

1. Pulmonary artery aneurysm
2. Fungi
3. Technical (rotation of the patient)
4. Malignancy (lymphoma, bronchial carcinoma)

#### Abnormal hilar position

- Clinical details
  - History of left hilar malignancy treated with radiotherapy
- Diagnosis: Radiation fibrosis
- The left hilum is large, dense and pulled laterally and upwards to the left
- The trachea is deviated (pulled) towards the left, indicating loss of lung volume in the left hemithorax

#### Lung nodules

- A pulmonary nodule is a small round or oval-shaped growth in the lung. It is sometimes also called a spot on the lung or a coin lesion.
- Pulmonary nodules are generally 5-10mm in diameter.
- It may be a single or multiple.

**Differential diagnosis**

**Nodules from infections (which can be either solitary or multiple)**

- Lung nodules caused by infections fall into these categories:
  1. Bacterial infections (e.g., tuberculosis)
  2. Fungal infections (e.g., histoplasmosis, coccidioidomycosis, cryptococcosis and aspergillosis)
  3. Parasitic infections (e.g., hydatid disease)

**Causes of solitary nodules:**

1. Tumors (bronchogenic carcinoma, metastasis)
2. Collagen diseases (Rheumatoid arthritis, Wegener’s granulomatosis)
3. Pulmonary infarction
4. Skin and chest wall lesions

**Causes of multiple lung nodules:**

1. Metastasis
2. Sarcoidosis
3. Arteriovenous malformation
4. Pulmonary Infarcts
5. Hamartomas