Chapter 7
Man 70 years old, chronic exercise dyspnea, and past history of HTA. Acute and severe dyspnea, with non purulent sputum. Auscultation: crepitant bilateral rales.
Chest Xray: cardiomegaly (but in case of CXR in supine position, be careful with false cardiomegaly).

Alveolar and asymmetric alveolar opacities, with perihilar predominance. **Acute cardiogenic pulmonary oedema**. (Take notice that the alveolar pictures can be assymetric in cardiogenic pulmonary oedema)
Case 2

Young child, polypnea and severe dyspnea. Cardiac sounds not audible.

Courtesy Dr L. Kalisa-Rwanda
Chest X ray Typical aspect of a very important **pericardial effusion**, . The left and right cardiac edges are nearly symmetric with overlap of the 2 hili. Life threatening situation. Emergency puncture or surgical drainage is required. In country with high incidence of TB infection, TB is the first etiology of pericardial effusion
Woman, worsening condition and right lateral thoracic paint
Right inferior, non systematised and non homogenous opacity. The important detail is the disappearance of the middle arch of the 9th rib. This strongly suggests malignant tumor, probably metastatic. TB pulmonary or pleural infection does not destroy thoracic wall: TB is very improbable.
Previous case: notice the disappearance of the middle arch of the 9th rib which is more visible on a specific x ray for bone density with oblic incidence. Do’nt forget to look at the squelettal wall in CXR interpretation.
Man, 70 years old, heavy smoker. Worsening condition for few months with left scapular and back pain.
Chest X ray: bulky round and homogenous opacity in the left upper lobe. No cavity in the opacity; This is not consistent for TB diagnosis (no cavity in a mass bigger than 3 cm) or for acute infectious disease (no infectious clinical context). Notice the disappearance of the posterior arch of the 2nd 3rd and 4th rib: This strongly suggests a **malignant tumor which has destroyed a part of the thoracic wall**. TB is impossible in this case (no excavation and osteolysis of the ribs, which is not compatible with tuberculous pneumonia).
Magnified view of the previous slide.: the 2nd, 3rd and 4th posterior arch of the ribs have disappeared
Do'nt forget to look at the squelettal wall in CXR methodical interpretation
Young child with respiratory failure
Bulky mass in the left lung, pushing off the mediastinum. Notice the destruction of the third rib, medium arch, which confirms the diagnosis of probable malignant tumor. Don't forget to look at the skelettal wall in CXR methodical interpretation.
Man, 23 years old, right thoracic pain and dyspnea with quick onset
No lung disease past history
CXR: right pneumothorax. Notice the position of the mediastinum which is pushed on the opposite side at expiration.
Case 7

Man, 50 years old, fever, cough, with quick onset, and left thoracic pain.
CXR: encysted pleural effusion with 2 different collection. Ponction: purulent fluid: encysted purulent pleural effusion
Improvement after thoracic drainage with left inferior thoracic sequella
Asymptomatic patient. Active case finding in jai at Vientiane 2015. Do you think this Chest X ray is normal?
This CXR is not normal. The apex are not symetric: there is an anormal density behind the right clavicle. Probable TB infiltrate. Tb treatment is required, eventually after first line antibiotic treatment if no radiological Improvement.

If you have a doubt about the reality of this picture, make a special apex view (refer to normal CXR chapter, slide 71)
Woman, 76 years old, dyspnea and chronic cough.

Past history of tb treatment but no information about the date and duration.

Repeated negative AFB in sputum.
Typical aspect of calcified retractile TB sequellae of the 2 upper lobes. No need of TB re-treatment
TB treatment in 2008. Retreatment in 2010 for hemoptysis (AFB neg...)
Sudden death in November 2010 after acute and severe hemoptysis
Typical aspect of aspergilloma in a tb cavity sequela. The hemoptisys which caused the death of the patient was probably the consequence of this aspergilloma.
Woman, cough and dyspnea with fever for 3 weeks. No improvement with amoxicillin. Do you prescribe TB treatment?
TB pneumonia. Notice the left axillary infiltrate associated to the right upper lobe pneumonia. The association is highly suggestive of TB. Sputum positive for AFB
Case N°12

Woman, 78 years old, severe dyspnea and anterior thoracic pain.
Nearly symmetric cardiac edges. Cardiomegaly (but CXR in supine position
Enlarging cardiac silhouette). No sign of pulmonary oedema
. The echography has confirmed a pericardial effusion
Chapter 8
HIV context with severe dyspnea, non-productive cough and worsening condition.

No sputum available because too weak patient for producing efficient sputum.

No improvement after amoxicillin treatment.
Chest X ray: bilateral alveolar picture with systematised picture in the external part of the middle lobe. Enlargment of the middle mediastinum suggesting adenopathies. Notice the disappearance of the aortic arch suggesting positive silhouette sign with adenopathies… In this context *Tuberculosis is highly probable*: association of alveolar picture with adenopathies in HIV context.

AFB is negative because the patient is no able to produce sputum. The diagnosis could be probably confirmed by gastric lavage or bronchial aspiration.
Man, cough and hemoptysis. Past history of TB treatment more than 10 years ago, but do not know duration and type of treatment. Repeat AFB negative in sputum.
CXR: non homogen opacity in the retroclavicle area and small calcifications over the right hilus: TB sequella (bronchiectasis?). No argument for TB retreatment. Antero posterior view, lordotic position could be usefull for better analysis of the opacity.
Scan view of the previous case: **Tb sequella** diagnosis is confirmed with typical aspect of fibrosis with bronchiectasis. This kind of sequellae can produce severe hemoptisy, or bronchial suppuration without any recurrence of TB infection.
Man, 67 years old cough and hemoptisy. Heavy smoker. AFB negative in sputum
Round posterior picture in the right inferior lobe, associated with a retractile and posterior systematised picture: atelectasis of inferior lobe. The association of round non cavited picture with atelectasis is indicative of bronchial cancer.
Scan and endoscopic view of the previous case: bronchial carcinoma of the right inferior bronchus.
Young man, 24 years old. Living with a friend who has been treated for TB. Slight fever and cough. No AFB in sputum.
CXR: Typical **TB infiltrate** of the right axillary area. In such Tb lesions with no cavities, there is no AFB in sputum, because not many bacilli in the Tb nodular lesions. Nevertheless, without TB treatment, there is a very high risk of developing severe TB lesions in the future (between 10 and 20% of risk).
Previous case before treatment (left cxr) and after TB treatment (right cxr): very few sequellae
The left hilus is not normal. Probable adenopathy. **TB?** In this context TB treatment is instaured. Improvement of the patient after few weeks. Treatment by ARV is instaured but the patient stop the ARV treatment after 3 monthes…
Same patient 6 months later. Fever and severe dyspnea for 3 weeks. (TB treatment for 5 months). What is the most probable diagnosis?
Diffuse alveolar and interstitial pictures. In this context of HIV with no ARV treatment, and no prophylaxis by cotrimoxazole Pneumocystosis must be suspected and cotrimoxazole initiated.
Case 6

35 ans HIV positive AFB+ in sputum

Courtesy Dr Peo Setha Cambodia
Typical aspect of TB with VIH +: association of right pneumonia, with enlargement of latero tracheal nodes: TB adenopathies. AFB positive.
Man, 66 years old, past history of smoking.
Weight loss and hemoptoïc sputum. AFB negative.
Chest X ray: round mass with hilar adenopathies and beginning of cavity
TB is very improbable: No AFB in sputum with this cavited lesion (if it was TB, AFB should be numerous in sputum). No associated lesion like infiltrate on the chest X ray. Bacterial abcess is possible but rather improbable: no fever, no purulent sputum and the external edges are rather sharp for an abcess.

**Bronchial cancer with lymph node extension** is the most probable diagnosis
Scan view of the previous case; notice the sharp edges and the thickness of the wall: Typical aspect of cavited cancer (epidermoïd type)
Chronic dyspnea, hemoptisys. Past history of lung disease. Cannot give more precision...
TB sequella with probable aspergilloma in the left lobe
Dyspnea and chronic cough. Worsening condition with weight loss. No information about AFB in sputum.
Nodular and alveolar pictures on the right side (inferior lobe). Alveolar and bulky cavity on the left side. The association of these different lesions with different seniority is highly indicative of Tuberculosis. Positive AFB in sputum.
Case 10

Man, 35 years old, cough, fever and purulent sputum for 10 days. Smoker (25 cig/day). AFB neg. in sputum
Cavited opacity in the middle of right lung field. Sharp internal limit with blur of the external edges. TB is possible but improbable, because no AFB in sputum, and isolated lesion without associated nodules or infiltrate.
Evolution after antibiotic treatment (amoxy+ ac clavulanique)
Bacterial non TB abcess
Woman, 30 years old, fever, weight loss and cough. Antibiotic treatment with amoxicillin, then macrolid. No improvement. HIV negative.

Chest X-ray: alveolar consolidation of the right inferior lobe.
Previous patient. Hospitalisation for hemoptysis, 6 weeks later. AFB positive+++.

Chest X ray: **TB cavited pneumonia**. Notice the small associated infiltrate above the excavated pneumonia (red arrow) AFB positive in sputum
75 years old worsening condition, right scapular and thoracic pain. History of prostatic carcinoma.
Chest X-ray in supine position: notice the destruction of the posterior arch of the fourth right rib: *thoracic wall metastasis with destruction of the posterior part of the 4th right rib*
Chapter 9
Woman, chronic fever, cough, weight loss and hemoptoic sputum. AFB negative
Right hilar adenopathy. Right upper lobe infiltrate, middle lobe atelectasis. Left axillar nodules: probable bilateral TB lesions. Probable TB with negative microscopy
Child, one year old, cough and dyspnea, weight loss. Notion of TB in the household.
CXR: right hilar adenopathies, with surrounding alveolar lesions, left retrocardiac retractile picture with probable left hilar adenopaties. **Left inferior lobe atelectasis** (black arrows) **by bronchial compression with tuberculous adenopathies**
Case 3

11/09/2007...

Fever and cough. AFB negative in sputum
TB infiltrate in the right retro clavicular area. Smear negative but culture positive.
Scan view of the previous case
Woman, HIV positive, non productive cough and worsening condition. Probable severe immunodepression.
diffuse nodules and macronodules, no excavation, and enlargement of the mediastinum, suggesting mediastinal adenopathies. The most probable diagnosis is TB in HIV context with severe immunosuppression.

In another clinical context this picture could also suggest carcinomatous miliary
Dyspnea and worsening condition
This picture suggests primary tumor of the right superior lobe with bilateral lung metastasis. Another hypothesis is bilateral metastasis of a primary exta-thoracic cancer. Clinical context and clinical examination is the first step to find the primary cancer: Breast and gynecological cancer in women, kidney, thyroid, lung, stomach, bowel, pancreas in the 2 sex, testis in young men etc … The diagnosis of TB can be surely eliminated because no excavation: in adult cases a tuberculous nodule is nearly always cavited when bigger than 3-4 cm.
Woman, 26 years old, high fever, cough and left thoracic pain with quick onset.
No past history of lung disease.
Chest X ray: slight opacity of the left inferior part of the lung, probably posterior (negative silhouette sign with cardiac edge), not well limited. **Inferior lobar pneumonia**. Improvement with amoxicillin.

The lateral view confirm the diagnosis of left inferior lobe pneumonia. Notice the silhouette sign with left diaphragm, which has disappeared. Right diaphragm is only visible.
Case 7

Woman, context of HIV positive, worsening condition and probable severe immunosuppression. Cough and fever.

Courtesy Dr Peo setha-Cambodia
. **AFB positive in sputum: TB**

Chest X ray: alveolar opacity of the inferior part of the right lung (middle and inferior lobe and also probably part of the superior lobe, associated with bilateral nodules. No cavity, as usual in case of immunopdepression.

In an other clinical context (tobacco use, no infectious context), this picture could also suggests right tumor mass with diffuse metatastatic micronodules.
Case 8

8 years old boy. Repeated bronchial infections, with fever and purulent sputum. Weight loss, bad physical condition, and digital clubbing.

Courtesy Dr S. Anderson, MRC Gambia
Diffuse left bronchiectasis with complete left lung destruction. Associated bronchiectasis on the right side in middle lobe, probable consequence of Tb sequella.
Case 9

Woman, 82 years old. Cough and dyspnea when exercising.
CXR: Opacity of the anterior and superior mediastinum, with cervico thoracic pass sign (the opacity disappears above the clavicles. See the cervico thoracic pass sign in the chapter silhouette sign and mediastinum syndrome). Notice that the tracheal shadow is narrow: the most probable diagnosis is antero superior thyroid goiter with tracheal compression
Scan view of the previous case: tracheal compression by a bulky goiter.
Man 80 years old  left thoracic paint
Small left pleural effusion.
In the superior mediastinum: well limited round opacity which is posterior (cervico thoracic pass sign). The opacity does not disappears above the clavicles. See the cervico thoracic pass sign in the chapter silhouette sign and mediastinum syndrome). Probable neurogen tumor.
Woman, 55 years old, smoker since 20 years old. Progressive dyspnea since 2 months with hypoxemia, needing high flow oxygenotherapy. AFB negative no fever, no improvement with antibiotherapy.
TDM view of the previous case
Chest Xray: bilateral alveolar opacities, no retraction, no cavities. It could be TB, but repeated AFB negative (usually positive in TB pneumonia) or acute infectious disease, but no improvement with 2 antibiotic treatment (amoxicillin then macrolide).

Bronchial biopsies by endoscopy: bronchial cancer bronchiolo alveolar type. This kind of bronchial cancer can have similar radiological aspect than bacterial or TB pneumonia.
Patient coming from Tanzania, HIV context, with cutaneous less violet diffused lesions, suggesting Kaposi illness.

courtesy of Pr Diefenthal, Killimanjaro school of radiology, Tanzania
Chest X ray: technically not perfect (too high penetration, peripheric vessels not visible in the lung areas). Alveolar not well limited picture in the right inferior and middle lobe. Possible right hilar adenopathy. In this clinical context probable pulmonary Kaposi pulmonary illness. (refer to “lung and AIDS” in educational program)