Dyspnea and cough. Right thoracic pain. AFB in sputum not yet available.
CXR: Right abundant pleural effusion. Notice the typical concave aspect of the superior edge of the opacity (yellow arrows). Nodular infiltrate of the left superior lobe with cavity (red arrow). Tuberculosis is highly probable. The AFB should be positive in sputum because of the left cavity full of tb bacilli in communication with airways. Pleural punctation is necessary for analysis (confirmation of serofibrinous exsudative and lymphocitic reaction) and evacuation of the fluid for prevention of pleural sequela.
Woman, 40 years old, asthenia weight loss, cough and left thoracic pain for few weeks. No sputum available.

Courtesy Dr Van Den Homberg
Left pleural effusion. Notice the « pushing back » of the mediastinum. Probable left hilar and mediastinal adenopathies. Notice that aortic arch and descending aorta are not visible (contact with adenopathies?). Bilateral diffuse nodules visible in the lung field. Probable TB. HIV context?. But carcinomatous miliary with metastatic pleural effusion is also possible. Cytology and pleural biopsy is essential for diagnosis.
Case N°3

Courtesy Dr Van Den Homberg
Pleural opacity of the left field, with concavity of the superior limit and pushing back of the mediastinum (no retraction= no associated atelectasis). The association with alveolar pictures and infiltrate of the right lung suggests TB.

Pleural punction and biochemical and bacteriological of the fluid with Sputum analysis (AFB) is necessary for diagnosis confirmation. If possible, in case of sero-fibrinous or sero-hematic fluid, pleural biopsy with special needle should be performed, if pathologic laboratory is available.

Courtesy Dr Van Den Homberg
Dyspnea and cough. Right thoracic paint, with disappearance of pulmonary sounds, on the right side. Past history of smoking.
Chest X ray: abundant right pleural effusion. Notice the attraction of the heart and trachea on the same side than the pleural effusion, suggesting underlying atelectasis. Also notice a right mass visible in the pulmonary area, above the pleural effusion. Lymphocytic exsudative fluid. Final diagnosis is not TB. **Bronchial cancer with pleural extension and underlying atelectasis**
Cough and left thoracic pain for few weeks. AFB neg. In sputum
Case N°5

Left pleural effusion. The chest Xray is not technically correct: No normal details visible in the lung area, because of an inadequate penetration / contrast. There is a small retro clavicular infiltrate, highly indicative of **TB infiltrate, with TB pleural effusion**.
Case N°6

Chronic exercise dyspnea with fever for several weeks. Non productive cough, and weight loss.

Courtesy Dr Van Den Homberg
CXR: Abundant right pleural effusion. Notice the pushing back of the trachea and mediastinum: It is not an atelectasis because no retraction. Pleural puncture is necessary for evacuating fluid and bacteriological and biochemical analysis. If possible, in case of sero-fibrinous or serohematic fluid, pleural biopsy with special needle should be performed, if pathologic laboratory is available. If sero fibrinous fluid the most probable diagnosis is TB in high incidence TB country.
Case N°7

Woman, fever, cough and left thoracic pain for several weeks. No improvement with antibiotics. AFB negative.

Probable pleural effusion with attraction of the mediastinum: probable associated atelectasis.
After evacuation of pleural fluid: atelectasis of the middle lobe. Notice the small infiltrate of the right axillary infiltrate. TB pleural effusion (positive pleural biopsy for tb granuloma)
Chronic exercise dyspnea for many months with non productive cough. AFB negative. Weigh loss and nocturnal sweet.

Courtesy Dr Van Den Homberg
Retracted opacity of the whole right lung. Notice the attraction of the trachea and the heart. *This suggests a right lung atelectasis not a pleural effusion.* The association with infiltrate of the left apex with localised pleural thickness is indicative of TB. The radiological aspect suggests TB sequela, because of retraction and chronic evolution, but clinical context, the notion of past complete TB treatment and sputum analysis for AFB is very important for the diagnosis of sequela or active TB.
Woman, right thoracic pain and fever.
Non productive cough. No respiratory sounds on the right side.
Case N°8

Chesr X ray: well limited opacity with round superior limit, edge matching with the thoracic wall: **encysted pleurisy** (TB, infectious non tb, or purulent). It is necessary to make punction to go farer in diagnosis and treatment.
Case N°8

Chest X ray after first punctation

Good evolution after repeated punctuations (sero fibrinous effusion) physiotherapy and anti TB treatment: Encysted tuberculous pleurisy.
Case N°8

Scan evolution of the previous case

January 2006

February 2006
Case N°9

Woman 40 years old, no medical past history, fever and chills with quick onset.
Case N°9

CXR: right superior acute lobar pneumonia and left inferior pneumonia with pleural effusion. Notice on the lateral view the disappearance of the left diaphragm (positive silhouette sign with pneumonia and pleural effusion). Acute infectious non TB pneumonia is the most probable diagnosis, and antibiotic treatment must be quickly engaged (amoxicillin). In another clinical context (sub acute or chronic evolution, HIV positive, no improvement with amoxicillin,) one should consider tuberculous pneumonia diagnosis.
No improvement after antibiotic treatment: incrementation of the left pleural effusion
Case N°9

Scan view of the previous case: encysted purulent pleural effusion
Case N°9

Improvement after thoracic drainage
Acute dyspnea, and right thoracic pain with fever and purulent sputum
Chest X ray J1: round alveolar picture with small pleural effusion. The clinical and radiological features suggest an acute round infectious pneumonia with pleural reaction.
J4 after 4 days of amoxicillin. Increase in dyspnea and worsening condition...
Loculated purulent pleural effusion.
J8 after thoracic drainage and antibiotic.
Recovery with no more dyspnea and no more fever.

Notice that sometimes pneumococcic pneumonia can be complicated with purulent pleural effusion with quick evolution and life threatening infectious complication. In this case, antibiotic is not suffisant, pleural drainage of the purulent effusion is absolutely necessary.
Man, 76 years old, fever and worsening condition for three weeks.
No improvement after antibiotic

Chest X ray: well limited opacity with round superior limit, edge matching with the thoracic wall: **encysted pleural effusion**. It is necessary to make puncture to go farther in diagnosis and treatment: in this case it was a purulent effusion.
Case N°11

Improvement after thoracic drainage (J4)
Improvement after thoracic drainage (J8)
Man, 63 years old. Cough and increasing dyspnea for 2 months. Past history of smoking. Flatness and decreasing of respiratory sounds on the right side.
Case N°12

Chest X ray: right abundant pleural effusion. Intersticial and alveolar pictures seen in the upper right lobe. Notice micronodules in the left lung. The mediastinum and heart are attracted on the right side, suggesting associated atelectasis of the right inferior and middle lobe. **Tuberculosis is possible.** But in this case, it was a **bronchial cancer, with pleural extension and metastatic controlateral extension.**
Case N°12

Magnified view an scanner of the previous slide
Case N°13

Man, dyspnea and worsening condition. Past history of prostatic cancer.

Chest x ray: abundant pleural effusion pushing back mediastinum. Punction; sero fibrinous fluid
Case N°13

Chest x ray of the previous case after drainage and hormonal treatment. Notice the round opacities around the thoracic wall: **residual encysted pleural effusion**
Scan view of the previous case: encysted pleurisy (red arrows)
Case N°13

Chest X ray of the previous case after 6 months of hormonal treatment.
Man 46 years old, cough and exercise dyspnea, tachycardia, and past history of anterior thoracic paint.

ECG: myocardial ischemic signs. Auscultation: crepitant rales.
CXR: cardiomegaly with left ventricle enlargement. Encysted pleural effusion in the minor fissura (red arrow). Enlargement of pulmonary arteries and alveolar diffuse pictures, with perihilar predominance: Acute left cardiac failure, with alveolar oedema, in cardiac ischemic context. Pleural encysted effusion in scissura are frequent in left cardiac failure.
Same patient after treatment: diuretic TNT and CEI. Notice the cardiac and left ventricle enlargement and the 2 right scissura well visible on the lateral view.
Man, tobacco user. Fever and cough. AFB negative
Case N°15

Chest x ray: round opacity. Cavity on the superior part of the opacity with fluid level. Ovoid opacity near thoracic wall: encysted pleural effusion. TB is possible, but AFB are negative which is a strong argument against this diagnosis because in case of TB, cavities are very rich in TB bacillilli and sputum examinations are usually positive. Finally, 2 diagnosis are possible: bronchial cancer with pleural extension and bacterial abscess with pleural reaction (purulent or sero fibrinous). The 2nd hypothesis is more probable because of clinical context.
Previous case. Radiological evolution after antibiotic and pleural drainage (serofibrinous fluid).

Final diagnosis: **bacterial non tb abscess with pleural reaction**
Dyspnea and anterior thoracic paint.
Notice the left pleural effusion, associated with enlargement of the cardiac silhouette. This enlargement is nearly symmetric between the left edge (incompletely seen) and the right one. The heart looks like a « callesbasse ». This is highly indicative of a pericardial effusion, associated with pleural effusion. In a context of country with high incidence of TB, the most probable diagnosis is **pleural and pericardial tuberculous effusion**. Diagnosis of pericardial effusion will be easily confirmed by trans thoracic echography.
Man, chronic dyspnea for several months. Decrease of respiratory noise on the right side. Past history of TB treatment. No precision about type and duration...
Technically not perfect: not strict front view: the vertical line of the spinal processes is not in the middle of the 2 internal limits of the clavicles.

Nevertheless it seems that there is a retraction of the right lung with a right pleural thickness, and calcified nodules of the right inferior lobe. This suggests TB sequelae. But AFB in sputum must be found negative before diagnosis of sequela
Severe asthenia, dyspnea and cough. Auscultation: decreasing of left respiratory sounds
Case N°18

Diffuse opacity of the left lung like ground glass attenuation. It is not a lung opacity. It is a pleural thickness which overlap the lung; this pleural opacity is more dense in the axillar and area and lateral cul de sac, because of tangential incidence of the X ray beam. Associated alveolar picture othe superior and inferior right lobe. One important detail is that this patient is very tired and dyspneic. This CXR has probably been taken in supine position. The left picture strongly suggests a pleural effusion in supine position. Pleural punction: serofibrinous fluid. The association with controlateral alveolar picture suggests TB. AFB must actively searched in sputum. Supine position must be indicated on the CXR by the radiological technician.
Dyspnea, cough, AFB negative in sputum. Past history of TB 6 years ago with treatment. One does not know the treatment duration and modality.
Case N°19

This chest X ray suggests TB sequellaes: retractile right pleural thickness (no fluid observed at echography) calcified nodule, and calcified bilateral hilar nodes, and repeated negative sputums
Case N°20

Left thoracic paint increasing for 2 months and worsening condition
With asthenia and weight loss
Mesothelioma; Notice the pleural effusion and the pleural irregular thickness in the left axillar and apex pleural area, suggesting tumor process. It can suggest primary pleural cancer (mesothelioma) or metastatic process... TB pleural effusion is also possible in such CXR. If possible pleural biopsy could facilitate the diagnosis.
Same patient after one year of evolution; the pleural tumor process has increased. Of course no improvement with TB treatment which has been instaured on the beginning of the evolution.
Woman, right lateral thoracic pain, weight loss and asthenia. No cough, no fever, no sputum.
Right inferior, non-systematized 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 oblique incidence.
Man, 70 years old, heavy smoker. Worsening condition for few months with left scapular and back pain.
Chest X ray: big 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). Take notice of the disappearance of the posterior arch of the 2nd 3rd and 4th rib: This strongly suggests a **malignant tumor wich has destroyed a part of the thoracic wall.** TB is impossible in this case (no excavation ans 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
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.
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.
Fever cough dyspnea for several weeks. Left thoracic paint and increasing dyspnea with quick onset
Association of right superior lobe infiltrate and left pneumothorax. **Tuberculosis** (no producting cough, so AFB neg…) TB treatment must be instaured and thoracic tube must be quickly introduce in the left pleural cavity with continuous aspiration to try to bring back the lung to the thoracic wall. If the pneumothorax is long standing with important lung destruction and with important fistula between lung and pleural cavity, the drainage will not be efficient. That is why in case of tuberculous pneumothorax, thoracic drainage must be realised as soon as possible.
Man 60 years old. Worsening condition, with asthenia and weight loss for many months. Purulent right pleural effusion with AFB in fluid.
Chest X ray: chronic tuberculous hydropneumothorax, caused by tuberculous cavity in sub pleural area, which has ruptured in pleural cavity. Thoracic continuous drainage will be probably not efficient because old and important ltb lesions in the right lung. The pronostic is bad even with TB treatment, unless if thoracic surgery is possible (thoracoplasty)
Fever, cough and dyspnea.
Case N°27

Chest xray: complex opacity of the left lung with fluid level. Encysted pleurisy or pulmonary abcess?
Lateral view gives the answer: the dimension of the fluid level is not the same on the front view and the lateral view: the fluid level is in the pleural cavity: encysted purulent pleurisy with pyopneumothorax. Pleural drainage is necessary for recovery.
Case N°27

Scan view of the previous case: encysted pleural effusion with fluid level
Fever right thoracic pain and abundant purulent sputum.
Chest X ray: round bulky excavated picture: **Bacterial non tb abcess**. Notice the same dimension of the fluid level on the front and the lateral view: the opacity is in the lung (different from the case n° 27). The opacity is in the lung and grows like a sphere. So the dimension of the section materialised by the fluid level has the same dimension on the front view and the lateral view.
Man, 50 years old, fever cough, with quick onset, and left thoracic pain.
Case N°29

CXR: encysted pleural effusion with 2 different collection. Ponction: purulent fluid: encysted purulent pleural effusion
Improvement after thoracic drainage with left inferior thoracic sequella
Man, 80 years old, heavy smoker, right scapular paint and worsening condition

CXR: Right thoracic opacity with destruction of posterior arch of the 3rd, 4th, and 5th rib. This opacity is not a lung opacity nor a pleural one: it is a parietal opacity: probable parietal extension of a bronchial cancer. In this case, the diagnostic of TB is highly improbable: no excavation in this bulky opacity, rib destruction. Notice 2 others round opacities in the inferior lobe suggesting metastasis.