Pleural syndrome
Tuberculous pleurisy

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Pleural effusion: Findings of fluid between visceral and parietal membrane

Lung

Visceral serous membrane

Parietal serous membrane
Effusion in the pleural cavity

- Dense opacity, homogeneous, declive (mobile to change position)
- No systematised (not bounded by a fissure)
- No air bronchogram

Upper limit of the opacity concave upwards and inwards

“Damoiseau’s curve”
Small abundance (500 to 700 cc)
Medium abundance
Abundant pleural effusion
Very abundant pleural effusion, overlapping right lung. Mediastinum is pushed on the opposite side.
Pleural syndrome

- Overlap of all the hemi thorax
- The mediastinum is pushed back
- The diaphragm is thrown down
Right pleurisy + right atelectasis (pleural effusion associated with pulmonary retraction)

Pleural effusion is not retractile, except if there is an associated atelectasis
Middle lobe atelectasis well visible after fluid evacuation
A pleurisy, even if the abundance is small, is likely to involve passive atelectasis.
The decubitus position modify radiological picture of the pleurisy
(same patient, same day)
Do not confound pleurisy and Ascension of the diaphragm
Do not confound pleurisy and Diaphragmatic hernia
Do not confound pleurisy and Diaphragmatic hernia
Pleural effusion in the fissures

**Front view:**
Effusion in the small and in the big fissure

**Profil:**
opacities with shuttle of a loom form
Effusion in the small fissure
Encysted pleurisy in small and big fissura, only visible on lateral view
Effusion in fissure is frequent in cardiac failure
Encysted pleurisy
Woman, 71 y. old, worsening condition and dyspnea. Puncture: Serofibrinous fluid. Biopsy: metastasis from adenocarcinoma

Encysted pleurisy
Left axillary and posterior thickenend pleural wall
Pleural tuberculosis
The tubercular pleurisy most often occurs just after the primary infection. That is why the tuberculine test is often negative (anergic phase).

Sometimes pleurisy occurs after reactivation from pulmonary under pleural tubercular nodule.

Sometimes, less often, pleurisy occurs in the same times than pulmonary TB.
The serofibrinous tuberculosis (2)

- is the most often **unilatéral**

- with **lymphocytic predominance** (possible prédominance of neutrophilic leucocyte in the beginning)

- is **exsudative**: protides pleural protid > 30g/l (or pleural protid / sanguineous protid ratio superior to 0,5)

- is associated with a pulmonary TB in less than 50% of the cases. The association between pleurisy and pulmonary TB is more frequent in case of AIDS.
The serofibrinous tuberculosis (3)

- AFB are nearly always negative in the pleural fluid

- The culture of the liquid (if it is realised) is positive only in the half of the cases

- Positive diagnostic is made by pleural biopsy (most often by thoracic puncture or if possible by thoracoscopy). The samplings can show specific lesions (tubercular granuloma)

- Cure without sequela is possible if the treatment begins early. Evacuation of the fluid and physiotherapy influence the good evolution
Right pleurisy associated with apical infiltrate:

Association with a pulmonary TB in less than 50% of the cases. Association pleurisy - pulmonary TB is more frequent in case of AIDS
Tubercular pleurisy in a patient of 28 y. old
TB pleurisy progressive evolution
X 5 months with treatment:

- AntiTB
- Aspirates
- Physio +++
Long term sequelae are possible...

Man, 58 years old, past history of pleurisy, (probable pleural TB). Restrictive chronic respiratory failure
Long term sequelae are possible, if initial management was late or incomplete. Consequency is restrictive chronic respiratory failure.
Calcified and retractile sequela of pleural TB
M 20 y. old t° 38°C, cough, and right latero-thoracic paint, dyspnea

Tuberculin Skin test: 3 mm
AFB negative
Puncture: serofibrinous fluid
protide: 44 g
lymphocyte: 96 %

Pleural biopsy:
Epithelioid and giant cell granuloma with caseum necrosis

Culture BK + in liquid and biopsies
Right abundant pleural effusion
Note the typical concave aspect of the opacity’s superior edge (yellow arrows)
Nodular infiltrate of the left upper lobe with cavity (red arrow).
AFB positive in sputum.
The main differential diagnoses are:

• The neoplastic pleurisy, (mainly metastatic)
• The para pneumonic pleurisy
• More rare etiologies:
  – Pancreatitis
  – pulmonary embolism
  – auto immun diseases…
• Transudative pleural effusion (Protein ratio : pleural / blood < 0.5) = cardiac failure, hepatic failure, nephrotic syndrome and renal failure
Note the pleural effusion and the pleural irregular thickness in the left axillar and apex pleural area, suggesting malignancy:

- primary pleural cancer = mesothelioma (past history occupational exposure to asbestos)
- or metastatic process...

TB pleurisy is also possible in such CXR.

If possible pleural biopsy could facilitate the diagnosis.
On the right side, same patient after 1 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.
But tubercular pleurisy is not always serofibrinous:

- The effusion can be gaseous: pneumothorax
- The effusion can be purulent et gaseous: Pyopneumothorax
TB left pneumothorax with excavated RUL infiltrate
Bilateral TB under treatment:
Apparition of a Left pneumothorax

Rupture of a small TB excavated Nodule in the under pleural area

Bilateral TB under treatment:
Small pleural effusion

Hydro-pneumothorax
With fluid level
M 28 y, cough, dyspnea ++ +, asthenia
Bilateral TB + left pneumothorax
Same patient
D 20

Left hydro pneumothorax

Left lung
Air
Fluid level

Setthathirath hospital Vientiane
Infectious & TB ward
It’s sero fibrinous fluid
TB pyo-pneumothorax, by rupture of a cavern in pleural cavity. Because of infection, the fluid contains pus with polynuclear leukocytes. AFB can be positive in the fluid.
TB pyopneumothorax is a very severe manifestation of TB with bad pronostic. It is almost always very late patients coming for consultation.
Thoracoplasty is often necessary to treat these pyo-pneumothorax.
Evacuation of pleural pus

But efficiency is very relative without continuous aspiration…
Without continuous aspiration, this drainage will always be unsuccessful in case of TB pyo-pneumothorax.
We must treat TB serofibrinous pleurisy with tb treatment. Pleural evacuation is, of course not sufficient.

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Lymphocytic pleurisy
Negative AFB
sputum & pleural fluid

Treatment only by punctures

Centre hospitalier Libreville
Gabon, Internal Medicine ward
Deemed "cured" by doctors
3 years later …

Cough sputum weight loss

Cavern

Mediastinal lymph node TB in his brother

Military hospitalier HIA OBO Libreville Gabon, Internal Medicine ward
Pericarditis
TB pericarditis are frequent in countries with high TB incidence.

TB pericarditis

After pericardic puncture
TB pericarditis
After surgical fluid drainage

Pneumo-pericardium

and pneumo-peritoneum
Note as the pericardium (parietal) is thin
Do not confuse pericarditis and cardiomegaly. The treatment is very different:

- Look at the cardiac edge: they are sharp with beginning of symmetry
- Look at the lungs: they are clear with no signs of pulmonary oedema