Tuberculous Miliary

Etienne Leroy Terquem – Pierre L’Her
SPI / ISP
Soutien Pneumologique International / International Support for Pulmonology
Miliary: diffuse nodules <3mm

Easy to diagnose with a scanner ... We must learn to recognize it on standard CXR
Tubercular miliary (1)

- The diagnosis of miliary requires a chest radio of good quality and careful analysis of the image.
- The radiological image is composed of diffuse micronodules < 3mm (strict definition of hematogenous miliary), or nodules from 3 to 6 mm.
- The images are often barely visible.
- General signs and dyspnea are generally severe in cases of miliary TB. Nevertheless, the auscultation is most often normal.
- The opacities are bilateral, sometimes asymmetric.
- The AFB are most often negative in sputum.
The tuberculous miliary is frequent in cases of AIDS with severe immunodepression. It is often associated with adenopathies, or pneumonias without cavitation, and EPTB (extra pulmonary tuberculosis)

* **Tuberculosis is the first etiology of miliary**, but differential diagnosis exist.

* **Differential diagnosis** (miliary and nodules <7mm) are:
  -- fungal infections particularly in case of AIDS, (histoplasmosis, cryptococcosis, ...)
  – sarcoidosis (incidence in developing countries?)
  – carcinomatosis miliary
  – pneumoconiosis (incidence in developing countries?)
  – auto-immune infection, haemopathy, immuno-allergic pneumopathy…
Tuberculous miliary: haematogenous dissemination of the TB bacilli in the post primary phase, or after the reactivation of an old lesion and new dissemination of the bacilli in blood circulation
Sometimes the diagnosis is obvious…
…But it can be more difficult
...Or impossible if the contrast of the chest X ray is not correct
Miliary

normal chest x-ray
TB miliary in HIV context
Miliary in HIV+ patient. The quality of the x-ray is imperfect. But notice the bilateral hilar adenopathies.
Man, 68 years old, t° 40°C, dyspnea and asthenia, bilateral but asymmetric miliary, AFB – (no sputum)

Bronchial endoscopy: AFB+ in bronchial aspiration
The tuberculous miliary is often associated with multivisceral lesions (haematogenous dissemination)
The bronchogenous dissemination is a different mechanism: local dissemination via the bronchi, from a cavern or an adenopathy fistulized into a bronchus. Micronodules are possible but not as diffused than in miliary cases. TB pneumonia is frequently associated and lesions are often bilateral.
Man, 25 years old

Cough, no sputum

T° 39°C

Dyspnea

AFB -

TB micronodules and pneumonia with right hilar adenopathy

Probable bronchogenic diffusion. Favourable evolution under treatment
Main differential diagnosis with tuberculous miliary
Woman, 20 y.old HIV+, cough dyspnea, Asthenia and cachexia t° 38°C AFB- in sputum But non-productive cough

Bronchio-alveolar lavage: Histoplasmosis
Pneumocystosis in an HIV+ patient: interstitial (not miliary, ground glass attenuation) and alveolar images.
Bilateral miliary, with bulky round image in the right sup. lobe, non-excavated, The most probable diagnosis is bronchial cancer with carcinomatous miliary.
Woman, 55 years old, cough and dyspnea, smoker 40 pack/years. AFB -

Bronchial cancer in the right superior lobe and carcinomatous miliary
Carcinomatous miliary
Man, 60 years old, dyspnea and cough progressively increasing, with no sputum. (2 months between the 2 x-rays). Bronchial endoscopy: AFB negative in bronchial aspiration. Culture negative. Biopsy: epithelioid and gigantocellular lesions

This could be tuberculosis... But it is a sarcoidosis
Bilateral micro-nodular opacities associated with adenopathies. 2 diagnosis are suspected: - TB especially in countries with high incidence
- Sarcoidosis in developed countries (bilateral, symetric and non-compressive adenopathies)
Silicosis (courtesy of Pr. Anthoine- France)

Exposed professions:
- miners and workers in quarries
- masons
- workers in foundries and refractory industry
- ceramic and tiled-floor industry
- dental prosthesis and stone polishers
- sand blasting and stone crushing industry
calcified miliary
Sequela of varicella
Miliary tuberculosis

• The images are often barely visible and diagnosis of miliary requires a chest radiograph of good quality and a careful analysis of the images

• The X-ray image is composed of diffuse nodules <3 mm or nodules 3 to 6 mm. Opacities are bilateral, sometimes asymmetrical

• General signs and dyspnea are often very severe, normal auscultation

• AFB are usually negative in sputum

• Miliary TB is common in AIDS with low CD4 counts, often associated with lymphadenopathy, pneumonia without excavation, and extra-pulmonary TB
Diagnosis of miliary:

- Requires a good quality chest radiograph and careful analysis: NEGATOSCOPE!
- The images are often barely visible contrast in miliary TB, with the severity of breathlessness and general symptoms (fatigue, fever, weight loss).
- The first diagnosis is TB
- But AFB are usually negative in sputum

Differential Diagnosis:

- Mycosis especially in AIDS (histoplasmosis, cryptococciosis, ...)
- Miliary carcinomatosis
- Sarcoidosis (incidence in the tropics?)
- Pneumoconiosis (incidence in the tropics?)
- Auto immune infections, pneumonia immuno-allergic ...