The sequelae of pulmonary TB

Active or inactive?
Anti-TB treatment or not?

Etienne Leroy Terquem – Pierre L’Her
SPI / ISP
Soutien Pneumologique International / International Support for Pulmonology
The sequelae are the central problem of Smear negative TB

Need to train doctors reading the radio

Is X-ray useful?
Diagnosis by means of radiographic examination in patients suspected of tuberculosis presents a challenge. Abnormalities identified on a chest radiograph may be due to tuberculosis or to a variety of other conditions and the pattern on the radiograph is not specific for tuberculosis. Some individuals who have previously had tuberculosis that is now healed (and therefore does not require treatment) may have a chest radiograph that resembles tuberculosis requiring treatment. Chest radiographs may be helpful in those patients who are not sputum smear-positive, but they can only be read reliably by an experienced Medical Officer.
Sequelae 1

- Radiological images:
  - retraction and fibrosis
  - calcification
  - bronchiectasis.

- One can observe sequelae in case of "spontaneous recovery" of a non treated TB.

  Active BK remain alive in calcified cicatrix

  An active TB can occur in the evolution especially in case of immuno-depression.
Sequelae 2

• One can also observe sequelae after an adapted treatment, especially if this treatment is initialised with delay, if the pulmonary lesions are severe, and if the patient has diminished immune defenses (HIV, malnutrition…).

• It is always necessary to try to find AFB in sputum before making the diagnosis of inactive TB sequela.
Sequelae (3)

Sequelae can be symptomatic even without active tuberculosis:

• Hemoptisis,
• Infections with non TB bacteria or aspergillus
• Dyspnea and chronic respiratory failure
• Do not treat again improperly with anti-TB in case of AFB negative sampling in sputum
Sequelae (4)

- It is very important to store the old chest x-ray for comparison with the recent chest X-ray.
- The notion of a correct TB treatment in the ATCD of the patient is a strong argument for the diagnosis of sequelae (but exogenous reinfection is also possible).
Primary infection
Sequel
"Ghon focus"
Calcified primary infection and calcified adenopathies

"Ghon’s Complex"
Tuberculous pneumonia
Retractile evolution with sequelae despite treatment
Pulmonary tuberculosis. Excavated lesions on the left side. AFB+ on 04/05/2006
The same patient after treatment, 15/05/07: recovery with few radiological sequelae.
Excavated lesions with AFB+ in right superior lobe
Recovery with nearly no sequelae
Pulmonary tuberculosis with adenopathies, right emphysema bulla and left tb pneumonia
Recovery with persistant emphysema bulla which has increased because of retracitil sequela surrounding.
Retractile sequela of bilateral apex TB
Retractile sequela of a left lung severe TB
Retractile sequela of a left lung severe TB
Retraction and ascent of left hilus: sequela of left apex TB
Calcified and retractile sequela of pleural TB
Pleural calcified lesions
Rétraction, calcification, bronchiectasis
Retractile sequela of bilateral TB with cavitation on the right side and thickness of the pleural wall on the left side. High risk of colonisation by aspergilloma.
Man. 70 years old. Abundant hemoptisy. Complete treatment for pulmonary TB many years ago. AFB negative.
Man, 60 years old, hemoptisy. AFB negative in sputum and bronchial aspiration. But aspergillus ++ in bronchial aspiration.
TDM in décubitus and procubitus position

Aspergilloma is mobile, not fixed in the cavity
calcified aspergilloma
(courtesy Pr Anthoine)
Left inferior lobe bronchiectasis. Probable TB primary infection sequella
Right severe bronchiectasis, sequela of extensive TB of the right lung
TB primary infection when 1 year old (1945)
22 years later …(1967)
60 years later… (2006)
Bronchiectasis post TB infection
Problem for the clinician

• Recognise real TB sequela, which can give complications (hemoptisy, respiratory insufficiency, bacterial non tb infection...) but which do not need a new TB treatment

• Recognise active TB, sometimes mixed with older sequela lesions, which need TB treatment
Problem for the clinician:

Active ou inactive sequela?

To treat or Not to treat?
Active ou inactive sequela  ?
Treat or not to treat?
Few clinical cases
Woman 78 years old, cough and fever.
CXR: Calcified adenopathies.
Calcified adenopathies: Inactive lesions?

AFB sputum +
Active TB lesions co-existing with calcified lesions

Always search AFB in sputum or in bronchial aspiration before making the diagnosis of sequelae
M 70 y hospital 04.07.08
No information on a past history of TB or any treatment.
Cough and sputum
AFB neg 7, 8, 8 / 07.08
Amoxicilline X15 days
No improvement
M 70 y hospital 04.07.08
No information on a past history of TB or any treatment.
Cough and sputum
AFB neg 7, 8, 8 / 07.08
Amoxicilline X15 days
No improvement

AFB + 23.07.2008

Bilateral retractile Sequela, but also
Active TB reactivation

Always search AFB in sputum or in bronchial aspiration before making the diagnosis of inactive sequelae
Woman 75 years old. Cough and weight loss. Persistent fever. CXR: retractile sequela in the left upper lobe. No improvement after antibiotic.
Woman 75 years old. Cough and weight loss. Persistent fever. 
CXR: Retractile sequela in the left upper lobe. No improvement after antibiotic

AFB +: Reactivation of TB infection on old sequela

Always search AFB in sputum or in bronchial aspiration before making the diagnosis of inactive sequelae
Sequelae

- In these 3 cases: reactivation TB on retractile and calcified séquelas. AFB+ in sputum. TB treatment is required.
- But clinical symptoms (dry or producing cough, hemoptisis, weight loss...) and radiological findings does not always mean active TB:
- Bacterial infection hemoptisis, chronic dyspnea are frequent with TB inactive sequela.
Man 58 years old
Cough sputum and hemoptysis
AFB negative.
No information on the past history
TB TREATMENT OR NOT?
Man 58 years old
Cough, sputum and hemoptisy
AFB negative.
No information on the past history

TB TREATMENT OR NOT?

Improvement with ceftriaxone. AFB negative 3 times.
Tuberculous sequelae. No TB treatment necessary
Woman, 78 years old, coming to hospital emergency room for severe dyspnea high fever and purulent sputum. Improvement after treatment with amoxicillin.

Dyspnea improves but persists. Repeated negative AFB in sputum.
Woman, 78 years old, coming to hospital emergency room for severe dyspnea, high fever and purulent sputum. Improvement after treatment with amoxicillin.

Dyspnea improves but persists. Repeted negative AFB in sputum.

Opacity of the upper lobe which is retracted (ascension of the small fissura and hilus). Typical picture of TB sequela. Improvement with non specific antibiotic and AFB neg: **No need TB treatment**
Woman 72 y. old
Cough and chronic dyspnea
Few hemoptoïc sputum
AFB neg.
Treated as TPM- ...
Severe left retractile sequela
TB treatment non justified.
Chronic dyspnea is consequence of retractile sequelas.

Woman 72 y. old
Cough and chronic dyspnea
Few hemoptoïc sputum
AFB neg.
Treated as TPM- ...
Decision of TB treatment or not:

- Past history *(correct TB treatment or not)*
- **If available comparison with past CXR** *(each patient should have a CXR at the end of primary treatment and educated to keep it with him)*
- sputum analysis+++ 
- **Clinical symptoms** evolution with non specific antibiotic 
- CXR analysis by experienced physician 
- **In case of typical TB sequela and sure notion of no TB treatment in past history, one complete TB treatment should be considered**