

TB and HIV

- TB/HIV Pathogenesis
- Importance of Screening
- Clinical Presentations of HIV-related TB
- Clinical Management of TB and HIV Co-infection



TB/HIV

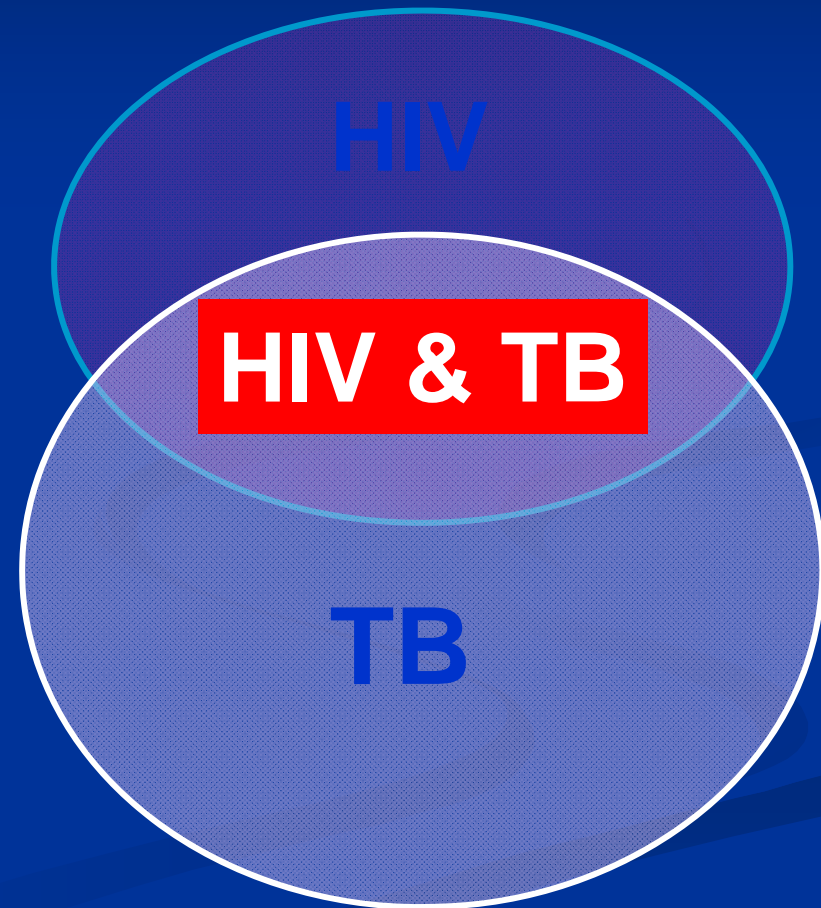
Two Diseases

One Patient

TB: A Growing Concern

Approximately 1/3 of ■
the world population
is infected with TB

TB is one of the ■
leading causes of
death in people with
HIV, particularly in
low-income countries



Progression

TB increases HIV progression ■

Dually infected persons often have very high HIV viral loads ■

Immuno-suppression progresses more quickly, and survival may be shorter despite successful treatment of TB ■

Persons who were co-infected have a shorter survival period than persons with HIV who never had TB disease ■

The Effects of Immune Suppression on TB Progression

HIV+ person has a greater risk of reactivation of latent TB infection (LTBI) ■

HIV+ person is more likely to progress to TB disease following infection ■

HIV+ person has a high risk of becoming sick again after treatment ■

HIV+ person with LTBI has a 5-15% annual risk of developing active TB (versus 10% lifetime risk among HIV-negative persons) ■

The Effects of HAART on TB Progression

Highly Active Anti-retroviral Therapy (HAART) ■
alone can reduce the risk of latent TB infection
progression to active TB disease by as much as
80%–92%

In areas with a high prevalence of HIV infection in the general population where tuberculosis and HIV infection are likely to co-exist, HIV counseling and testing is indicated for all tuberculosis patients as part of their routine management.

In areas with lower prevalence rates of HIV, HIV counseling and testing is indicated for TB patients with symptoms and/or signs of HIV-related conditions and in tuberculosis patients having a history suggestive of high risk of HIV

TB Screening (2)

TB Screening Questionnaire

Has the patient had a cough for ≥ 3 weeks? .1

Has the patient had night sweats for ≥ 3 weeks .2

Has the patient lost ≥ 3 kg in the past four months? .3

Has the patient had fever for ≥ 3 weeks? .4

Has the patient had recent contact with another person with active TB? .5

TB Screening (3)

➡ All patients suspected or known to be HIV-seropositive and those who have AIDS should be examined for TB, particularly when there is a cough

Clinical Presentation of HIV-related TB

CD4 counts >350 ■

- Disease usually limited to the lungs
- Often presents like TB in HIV-uninfected persons
- “typical” chest X-ray findings with upper lobe infiltrates with or without cavities

Disseminated disease with high fevers and rapid progression is seen •

Chest X-ray findings often look like “primary TB” with adenopathy, effusions, interstitial or miliary •

Pulmonary TB in Early and Late HIV Infection

Features of pulmonary TB	Early Stage HIV infection	Late Stage HIV infection
Clinical picture	often resembles post-primary PTB	often resembles primary PTB
Sputum smear result	often positive	more likely to be negative
Chest X-ray appearance	upper lobe infiltrates with or without cavitation	infiltrates any lung zone, no cavitation; miliary; normal

Smear-negative Pulmonary TB

TB sputum culture is the gold standard for TB diagnosis ■

If sputum smears are negative: ■

- Obtain sputum culture if available

- Culture will improve the quality of care and assist the confirmation of the diagnosis

- A CXR can help with earlier diagnosis, i.e., if findings show intrathoracic adenopathy, miliary changes, or upper lobe infiltrates

Diagnosing TB in Persons with HIV

In HIV-positive or suspect patients: ■

3 sputum samples for microscopy are indicated for •
any symptoms of TB regardless of duration or
sputum characteristics

Fever and weight loss can be important symptoms •

If sputum smear is +, a chest X-ray is not required •
to confirm the diagnosis PTB

Post - Primary Tuberculosis

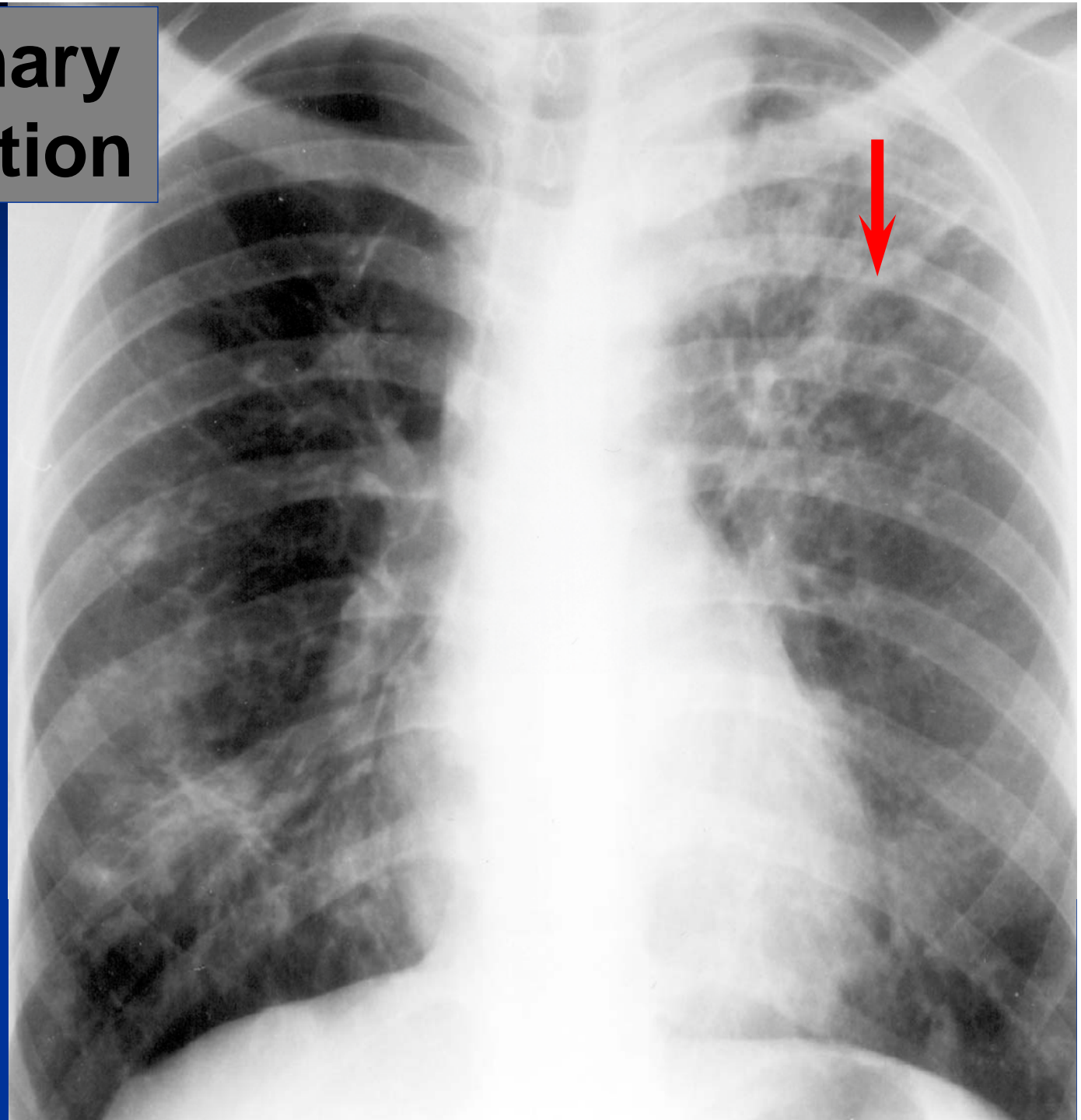
Air space consolidation ■

Cavitation, cavitory nodule ■

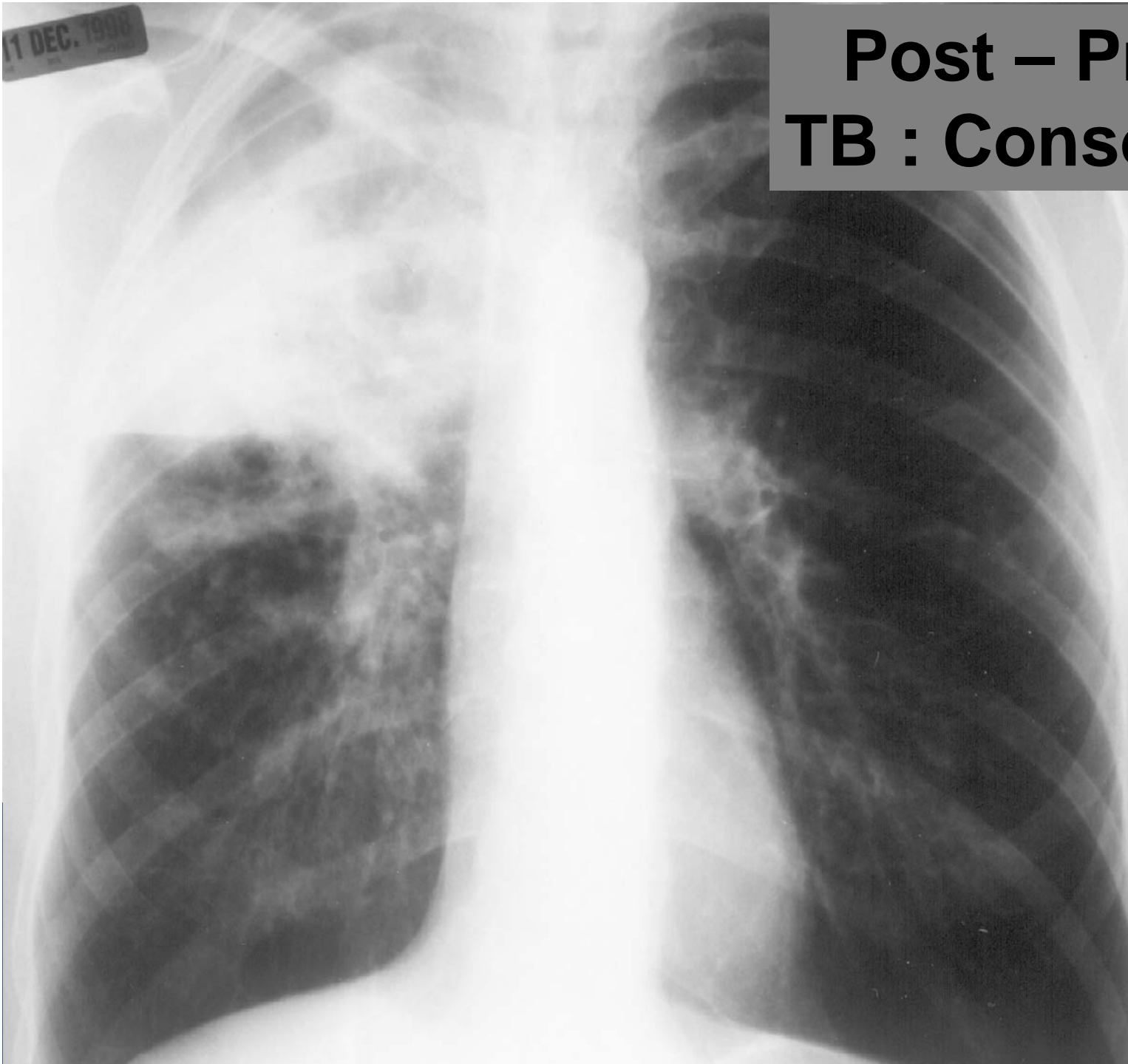
Upper lung zone distribution ■

Endobronchial pattern of spread ■

Post – Primary TB : Cavitation



Post – Primary TB : Consolidation

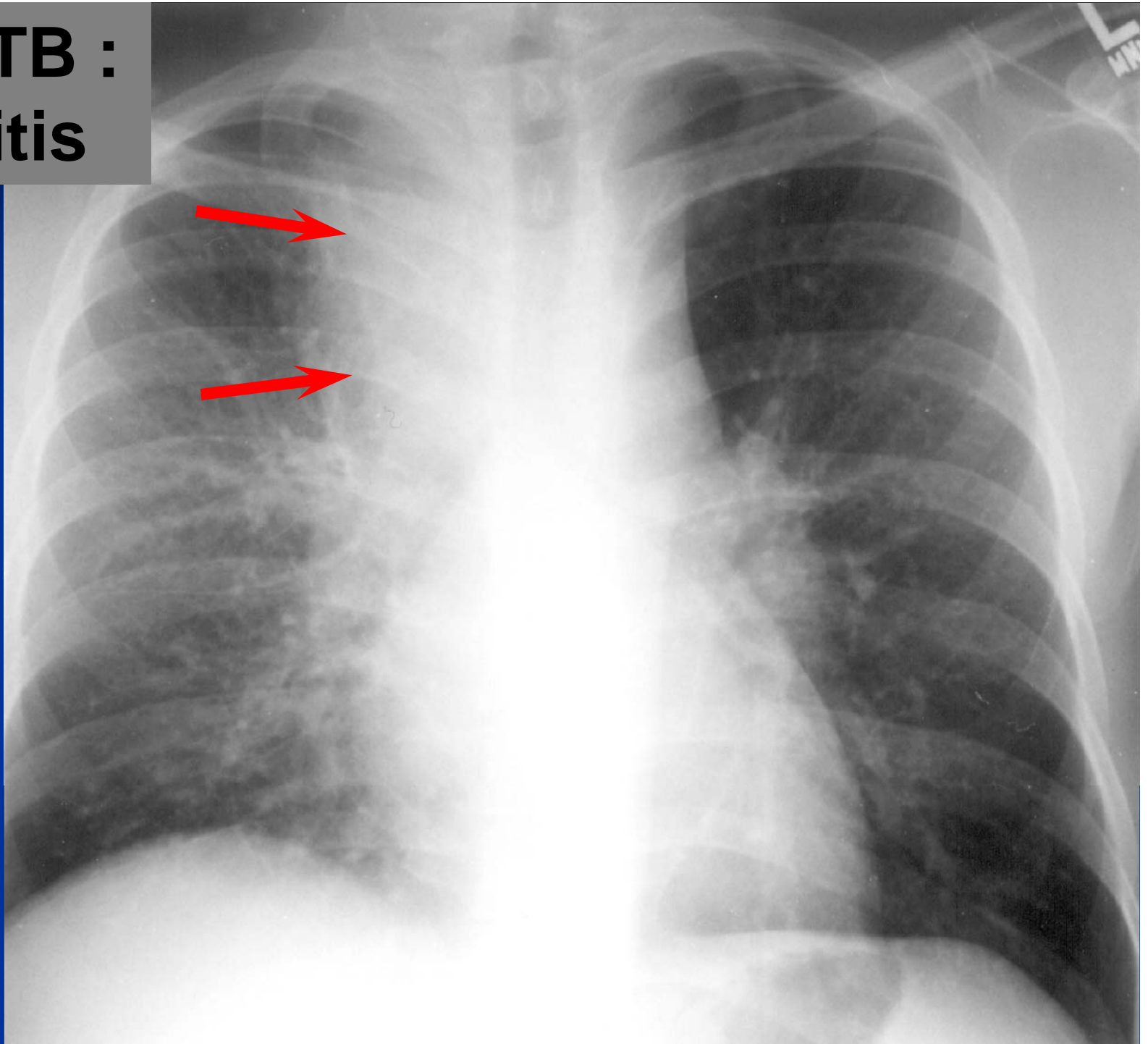


Intrathoracic adenopathy, hilar and paratracheal ■

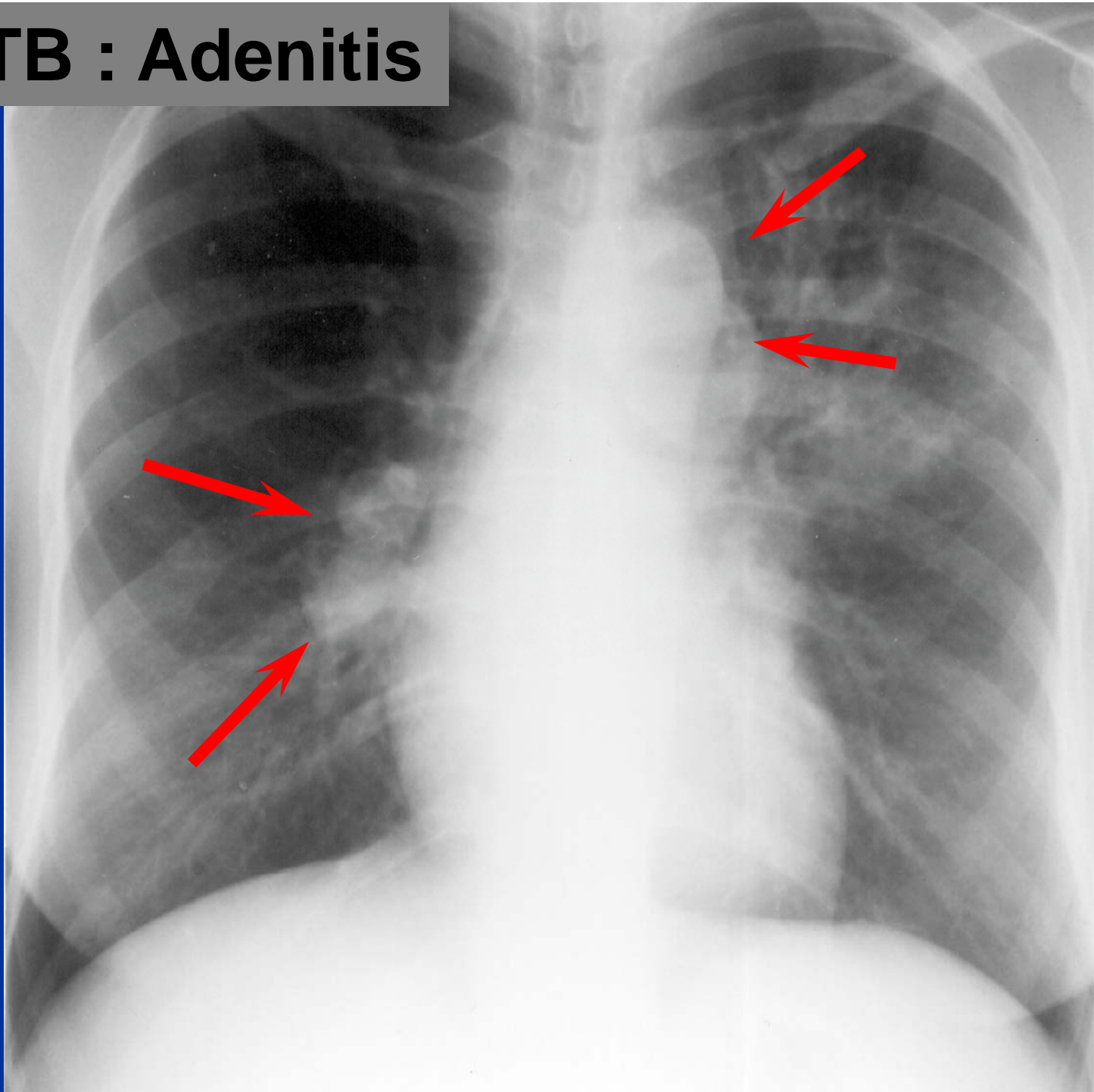
Cavitation is uncommon (<10%) ■

Miliary pattern ■

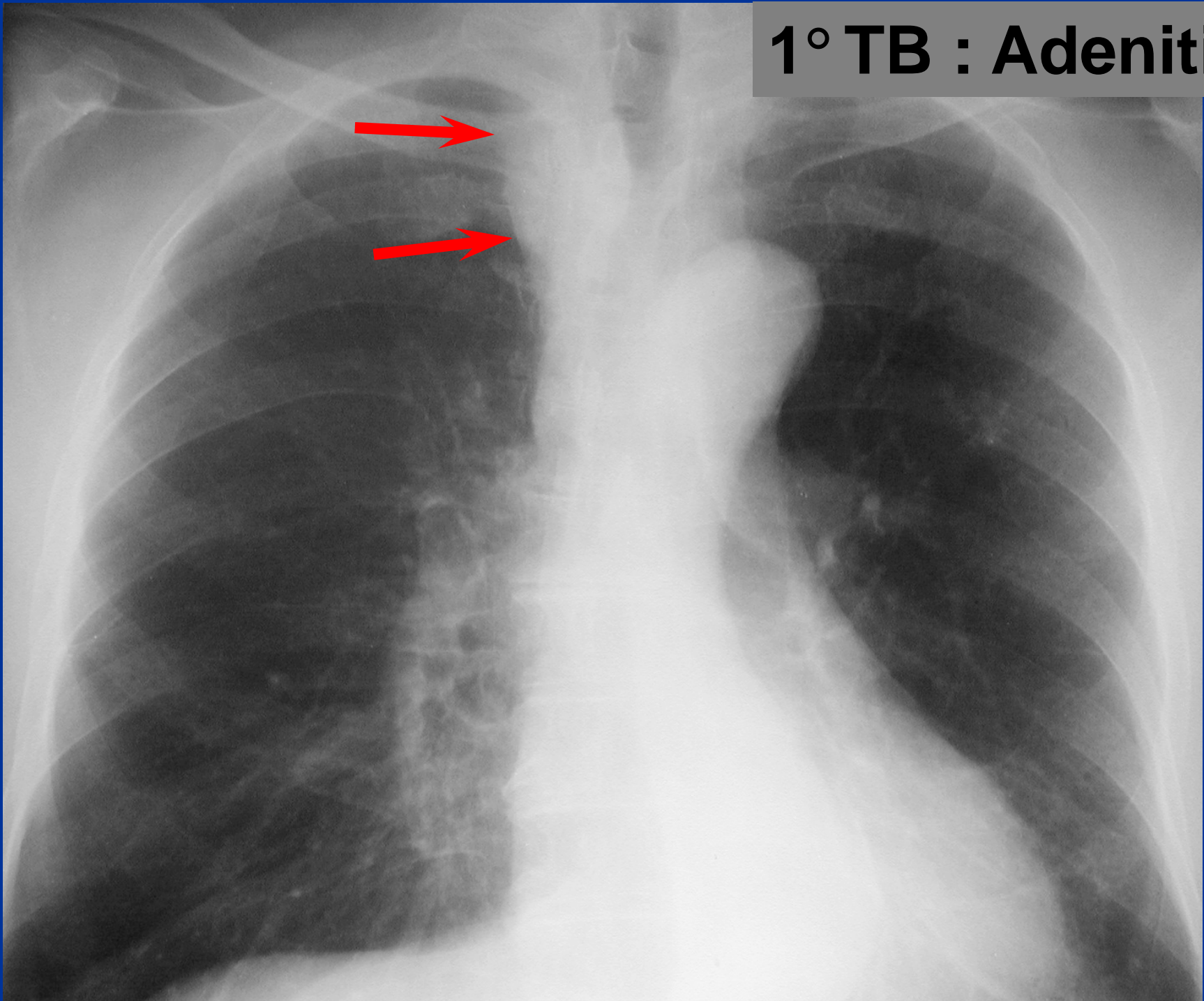
HIV & TB : Adenitis



HIV & TB : Adenitis



1° TB : Adenitis



Understand the Differential Diagnosis of Smear-Negative PTB in HIV Patients

Always reassess the patient for conditions ■
that may be mistaken for PTB, including
non-infectious conditions

Acute bacterial pneumonia is common in ■
HIV patients (short symptom history usually
differentiates pneumonia from PTB)

Consider PCP: ■

In a seriously ill patient with dry cough, severe •
dyspnoea and bilateral diffuse infiltrates

Concomitant treatment of TB and PCP may be •

Extra-pulmonary TB

More strongly HIV-related than PTB ■

If combined extra-pulmonary TB (EPTB) and PTB, HIV infection is even more likely •

In HIV, EPTB is WHO Clinical Stage 4 ■

Patients with HIV and EPTB are at risk for ■
disseminated disease and rapid clinical
deterioration

Extra-pulmonary TB (2)

If a patient has EPTB, look also for PTB with sputum smears - many patients with EPTB, however, do not have coexisting PTB ■

Forms of EPTB commonly seen in patients with HIV-associated TB include: ■

Lymphadenopathy –

Pleural effusion –

Abdominal –

Pericardial –

Miliary TB –

Meningitis –

Extra-pulmonary TB (3)

Presentation ■

Constitutional symptoms (fever, night sweats, weight loss) •

Local features related to the site of the disease •

Diagnostic tools ■

X-rays, ultrasound, biopsy •

Diagnosis may be presumptive provided other conditions are excluded ■

Note: disseminated TB may have no localizing signs, may present with anemia, or low ■

TB Treatment

➡ Anti-TB regimens in an HIV-positive patient follow the same principles as in HIV-negative patients

TB Treatment (2)

Cautions: ■

Extensive disease •

Culture positive at 2 months •

Daily during initial phase then thrice weekly or daily •

All patients with tuberculosis and HIV infection ■
should be evaluated to determine if antiretroviral
therapy (ART) is indicated during the course of
treatment for tuberculosis

Appropriate arrangements for access to ■
antiretroviral drugs should be made for patients
who meet indications for treatment

Given the complexity of co-administration of antituberculosis treatment and ART, consultation with a physician who is expert in this area is recommended before initiation of concurrent treatment for TB and HIV infection, regardless of which disease appeared first

However, **initiation of treatment for TB should not be delayed**

Patients with TB and HIV infection **should also receive cotrimoxazole** as prophylaxis for other infections

Summary

TB increases HIV progression ■

HIV increases TB progression ■

Standard TB treatment usually cures TB in TB/HIV ■

Despite successful TB treatment, mortality among TB/HIV patients remains high ■

All HIV/TB patients qualify for cotrimoxazole prophylaxis and it improves survival ■

Summary (2)

HAART for eligible patients greatly improves survival ■

Different HAART regimens may be required because of drug interactions with rifampicin ■

Programmatic synergy between the TB and HIV programs is needed to improve treatment of both conditions and will reduce disease and death ■

