

PNEUMONIA

Radiological Features

RADIOLOGIC PATTERNS

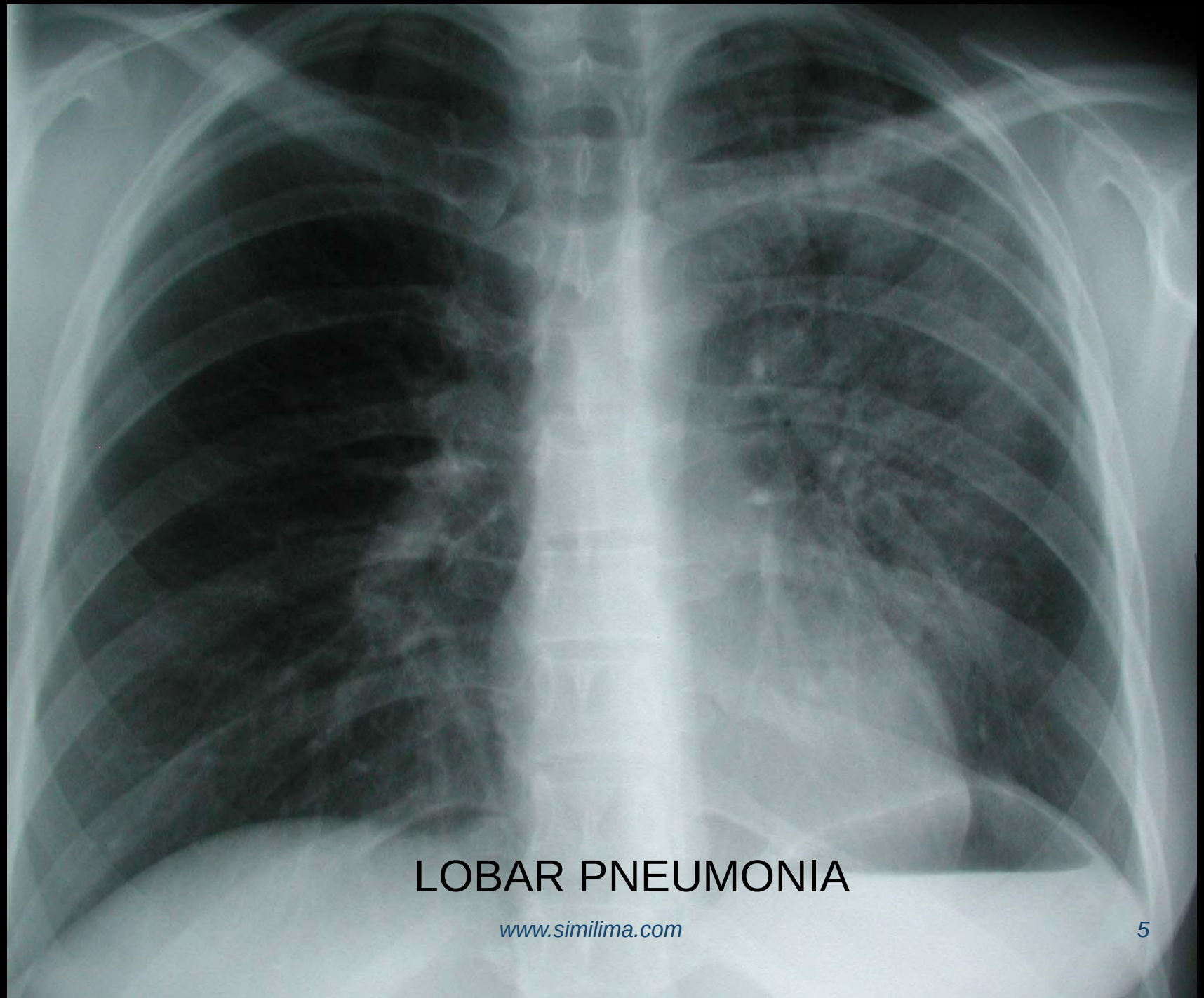
- ***Lobar pneumonia***
- ***Bronchopneumonia***
- ***Interstitial pneumonia***

LOBAR PNEUMONIA

- ***Involved lung is white***
- ***Airways remain black (air-bronchogram)***
- ***Involves one or more lobes***
- ***Sharply demarcated by fissures***
- ***No enlarged nodes***
- ***Inflammation involves alveoli rather than airways***

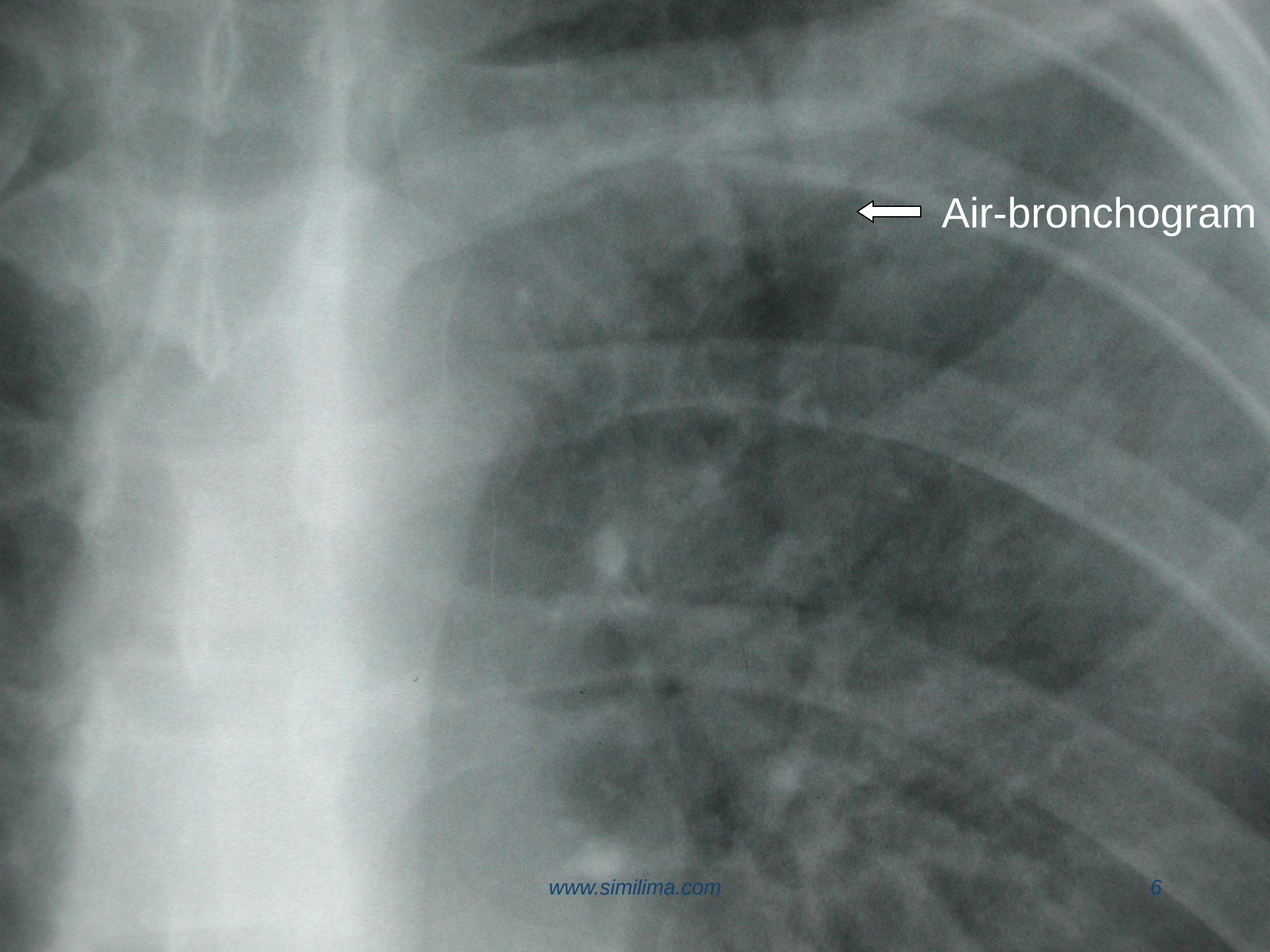
THE AIR BRONCHOGRAM SIGN

- ***Alveoli filled with water-density substance***
- ***WHITE***
- ***Bronchi aerated - BLACK OR GRAY***
- ***This defines AIR-SPACE DISEASE***

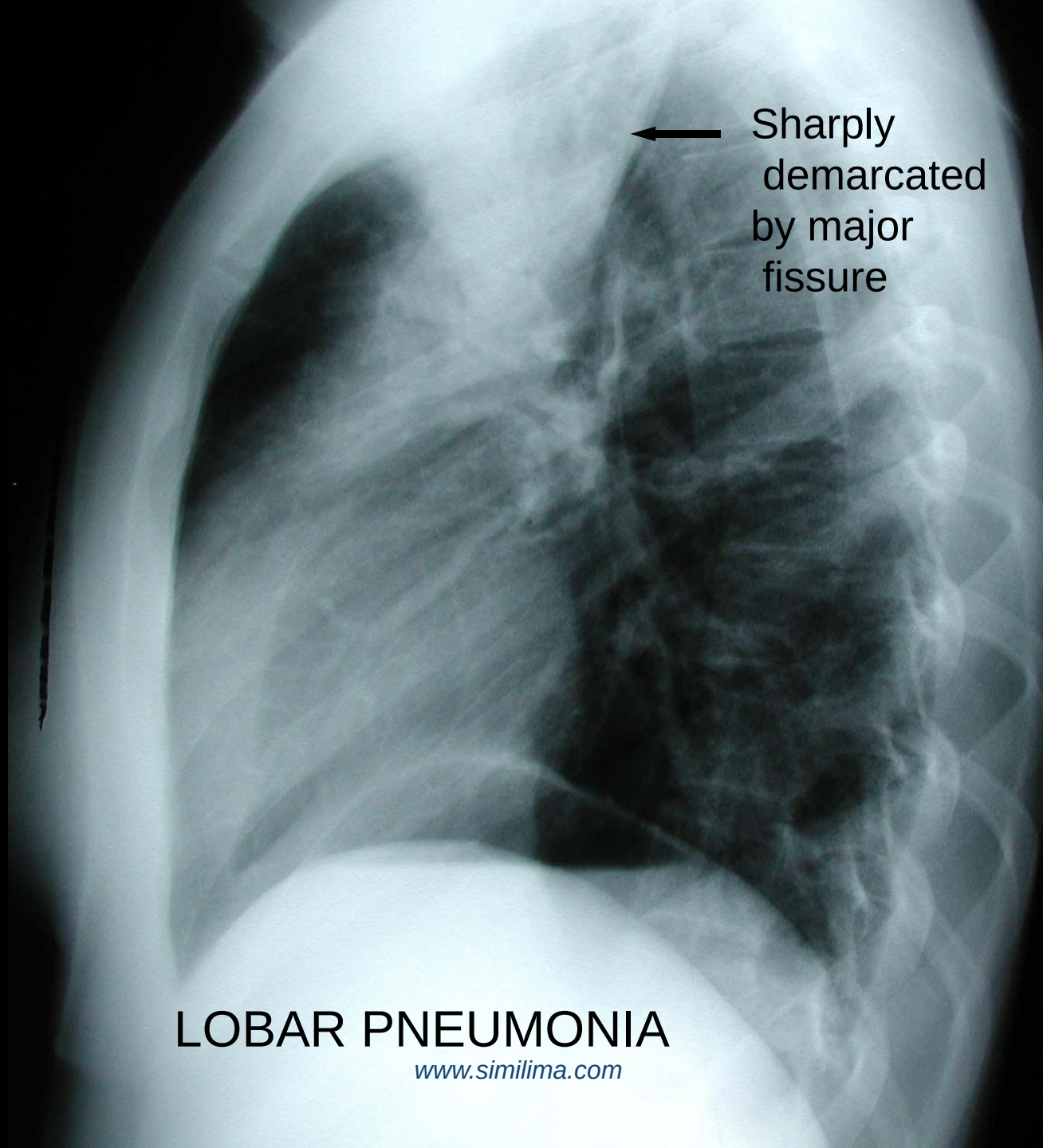


LOBAR PNEUMONIA

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A black and white chest X-ray image. The right lung (on the left side of the image) shows a prominent, dark, branching pattern within a lighter, more opaque lung field, which is characteristic of an air-bronchogram. This pattern represents air-filled bronchi against a background of consolidated lung tissue. An arrow points from the text 'Air-bronchogram' to this specific area.

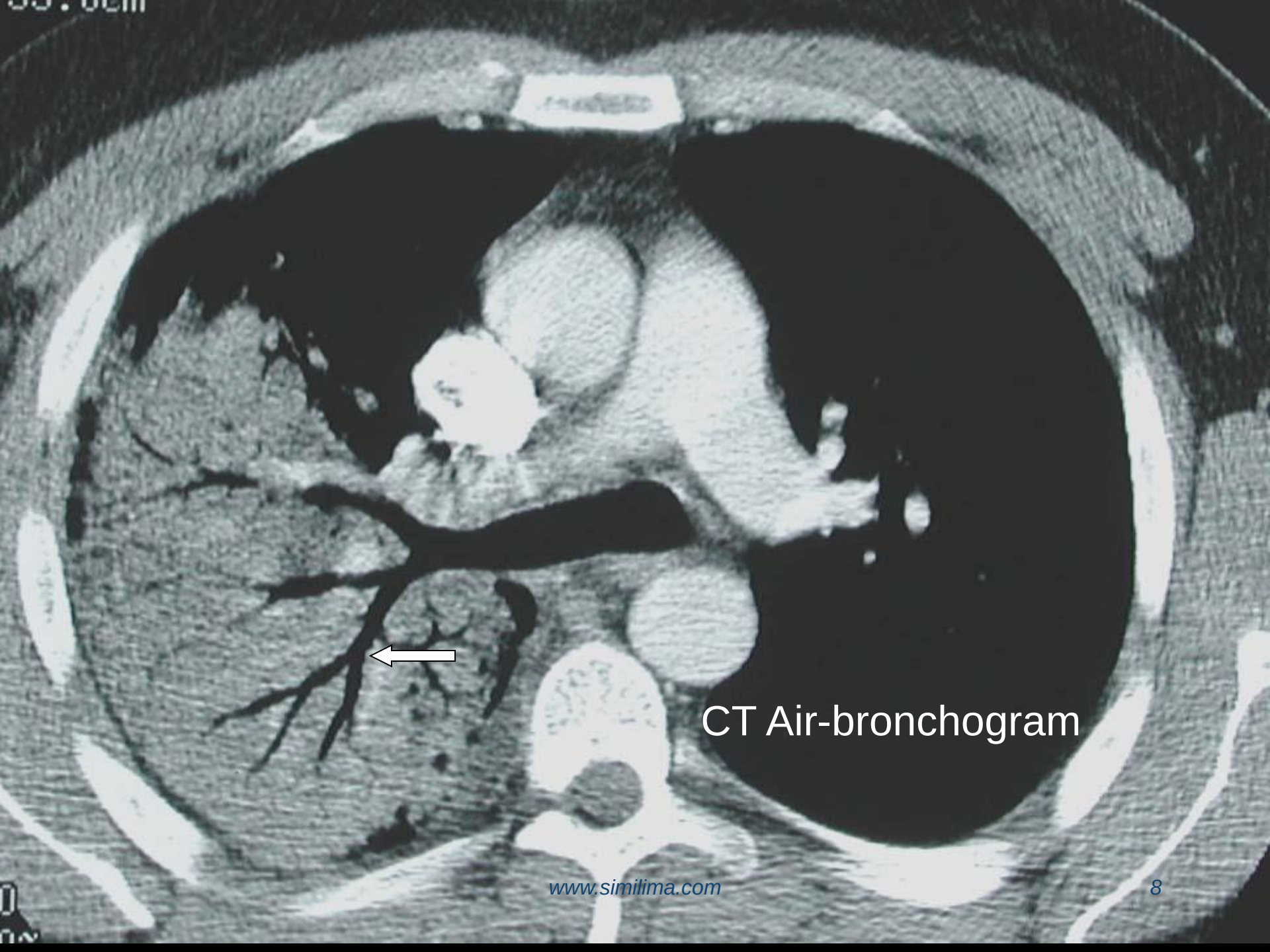
← Air-bronchogram



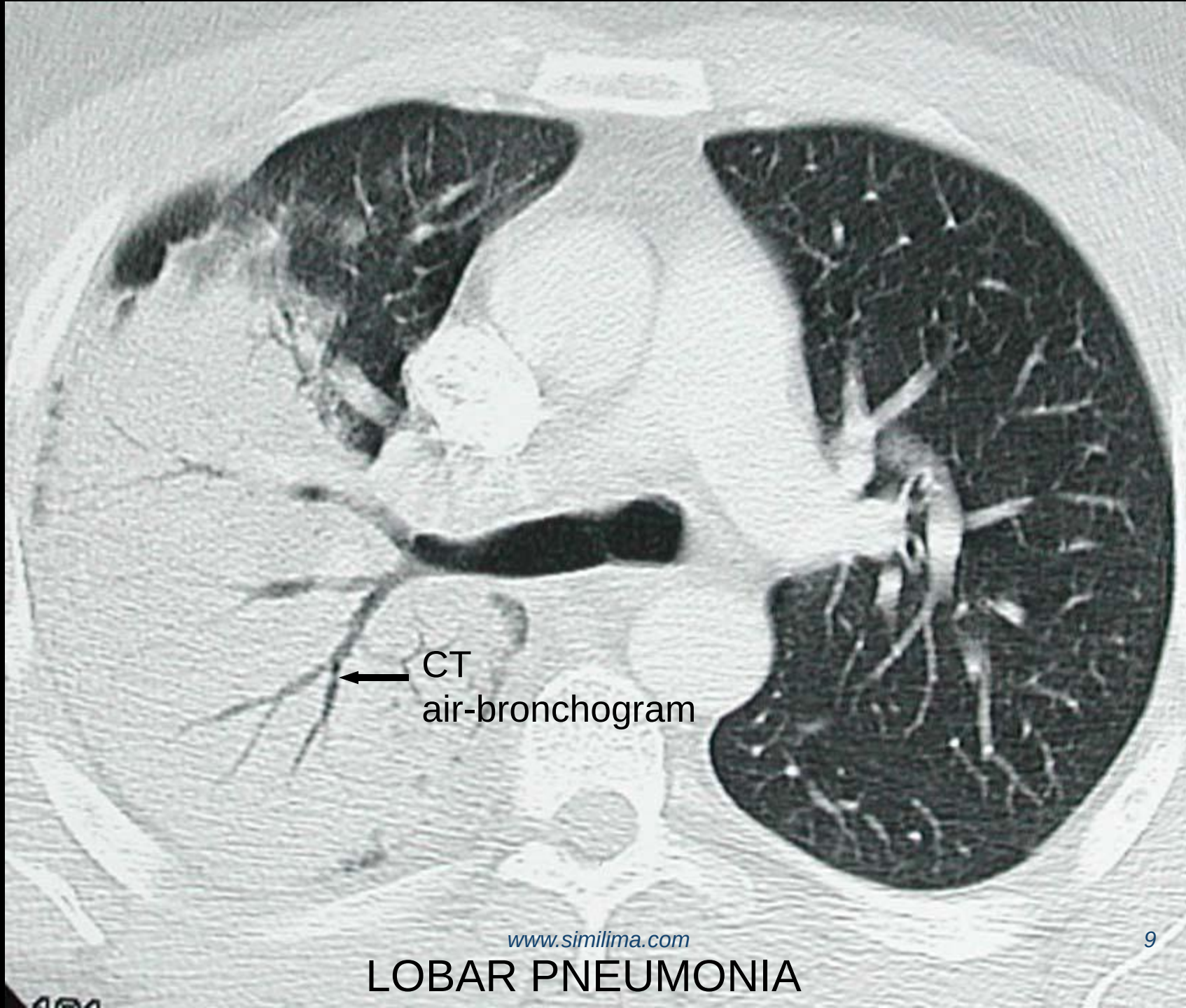
← Sharply
demarcated
by major
fissure

LOBAR PNEUMONIA

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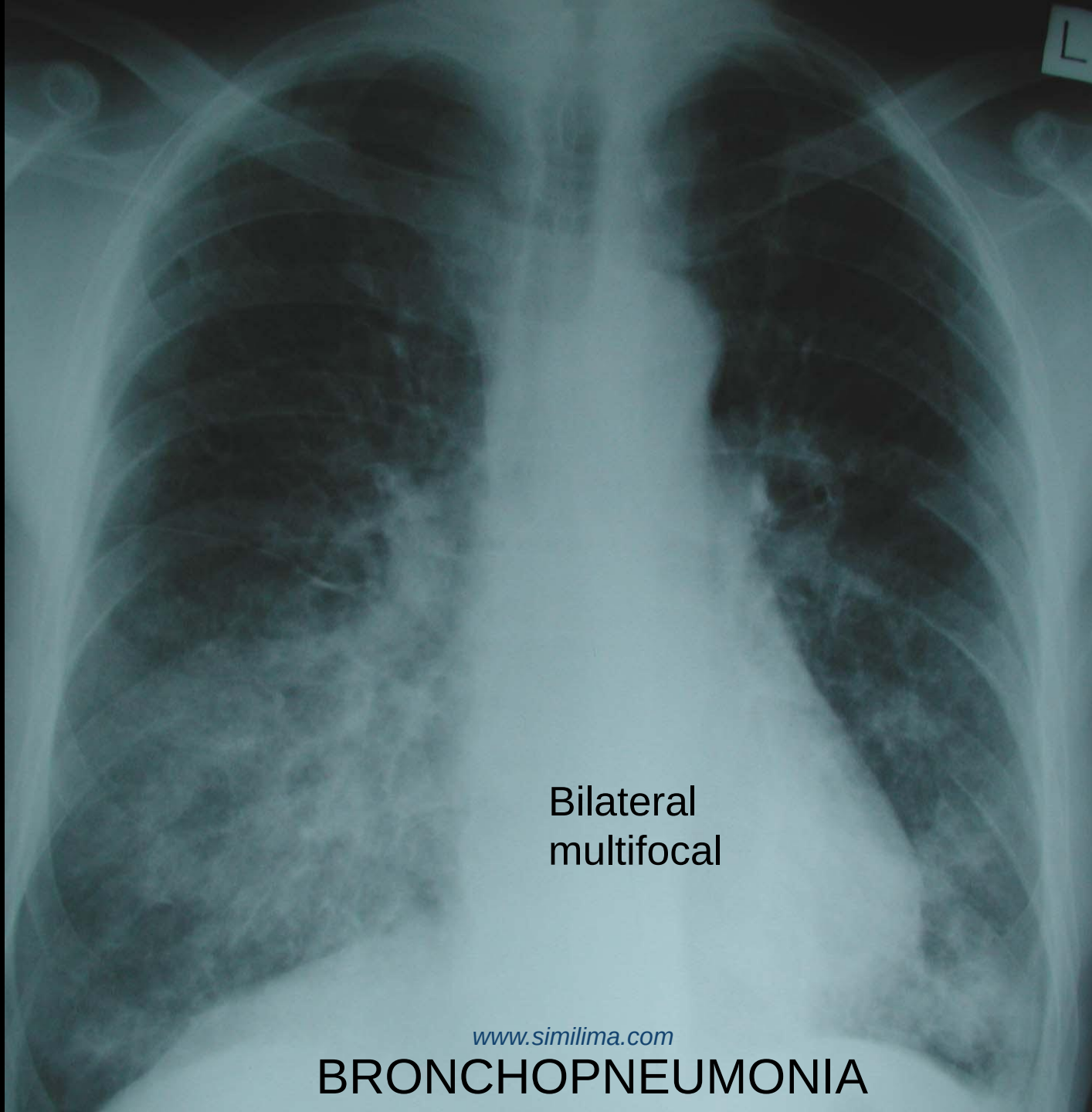


CT Air-bronchogram



BRONCHOPNEUMONIA

- ***Inflammation begins in small airways instead of alveoli***
- ***Small, multifocal, bilateral areas of air-space disease***
- ***No enlarged nodes***

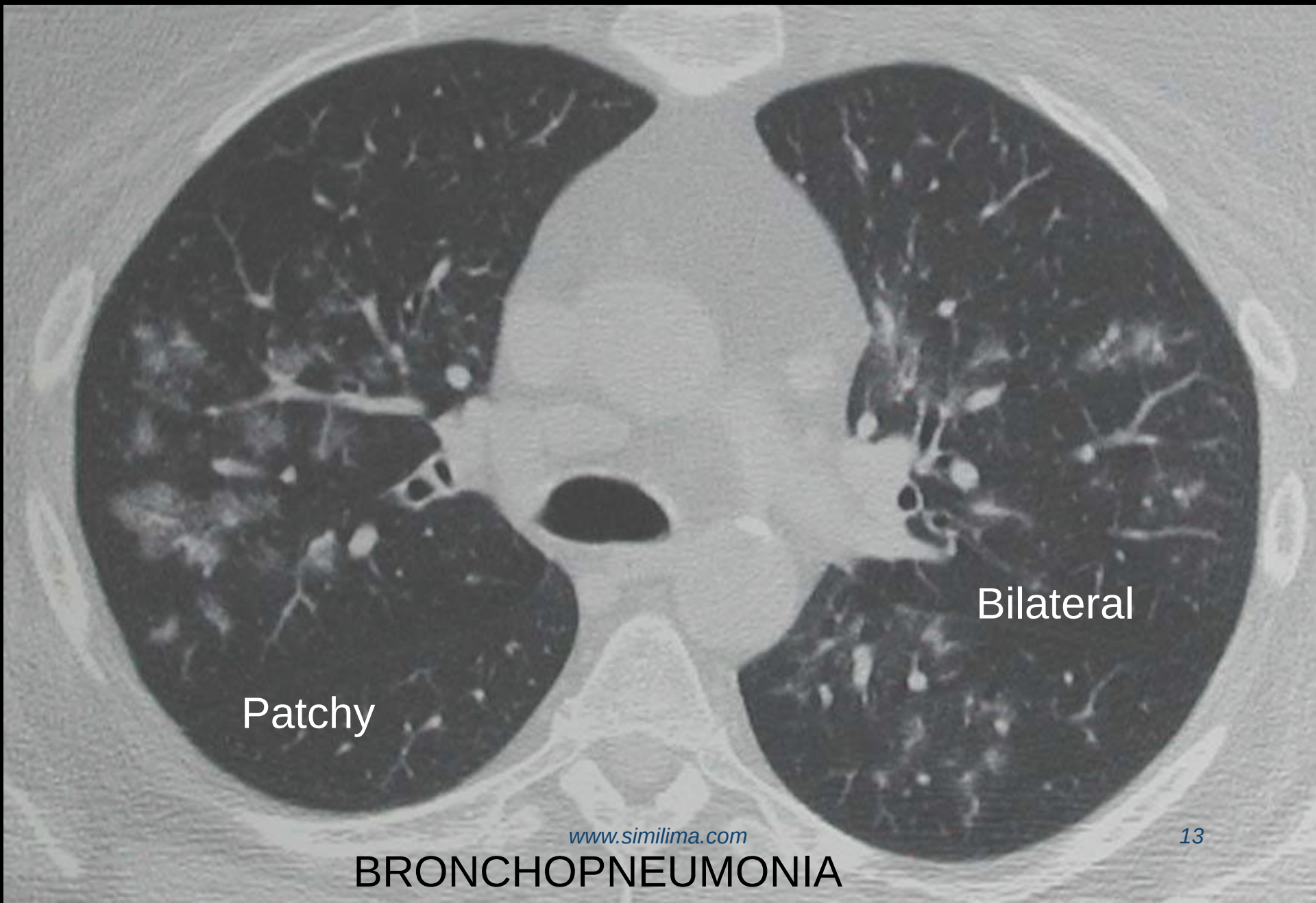


Bilateral
multifocal

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BRONCHOPNEUMONIA

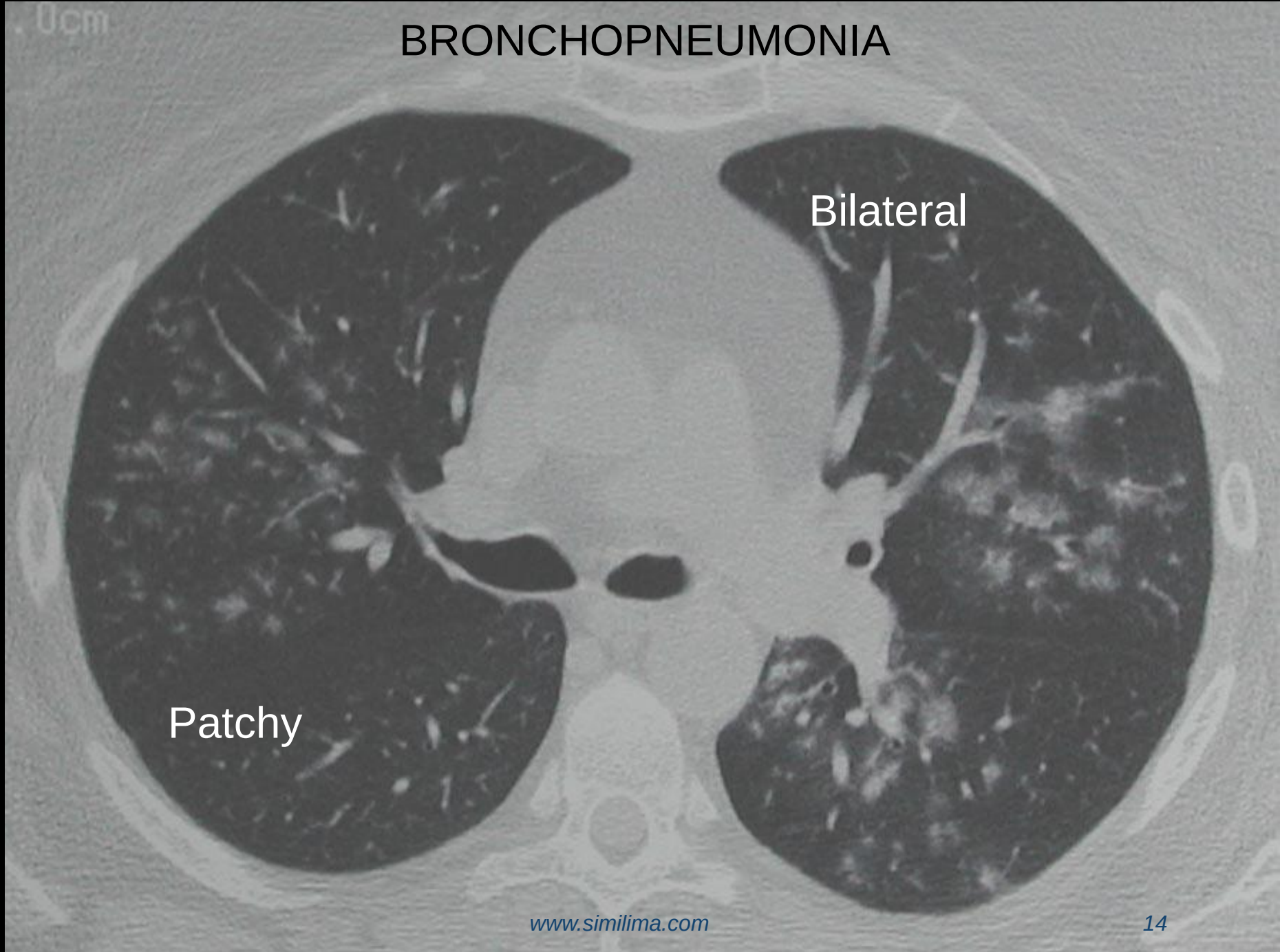




Patchy

Bilateral

BRONCHOPNEUMONIA



Bilateral

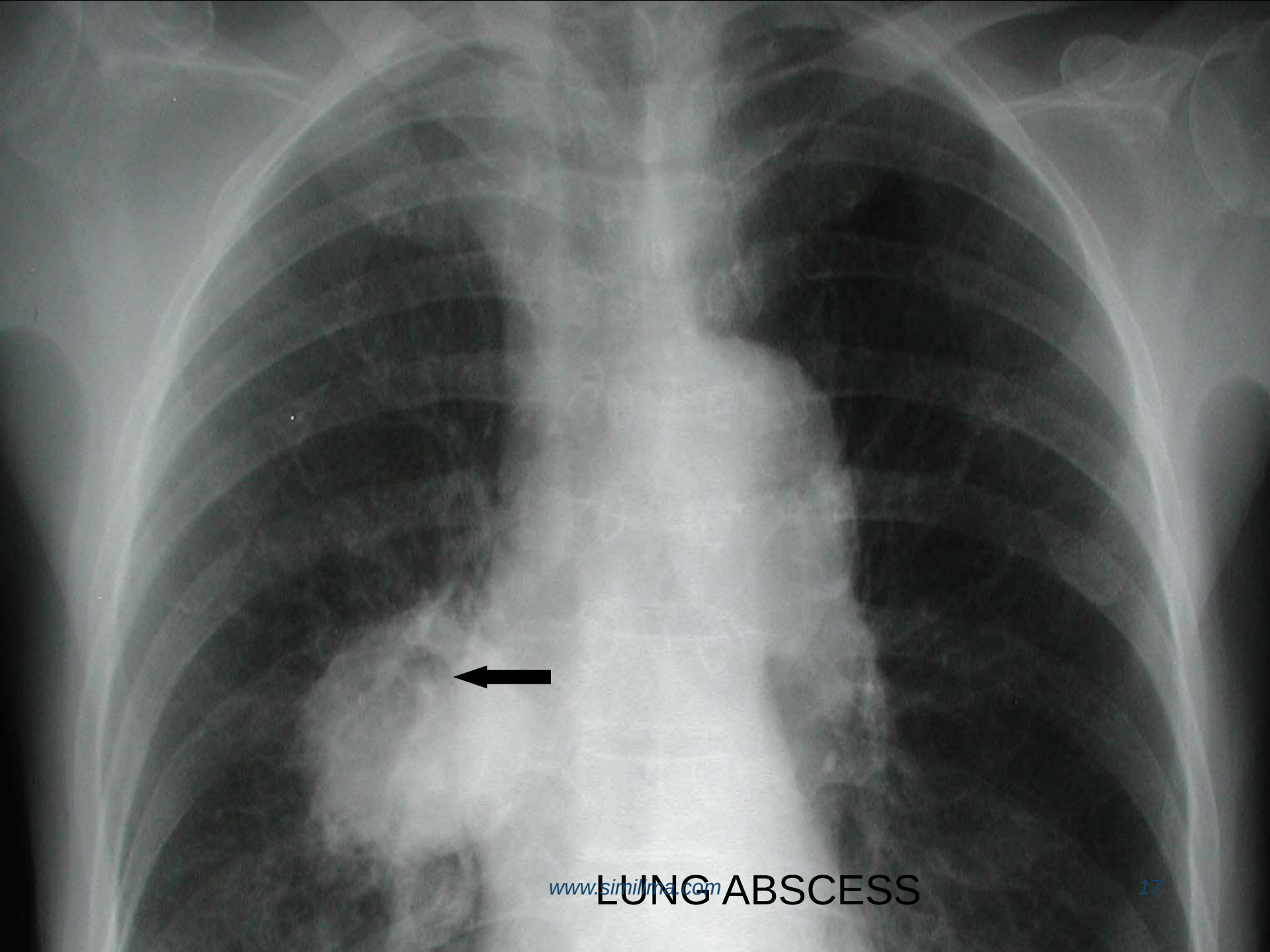
Patchy

COMPLICATIONS OF PNEUMONIA

- ***Lung abscess***
- ***Empyema***

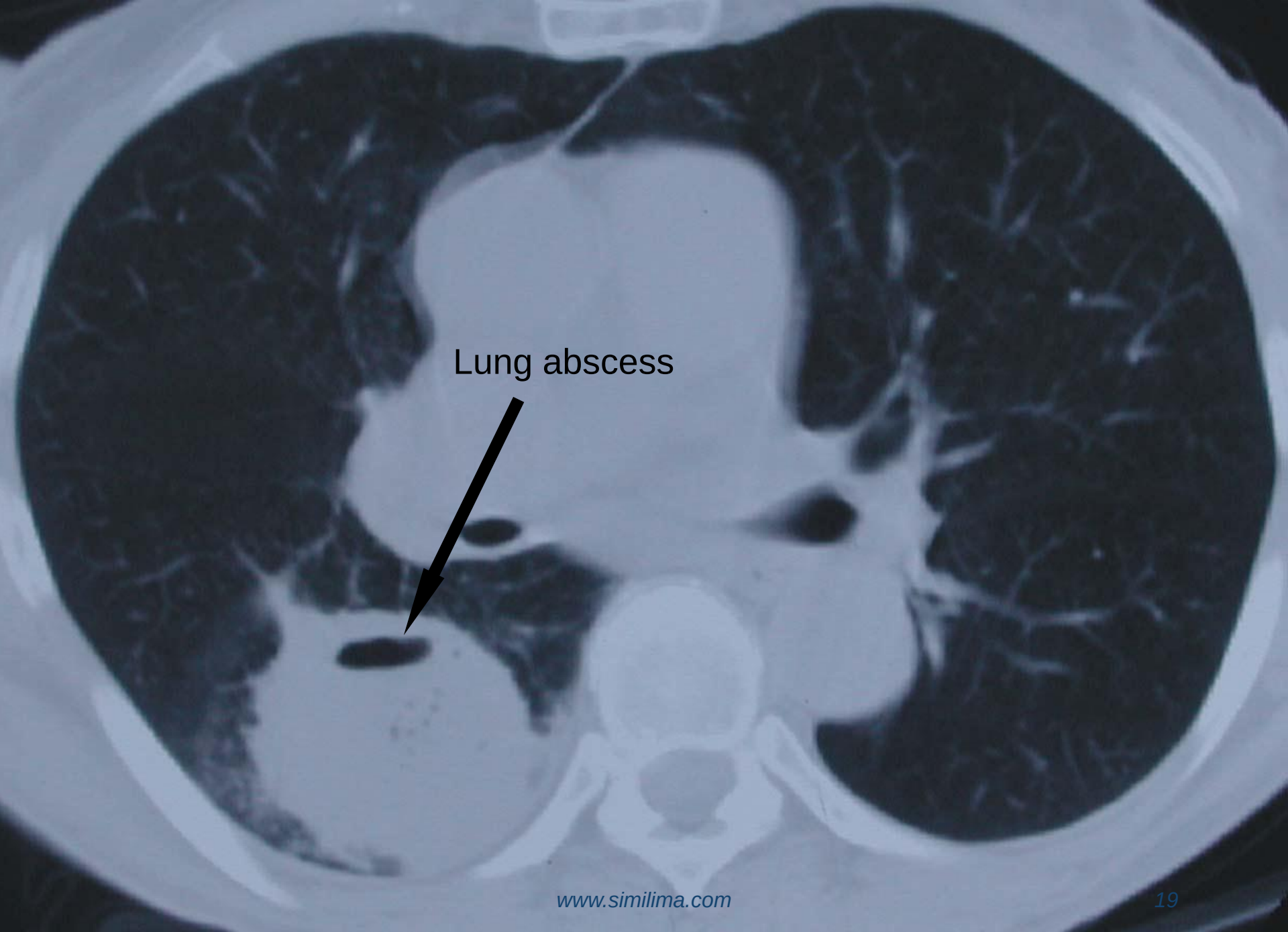
LUNG ABSCESS

- ***Central lucency (black) in round opacity***
- ***Differential diagnosis is cavitory lung cancer***
- ***Abscess has thinner wall than cancer***



www.similima.com LUNG ABSCESS

Air-fluid level →



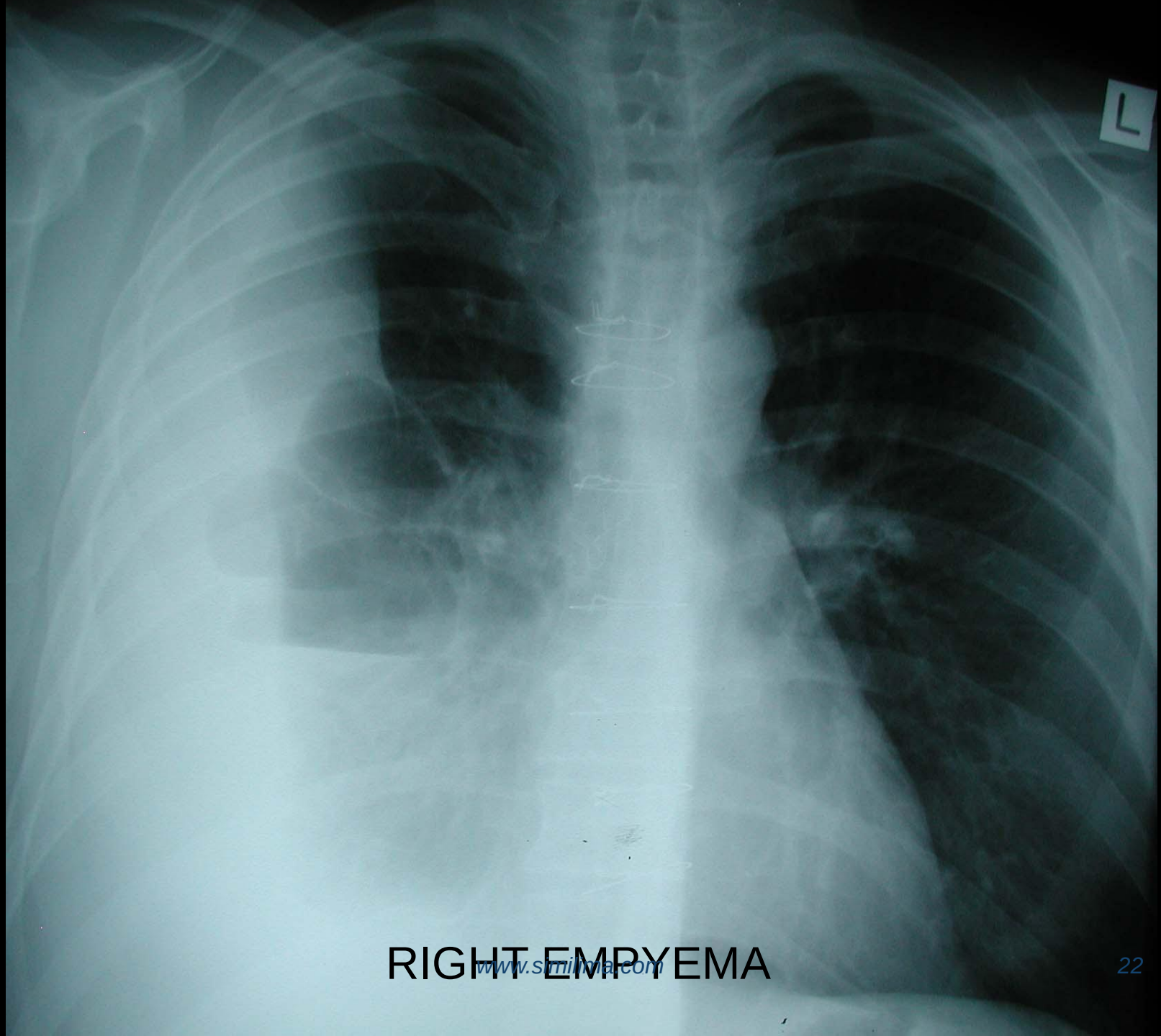
Lung abscess

LUNG ABSCESS

- ***Treatment - antibiotics***

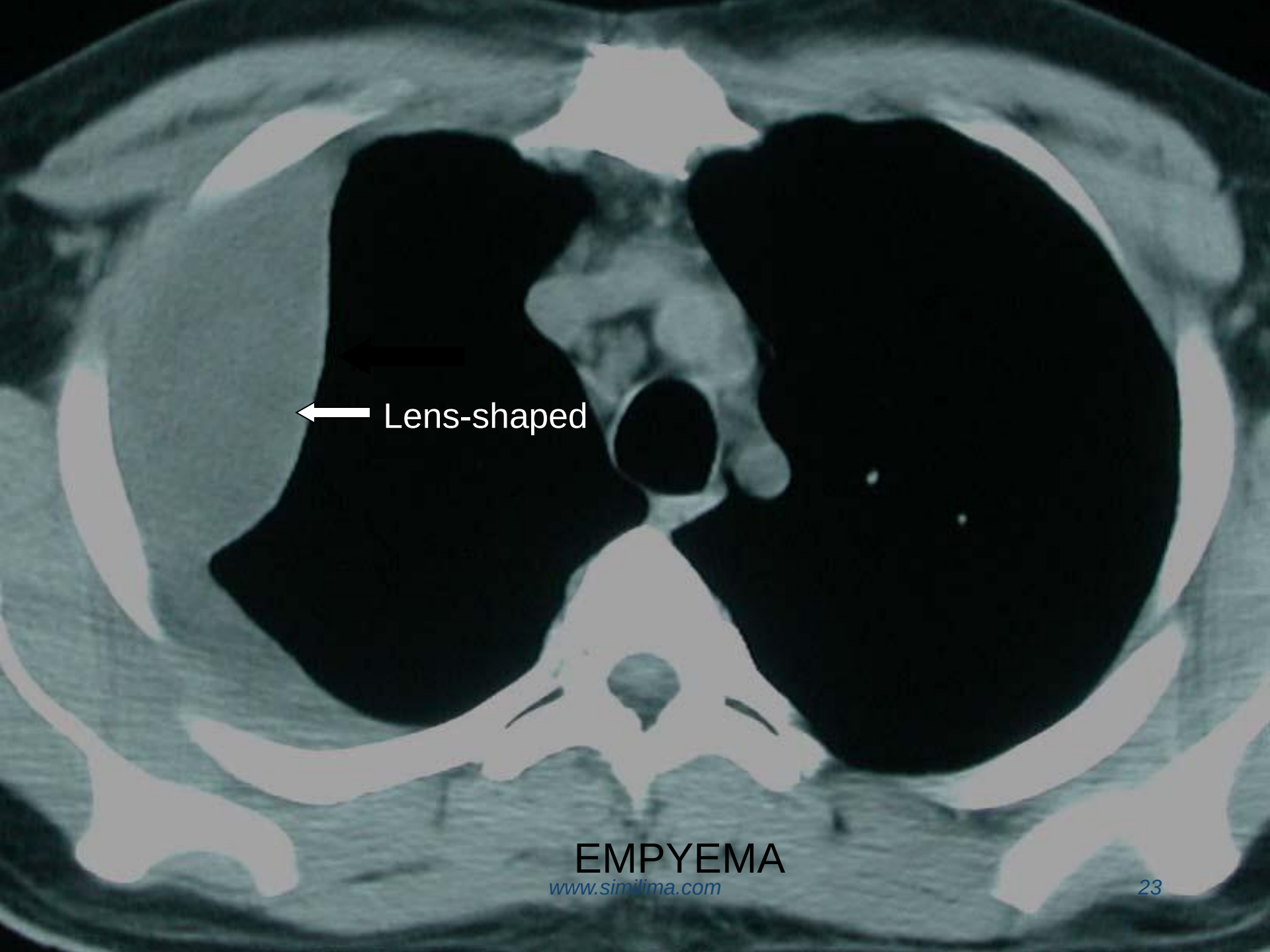
EMPYEMA

- ***Infected pleural effusion***
- ***Pus in the pleural space***
- ***Loculated (walled-off, immobile) pleural effusion***
- ***Lens-shaped, homogeneous opacity abutting chest wall***



RIGHT EMPYEMA

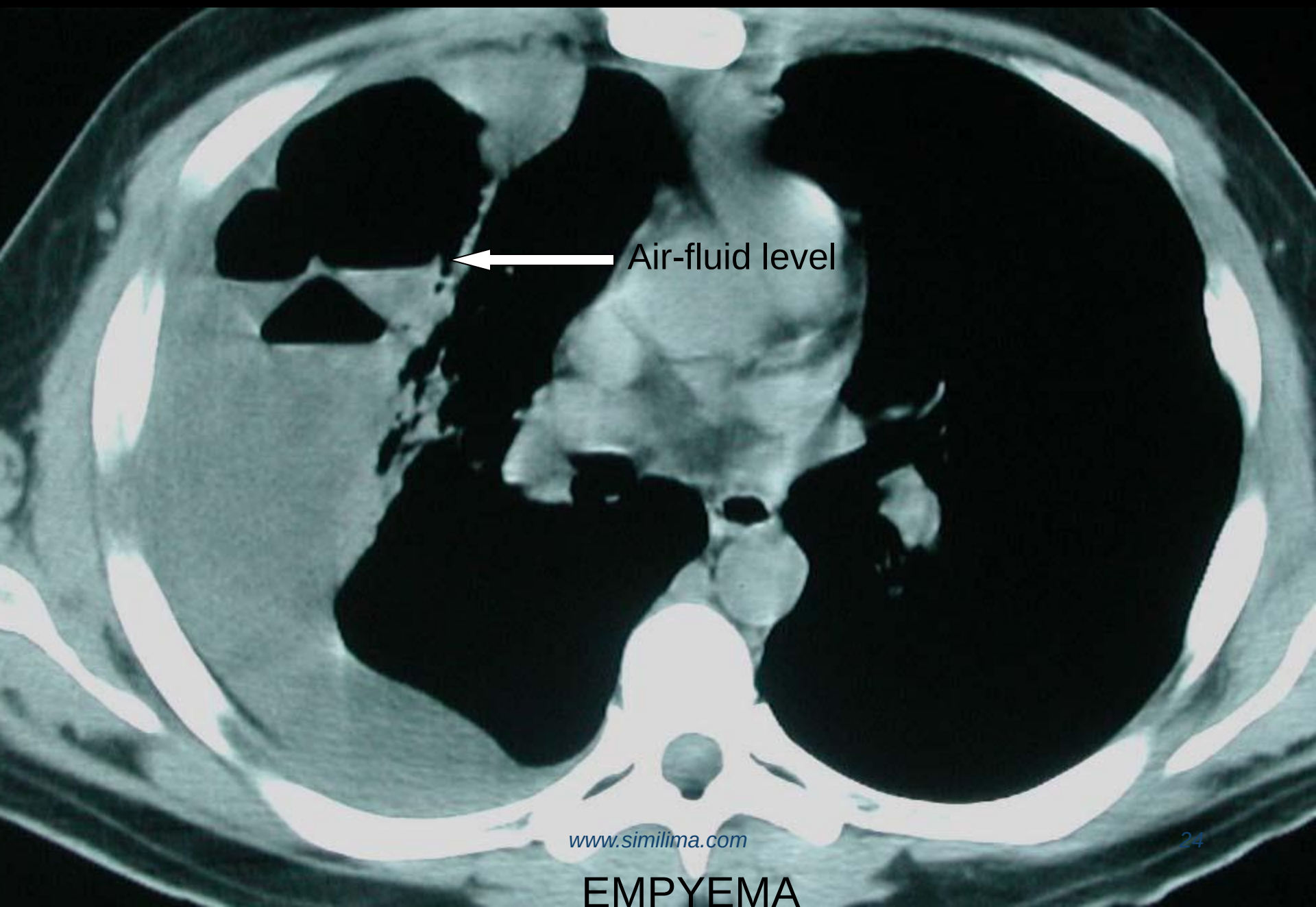
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← Lens-shaped

EMPYEMA

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Air-fluid level

EMPYEMA

- ***Treatment - tube drainage, antibiotics +/- surgery***

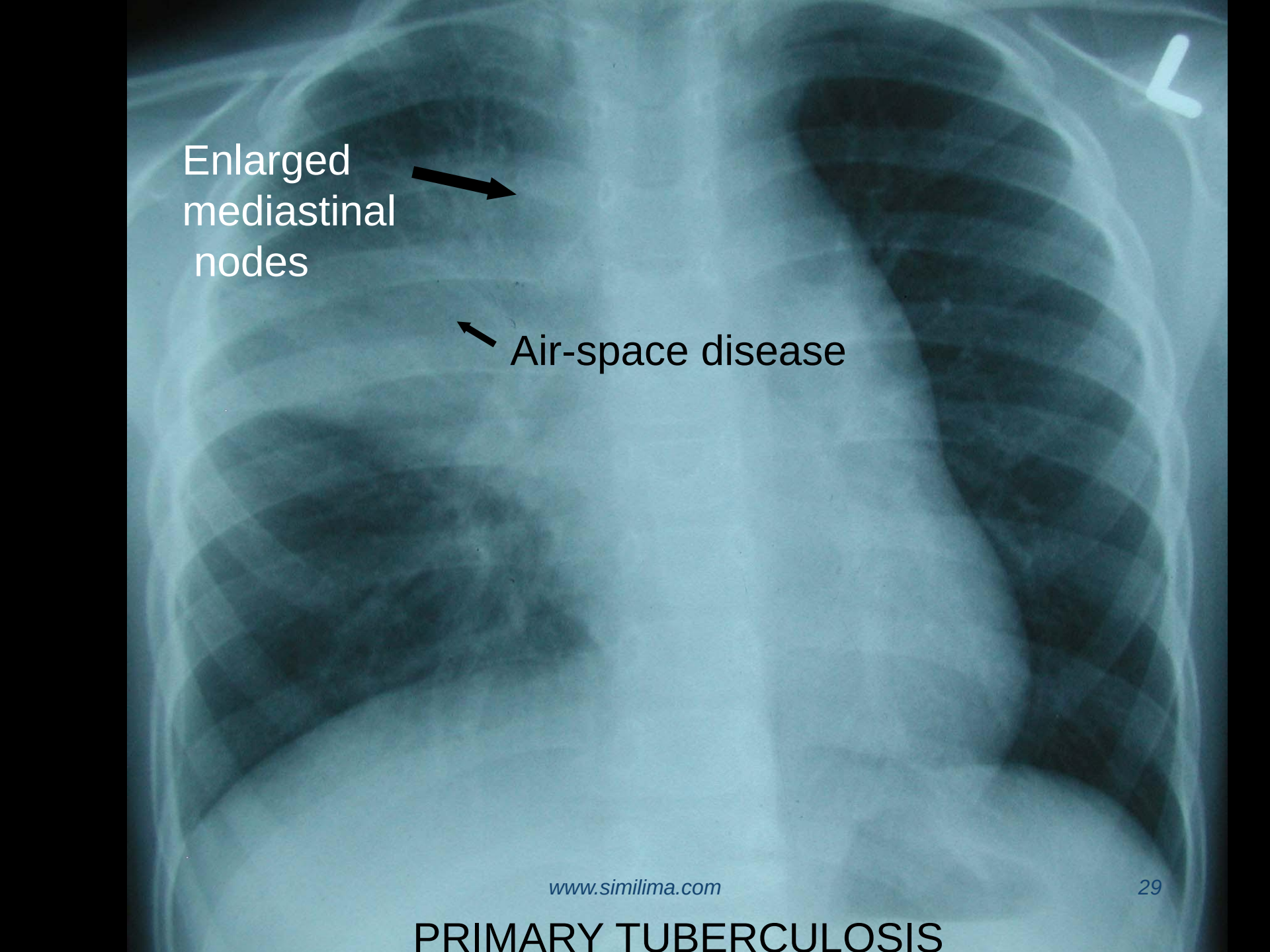
TUBERCULOSIS

TUBERCULOSIS

- ***Primary tuberculosis***
- ***Post-primary (secondary) tuberculosis***
- ***Miliary tuberculosis***

PRIMARY TUBERCULOSIS

- ***Air-space disease mid +/- or lower lung zone***
- ***Enlarged ipsilateral hilar +/- mediastinal nodes***
- ***Lung abnormality + enlarged nodes = Gohn complex***
- ***Healing***
 - no scar (normal CXR)
 - scar (calcification)



A frontal chest X-ray showing signs of primary tuberculosis. The mediastinum is widened, and there are areas of consolidation in the lung fields. A white 'L' marker is visible in the upper right corner of the image.

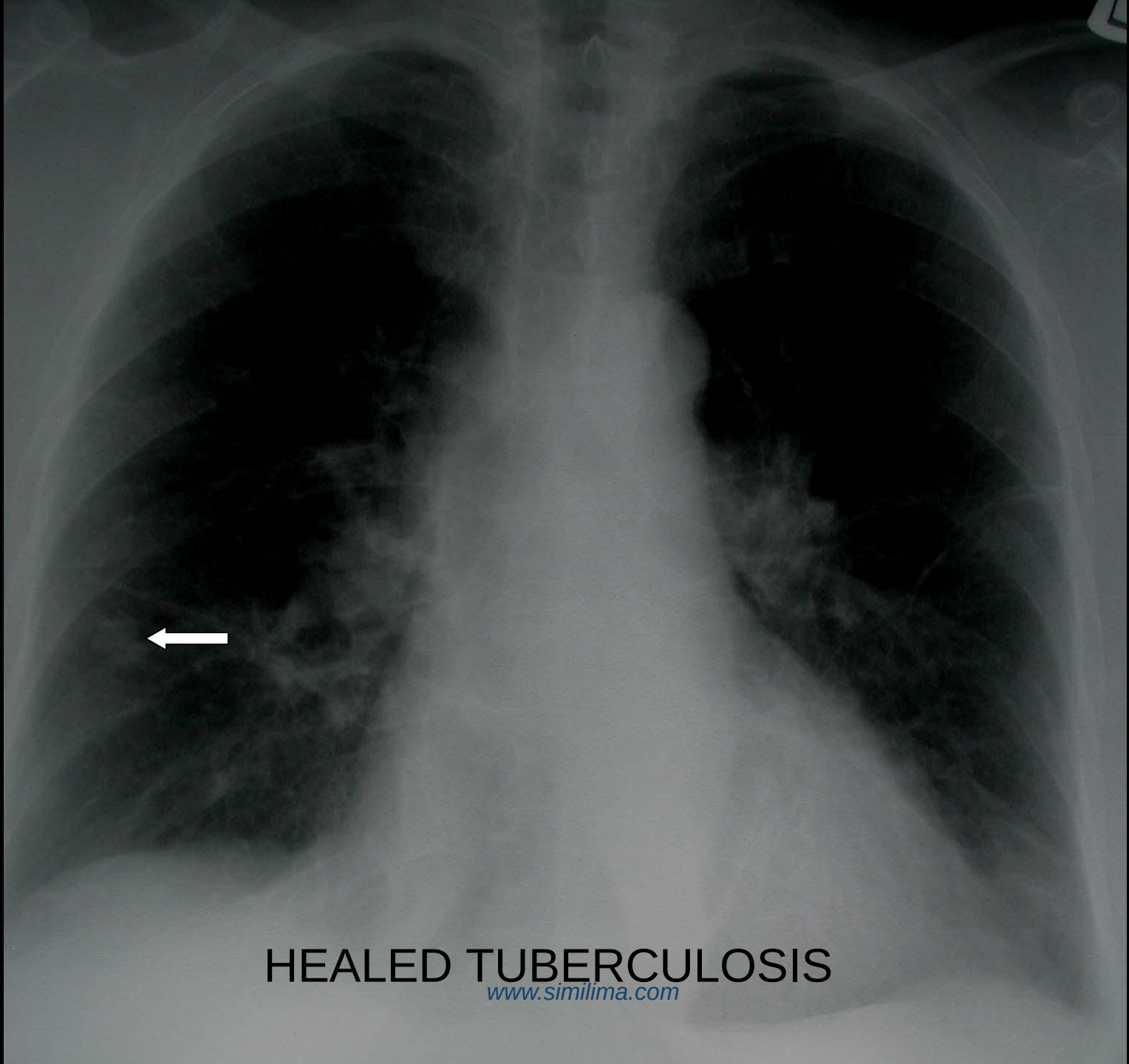
Enlarged
mediastinal
nodes



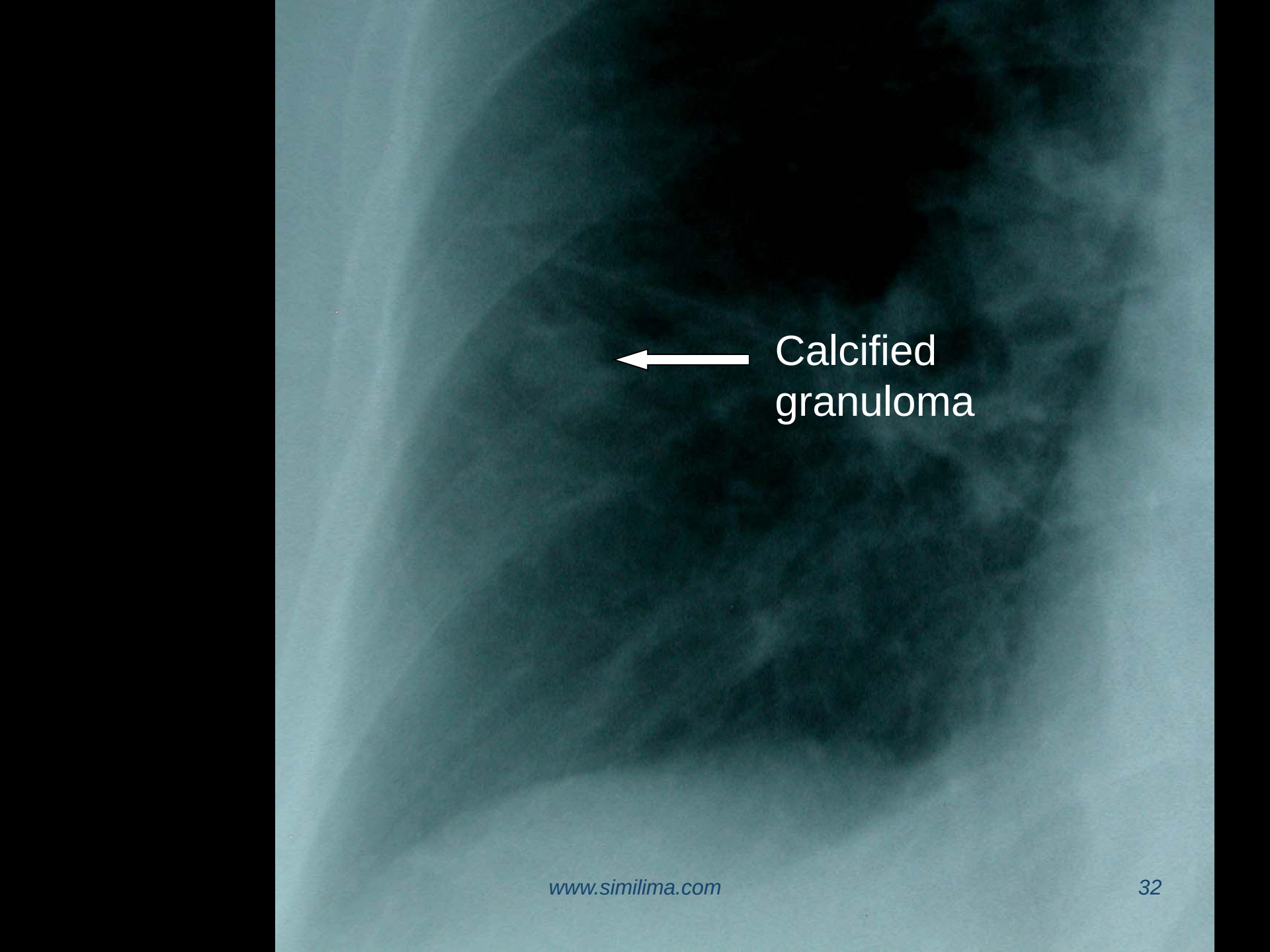
Air-space disease

HEALED PRIMARY TB WITH SCAR

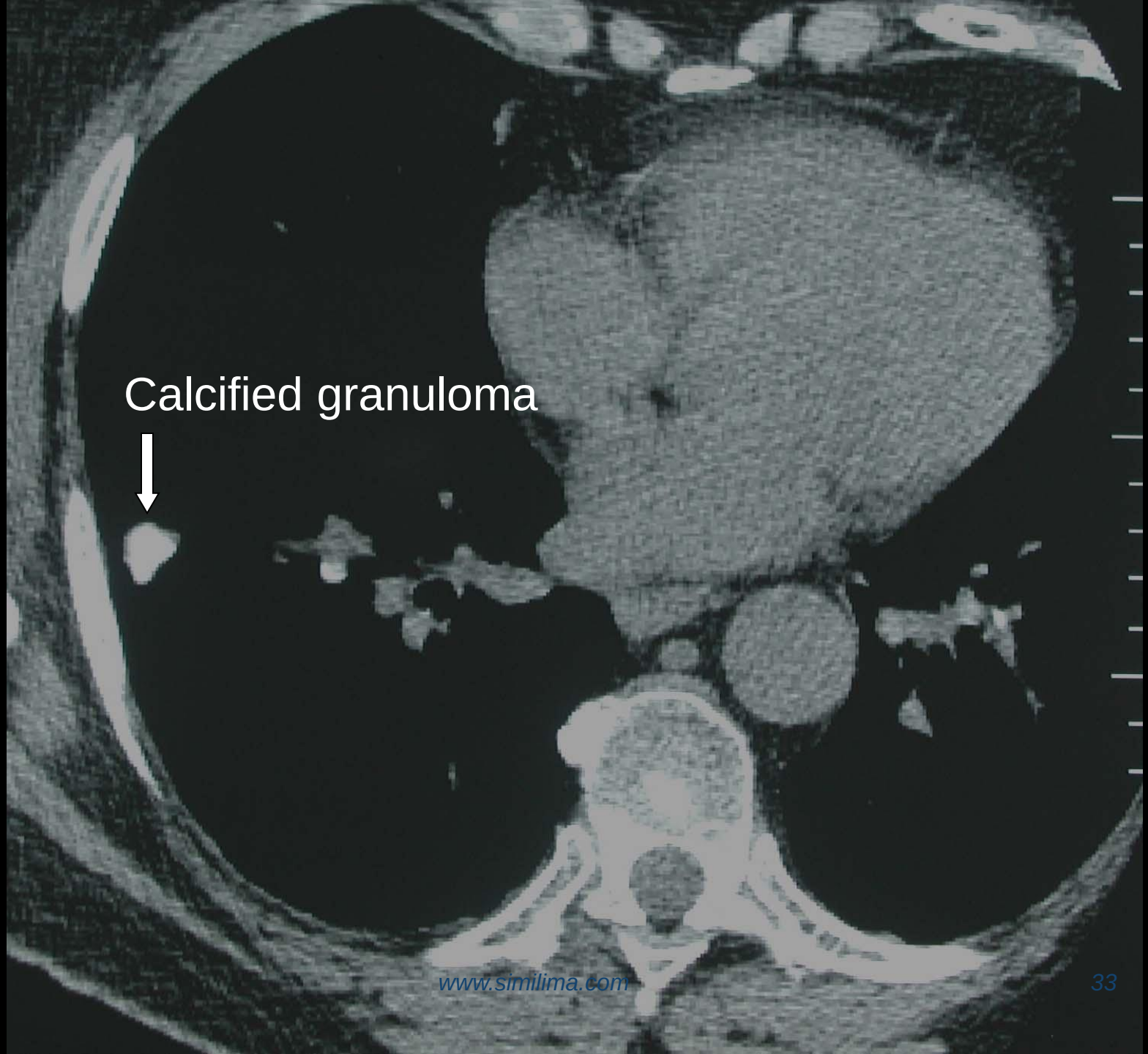
- ***Ranke Complex - calcified lung nodule (granuloma) + calcified hilar and/or mediastinal nodes***



HEALED TUBERCULOSIS
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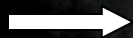
← Calcified
granuloma



Calcified granuloma



Calcified right
paratracheal nodes



Calcified right
 hilar nodes

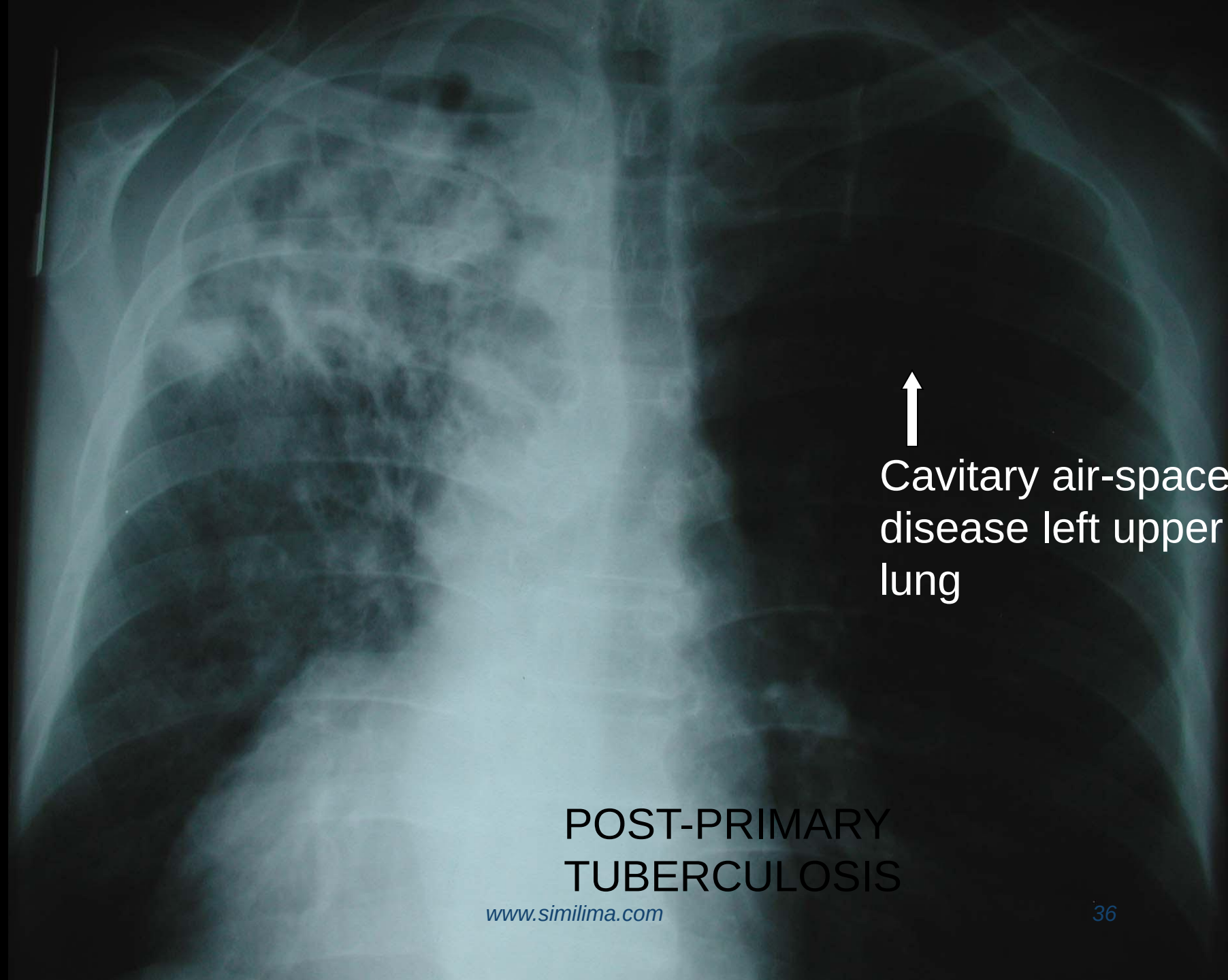


HEALED TUBERCULOSIS

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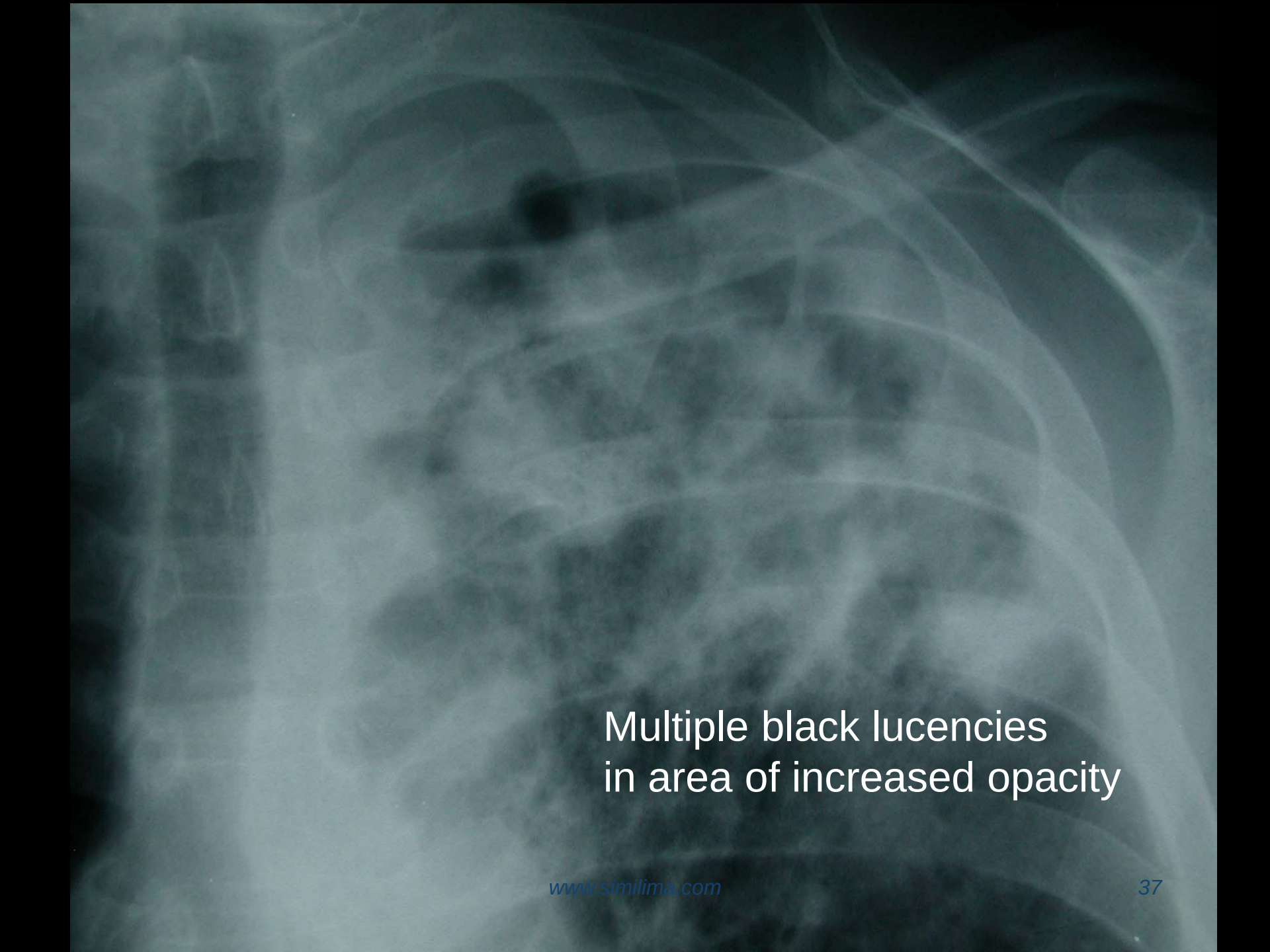
POST-PRIMARY TUBERCULOSIS

- ***Multiple rounded lucencies in white lung (cavitary air-space disease)***
- ***Location - posterior aspect lung apices***
- ***No enlarged nodes***
- ***Heals with +++ scarring***

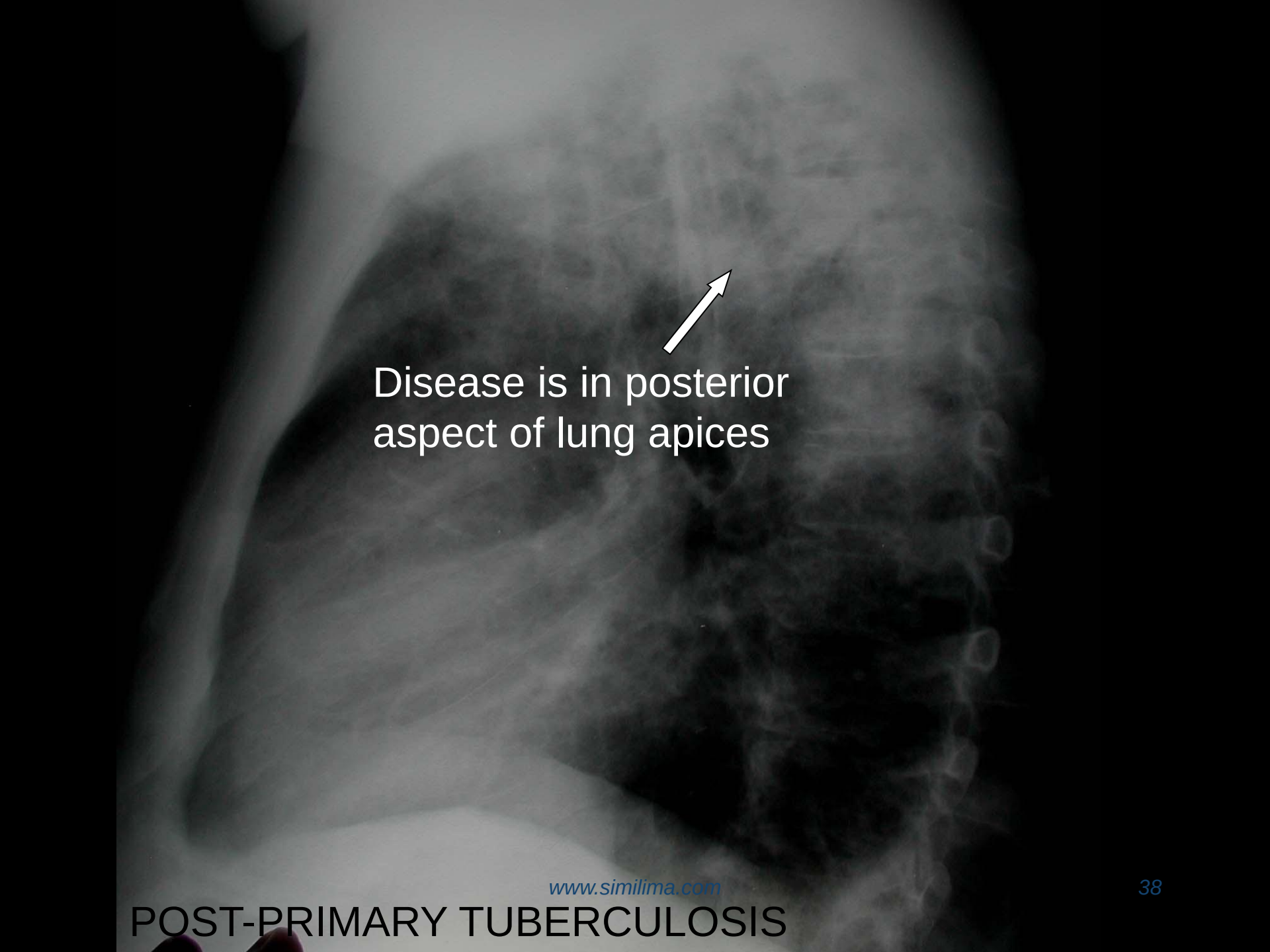


Cavitary air-space
disease left upper
lung

POST-PRIMARY TUBERCULOSIS

A chest X-ray image showing a large area of increased opacity in the lower lung field. Within this area, there are several distinct, dark, rounded lucencies, which are characteristic of bullae or cysts. The surrounding lung tissue appears hazy and less defined.

Multiple black lucencies
in area of increased opacity

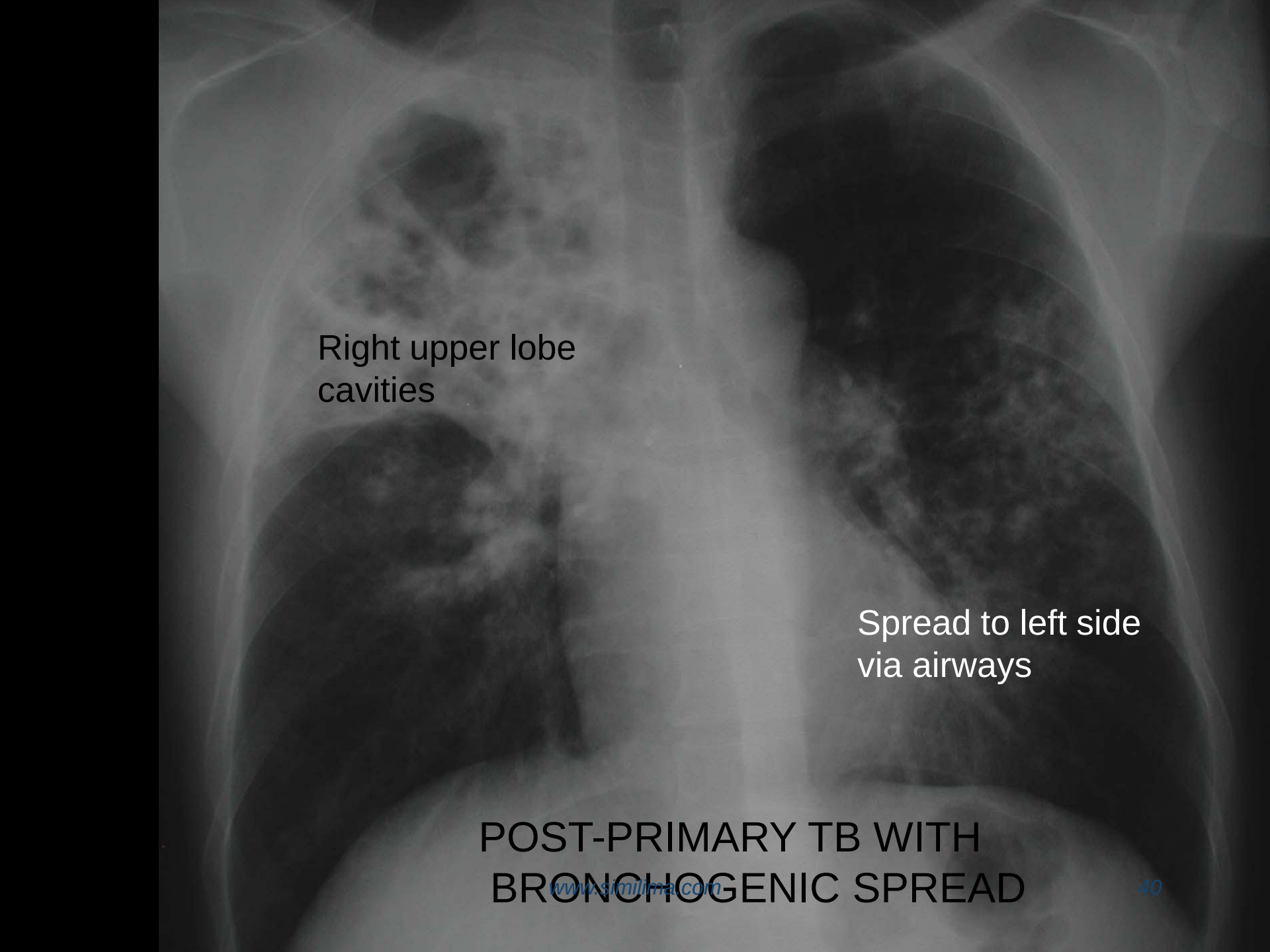


A lateral chest X-ray showing the lungs and spine. A white arrow points to a hazy, infiltrative area in the posterior upper lung zone, indicating disease. The spine is visible on the right side of the image.

Disease is in posterior
aspect of lung apices

BRONCHOGENIC SPREAD OF TB

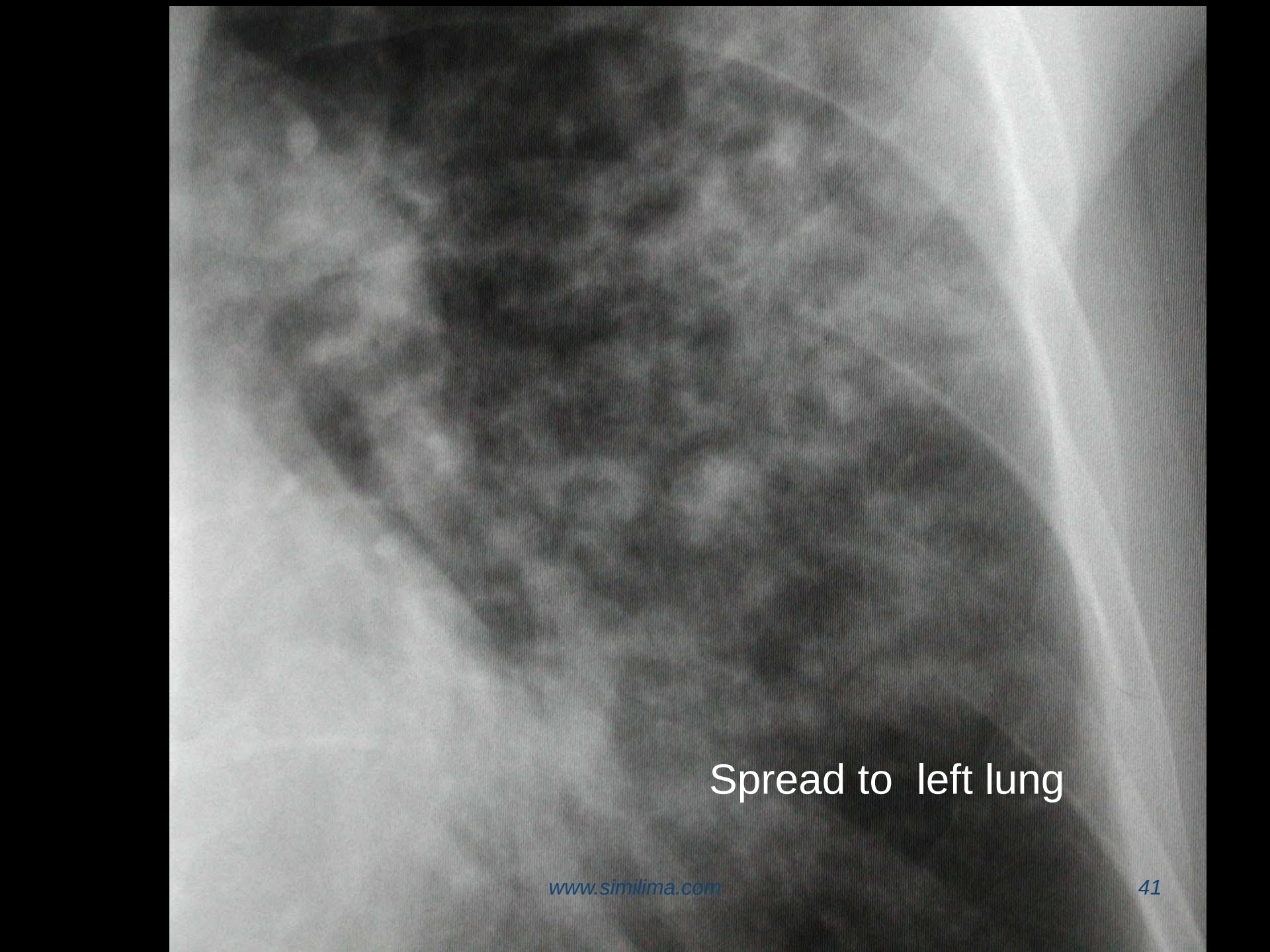
- ***Post-primary TB can spread through airways to lower lung zones***
- ***Cavities upper lobes and air-space disease rest of lungs***

A frontal chest X-ray showing bilateral lung fields. The right upper lobe (on the left side of the image) shows a large, dense, irregular opacity with some internal lucency, suggesting cavitation. The left lung (on the right side of the image) shows a more diffuse, hazy opacity, particularly in the upper and middle zones, indicating spread of the disease. The heart and mediastinal structures are visible in the center.

Right upper lobe
cavities

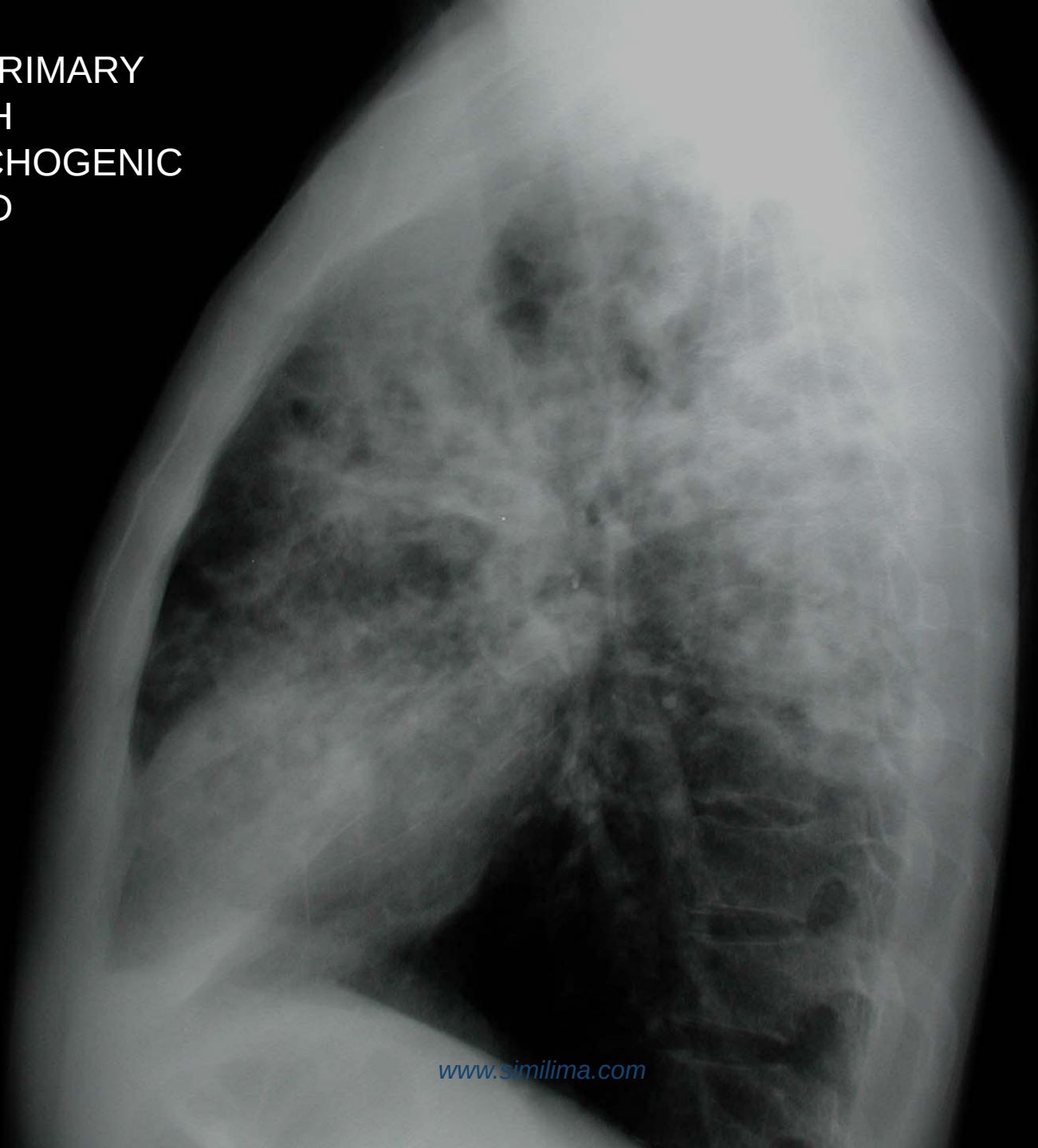
Spread to left side
via airways

POST-PRIMARY TB WITH
BRONCHOGENIC SPREAD



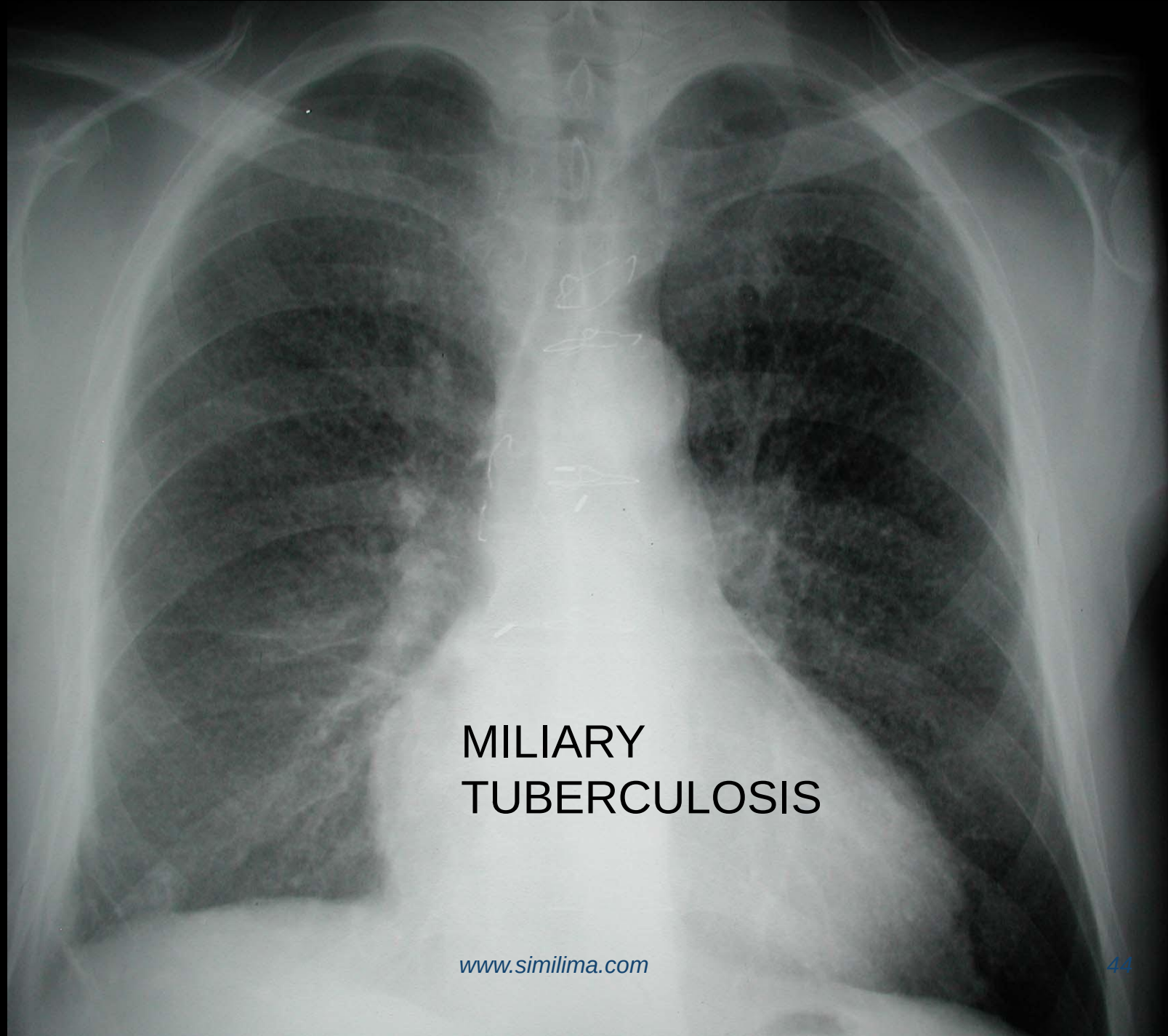
Spread to left lung

POST-PRIMARY
TB WITH
BRONCHOGENIC
SPREAD

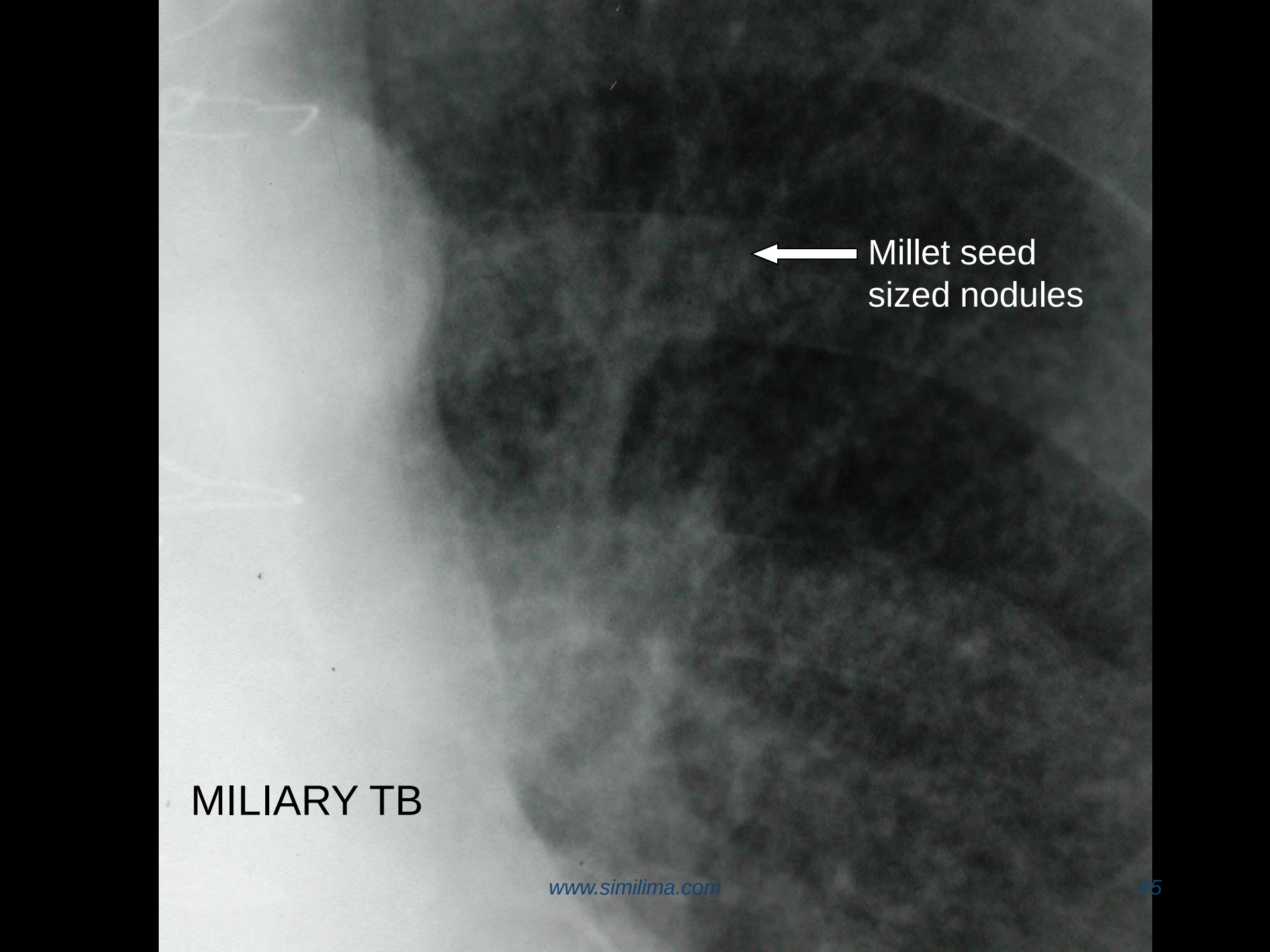


MILIARY TUBERCULOSIS

- ***Can result from primary or post-primary TB***
- ***Body cannot contain infection - hematogenous dissemination***
- ***Tiny pin-point opacities***
- ***Heals without scarring***

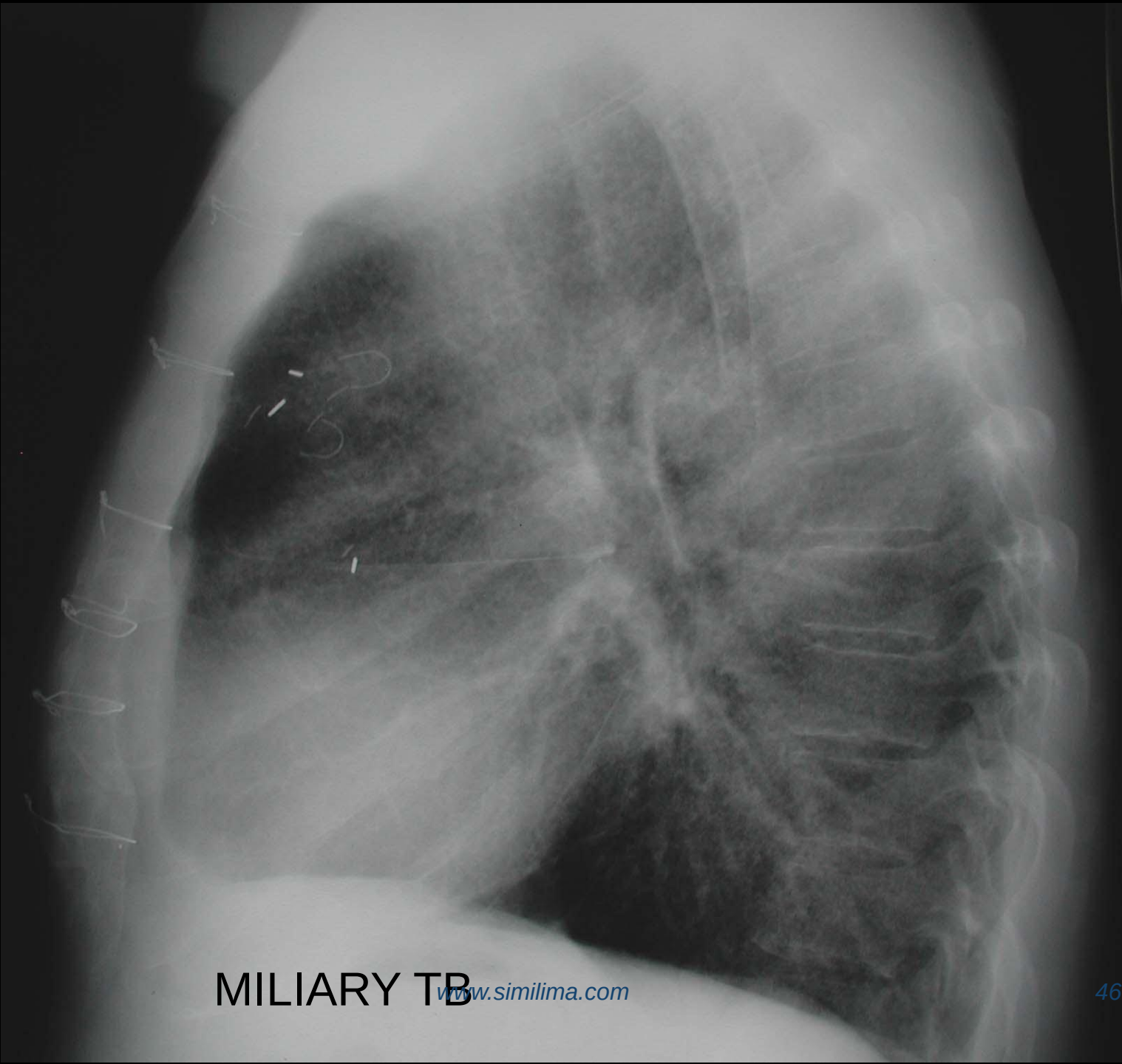


MILIARY TUBERCULOSIS

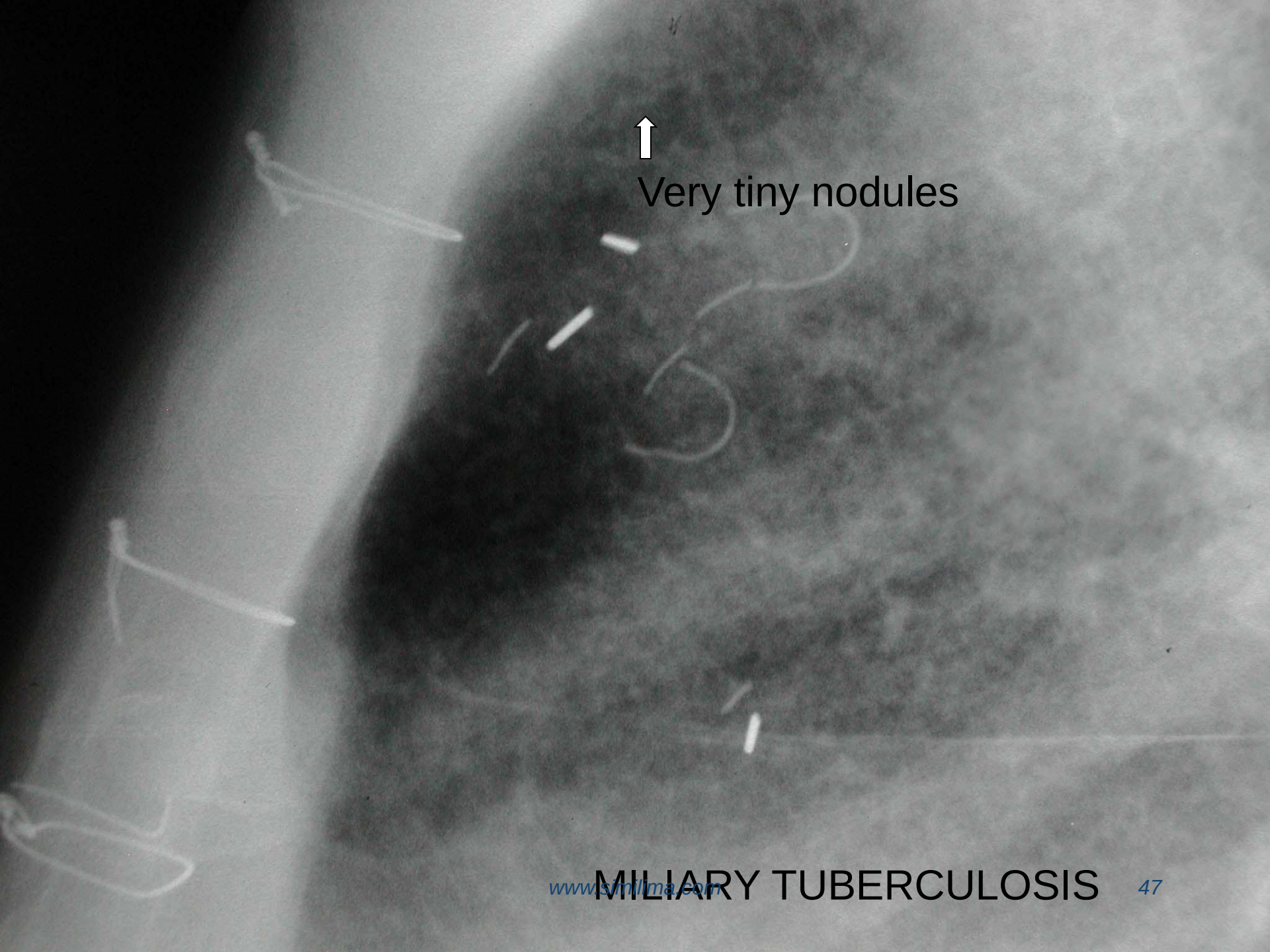
A black and white chest X-ray showing a dense, hazy area in the right lung field, indicating consolidation. Numerous small, well-defined nodules are visible throughout the lung, particularly in the upper and middle zones. A white arrow points to one of these nodules. The left lung field appears relatively clear.

← Millet seed
sized nodules

MILIARY TB



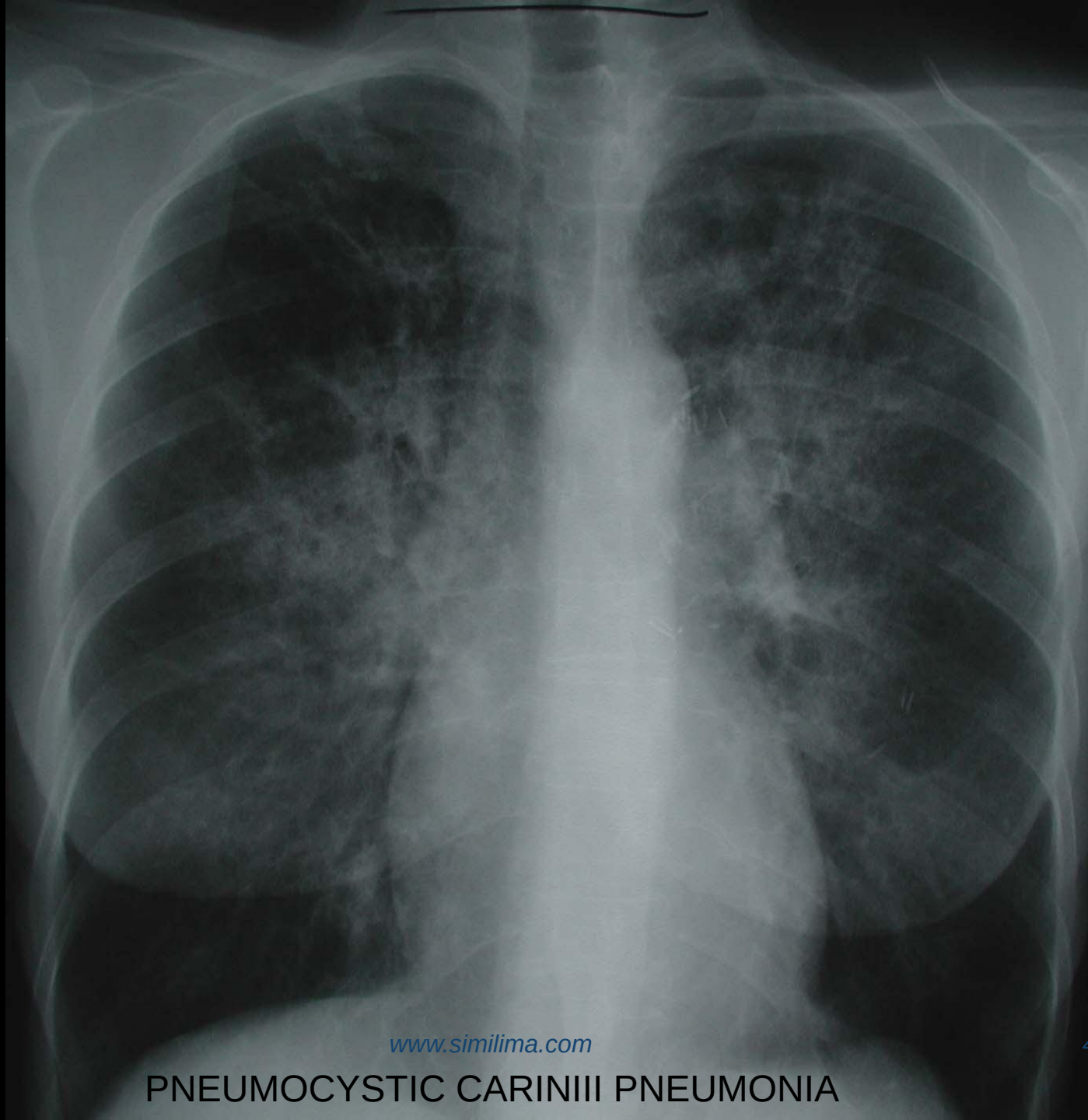
MILIARY TB www.similima.com



Very tiny nodules

INTERSTITIAL PNEUMONIA

- ***Faint increased lung opacity - lung whiter than normal = ground-glass opacity***
- ***Linear opacities***
- ***Small nodules***
- ***Diffuse bilateral***



INTERSTITIAL PNEUMONIA



Lines and dots

Hazy increase in lung opacity

PNEUMOCYSTIS
CARINII
PNEUMONIA

INTERSTITIAL
PNEUMONIA

e:2
N 189.0
m:14

64 F 236406 5
FEB 14, 1

FOV 28.0cm
ETL

INTERSTITIAL PNEUMONIA

↗
Hazy white lung
= ground-glass