There is a hole in the lung: What does that mean?

Poster No.:	C-0790
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Type:	Educational Exhibit
Topic:	Chest
Authors:	I. Santiago, J. F. Costa, A. Costa, L. Teixeira, F. Caseiro-Alves; Coimbra/PT
Keywords:	lung, cysts, cavitations
DOI:	10.1594/ecr2010/C-0790

Learning objectives

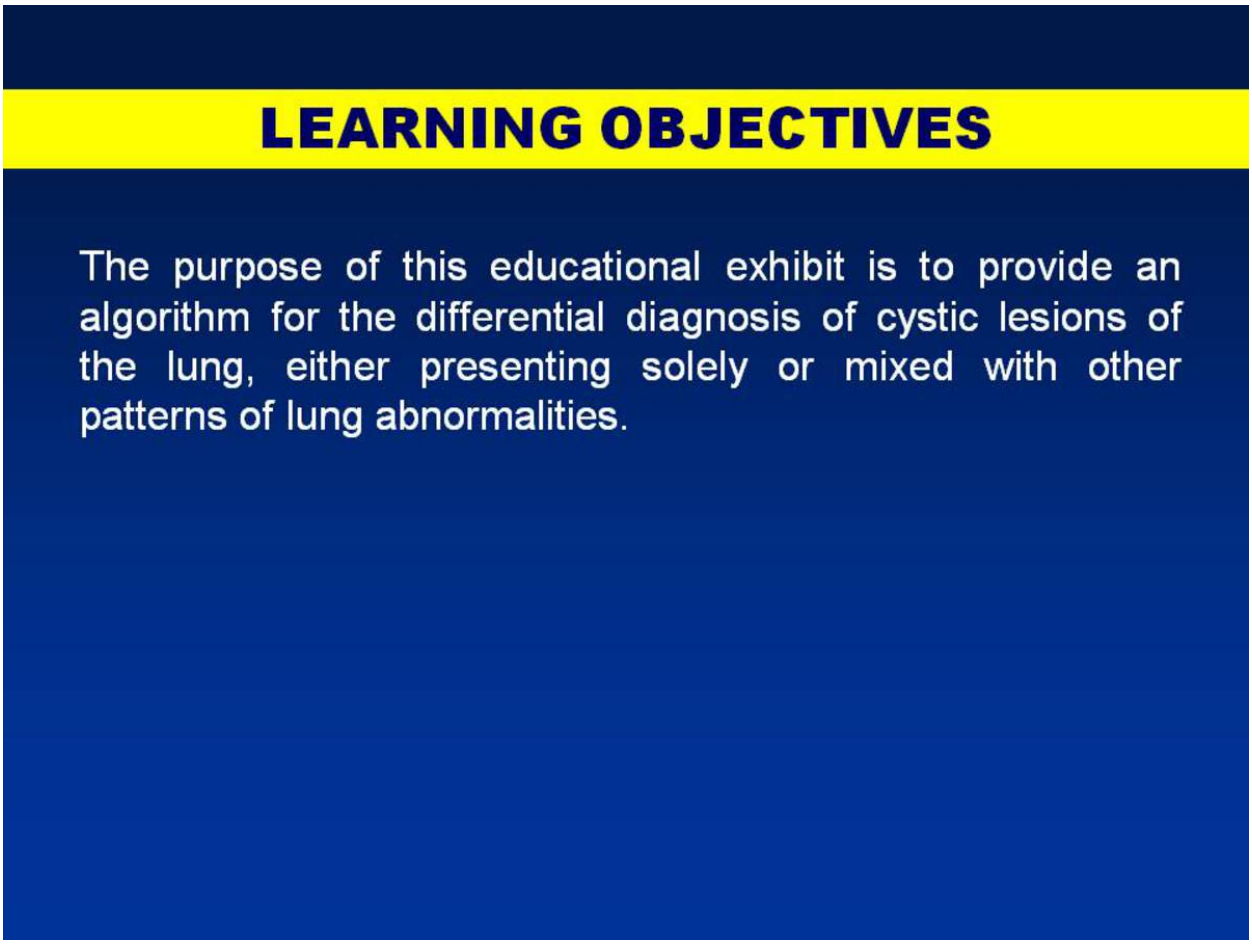
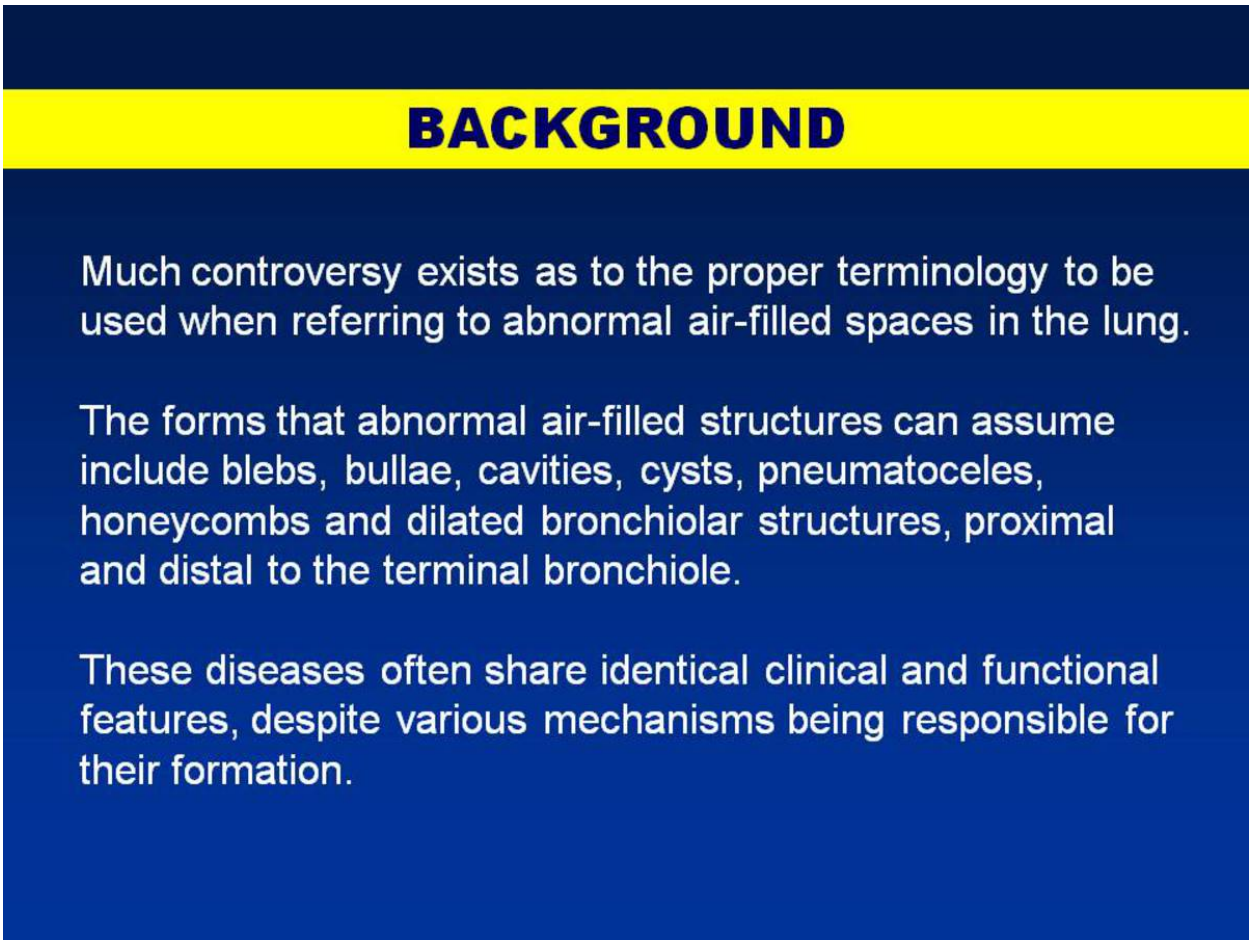


Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

Background



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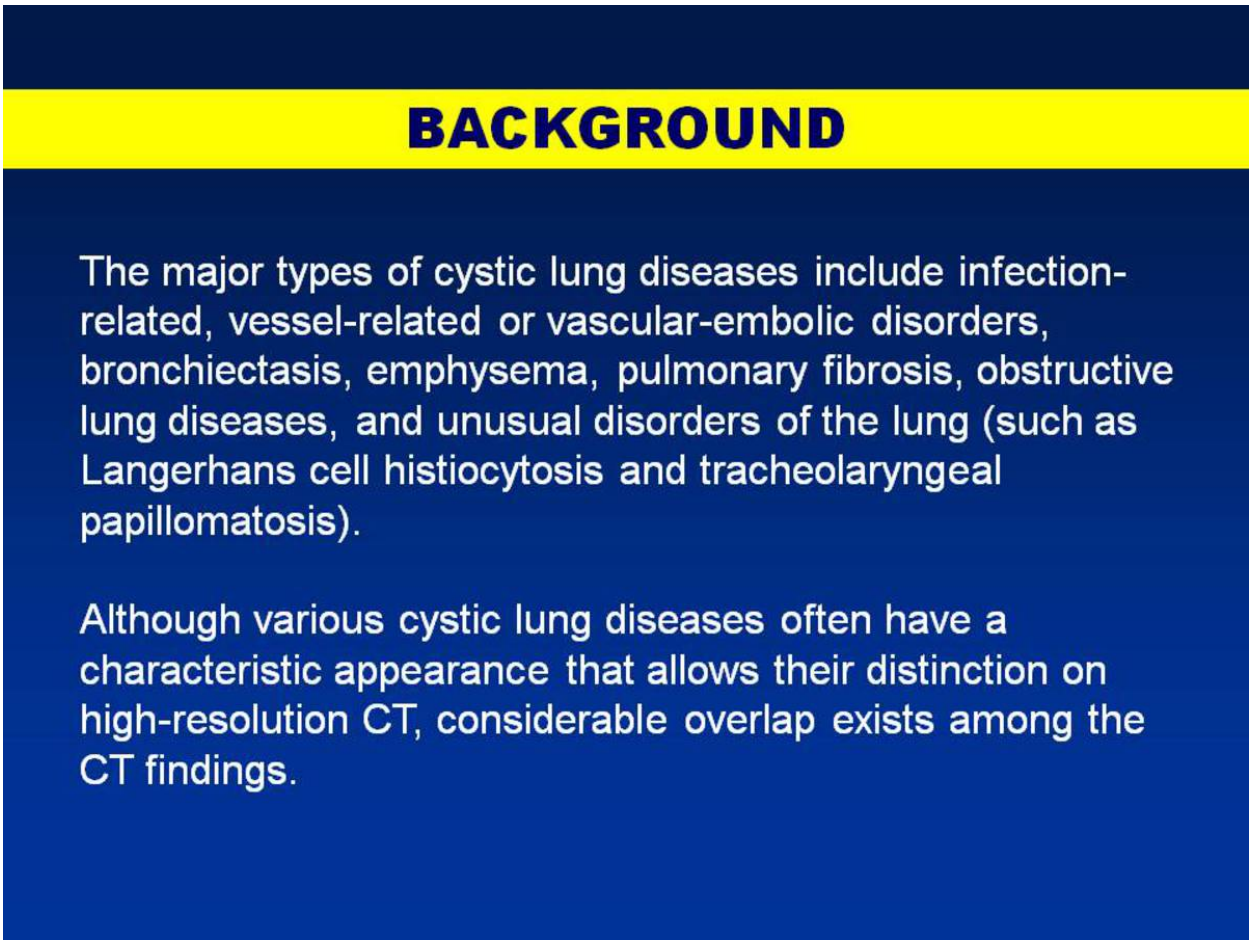

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Imaging findings OR Procedure details

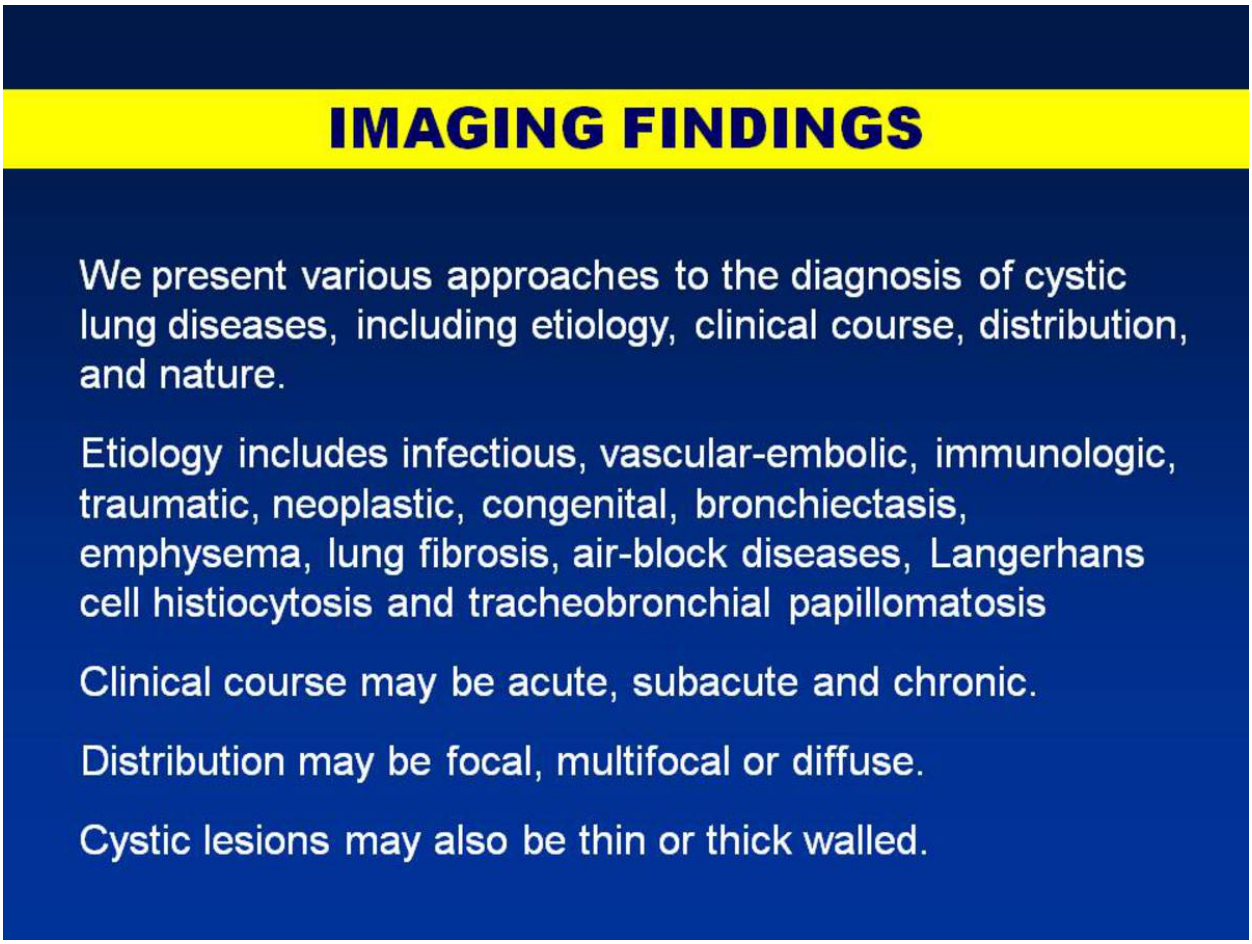

Fig.: _
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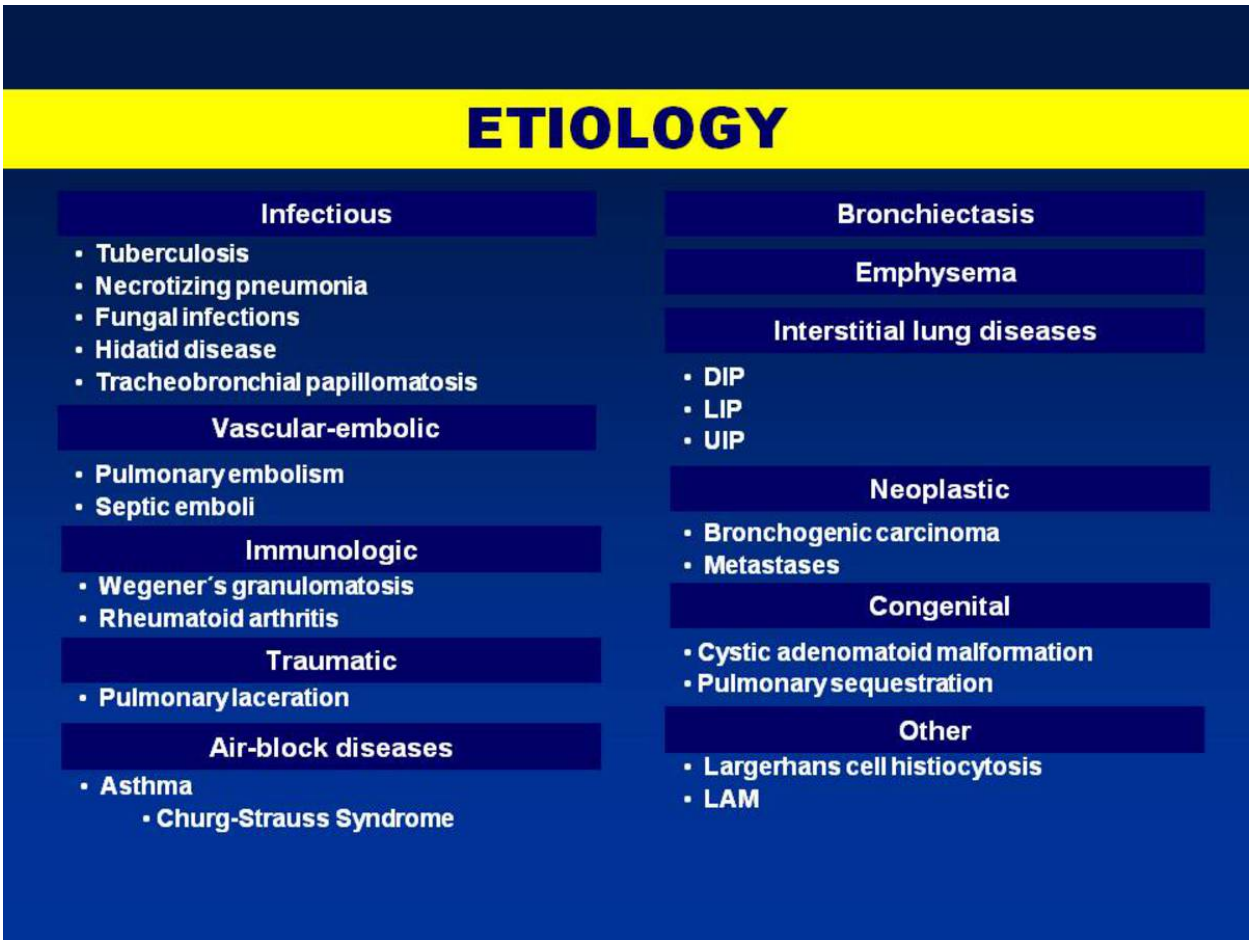
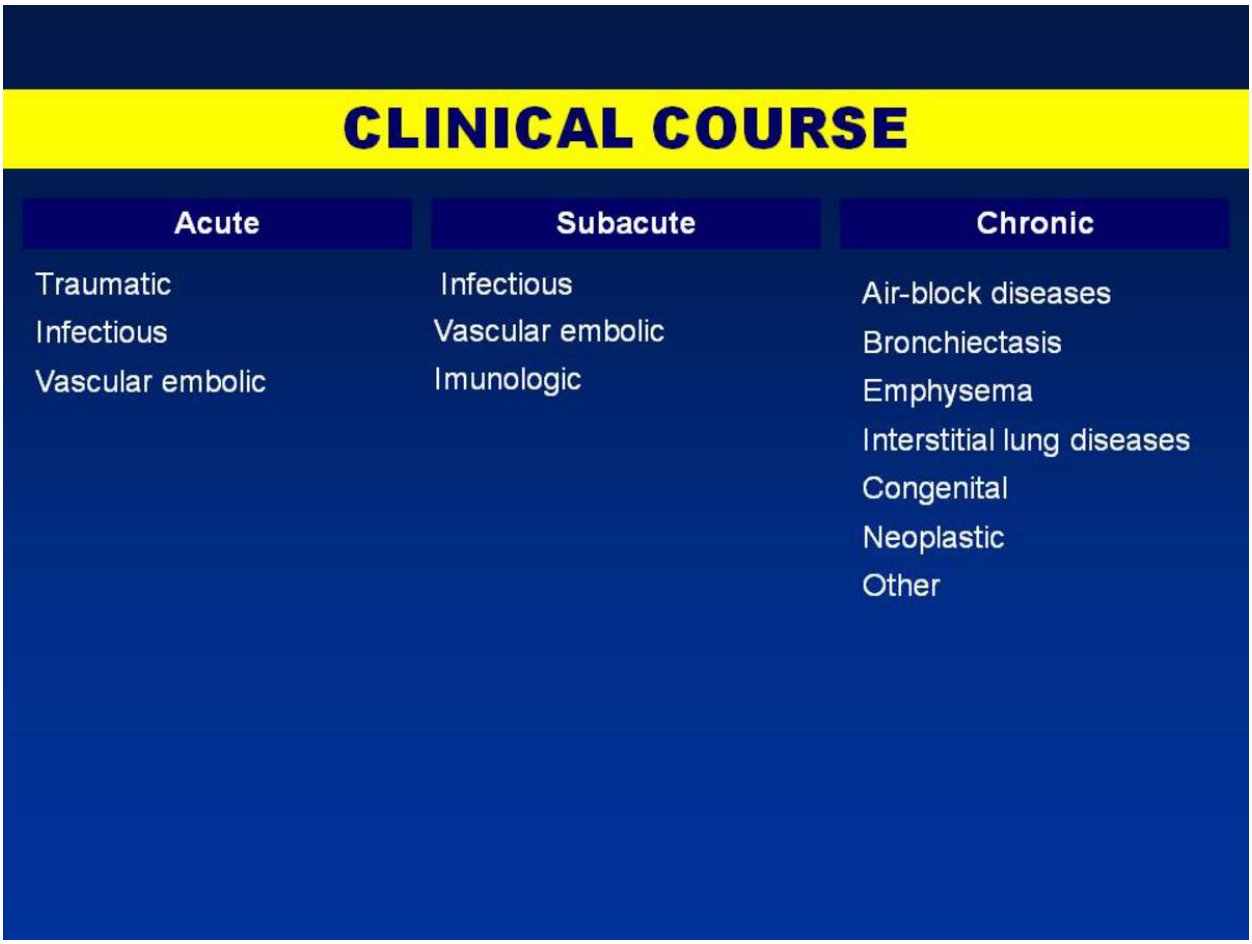


Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL



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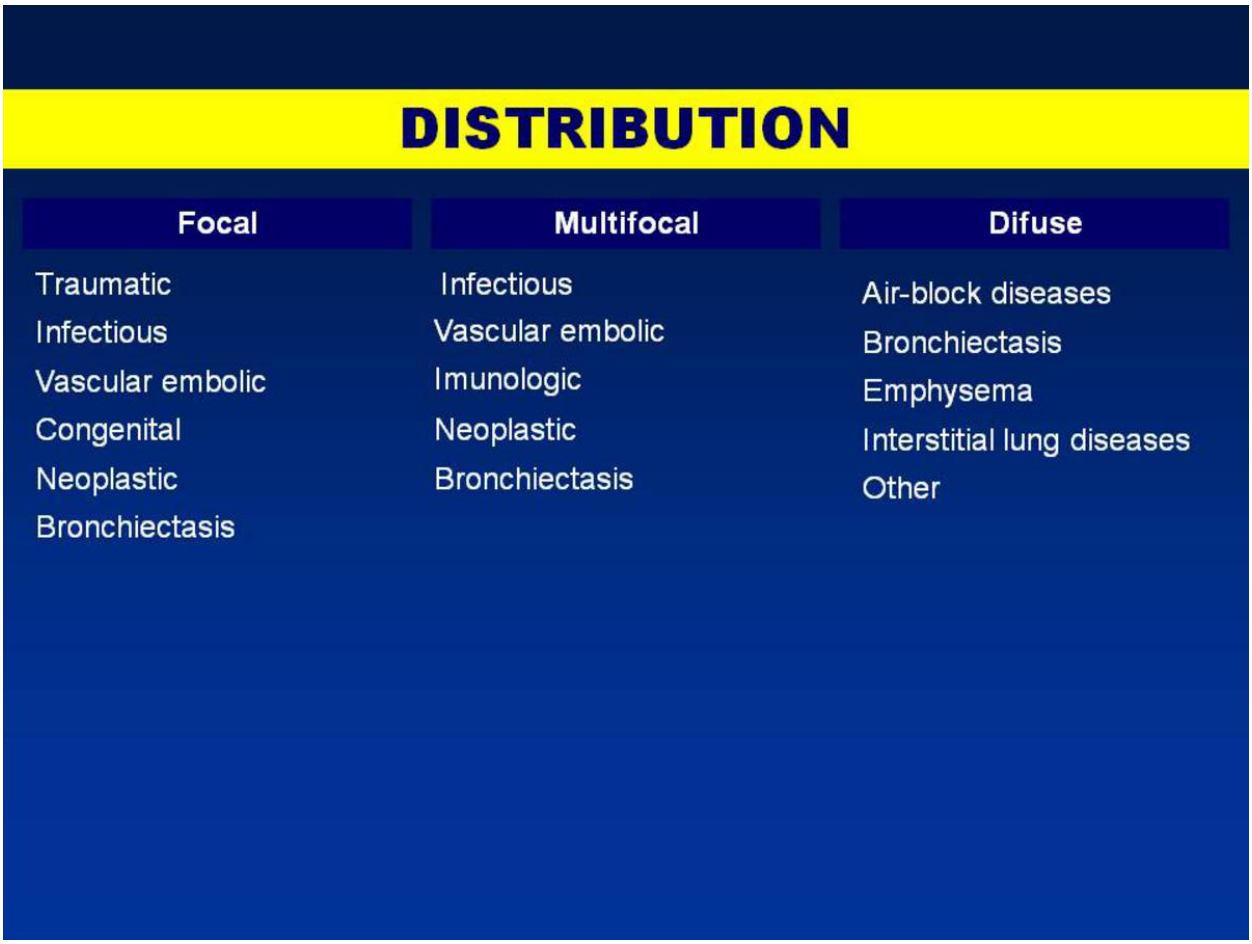


Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

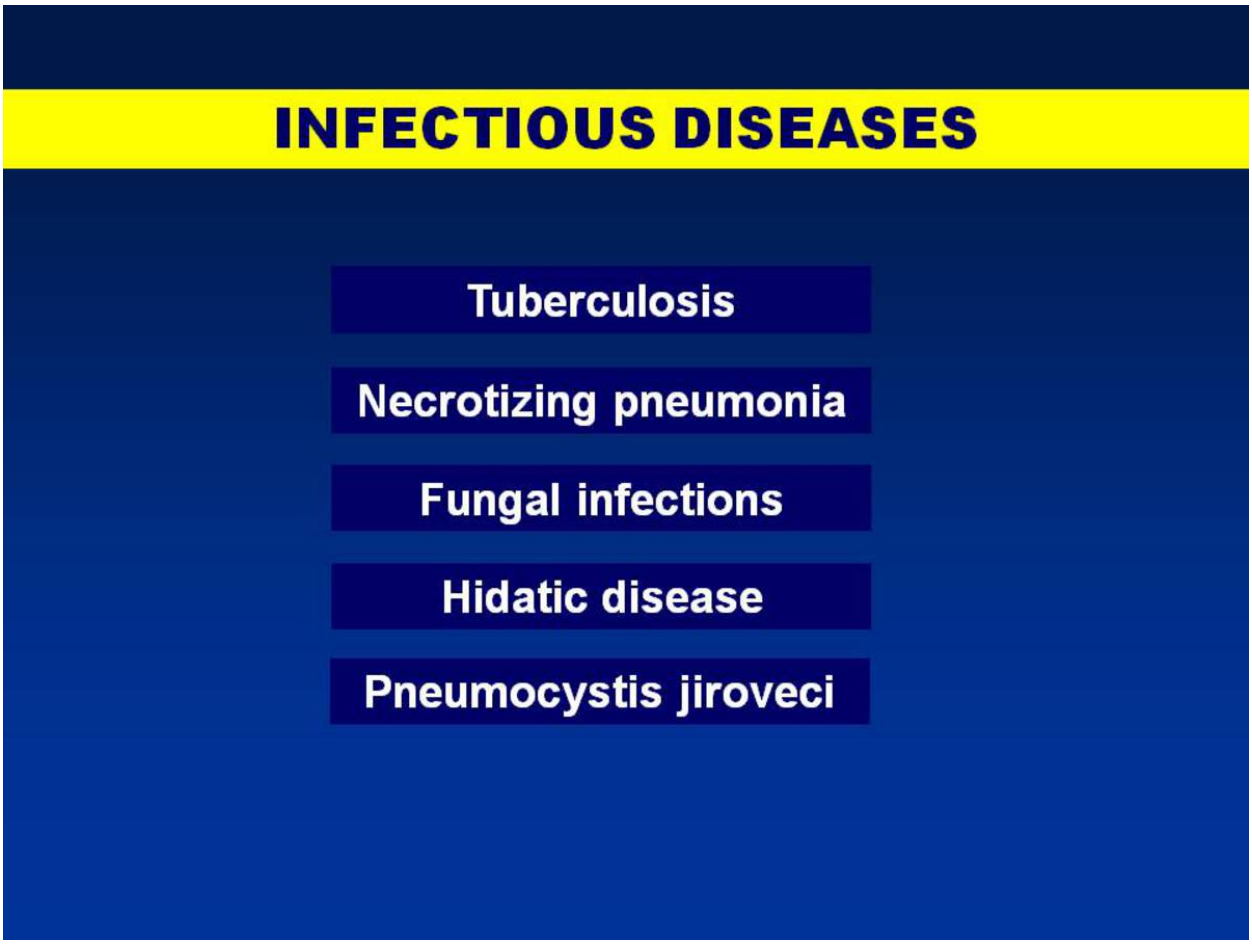


Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

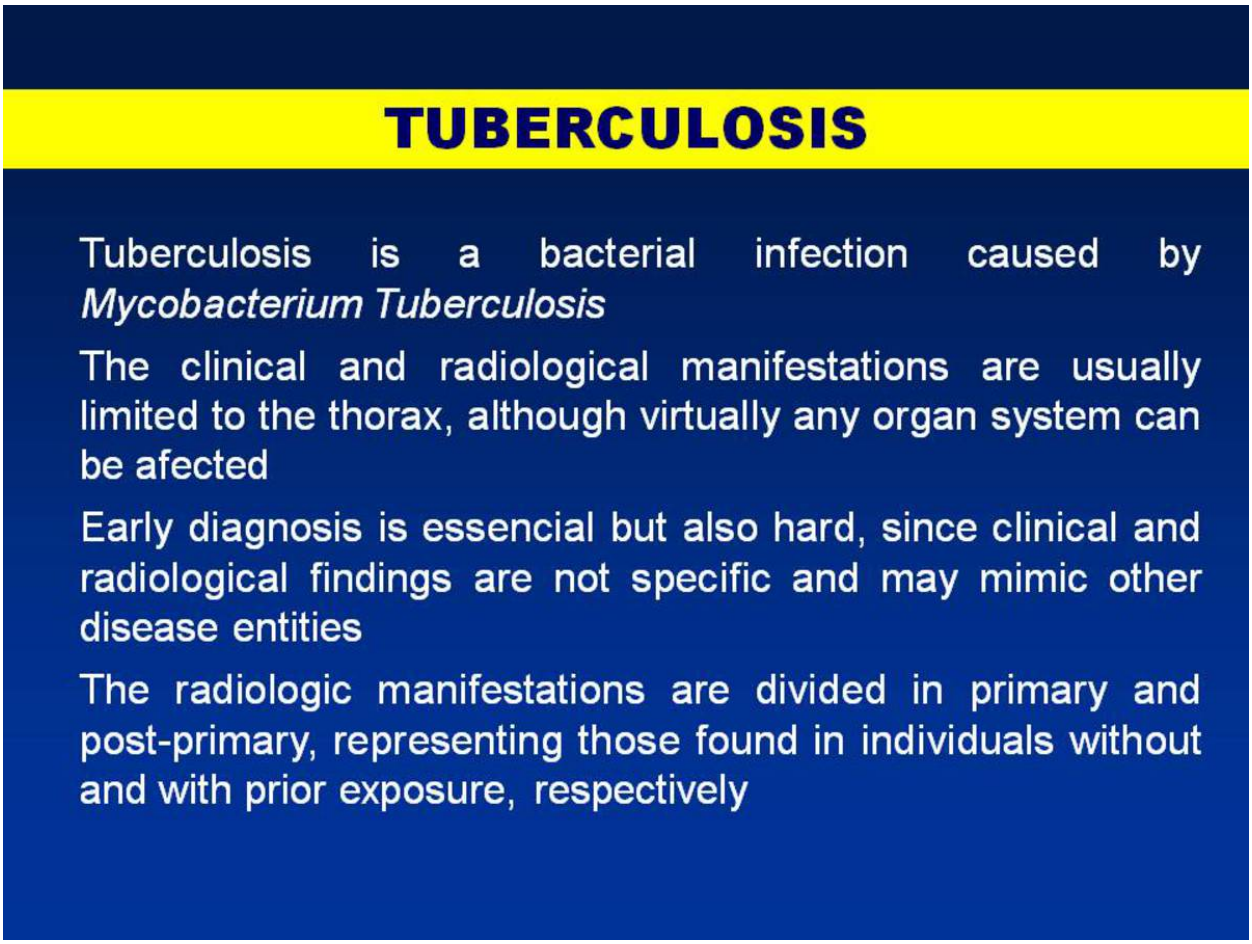


Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

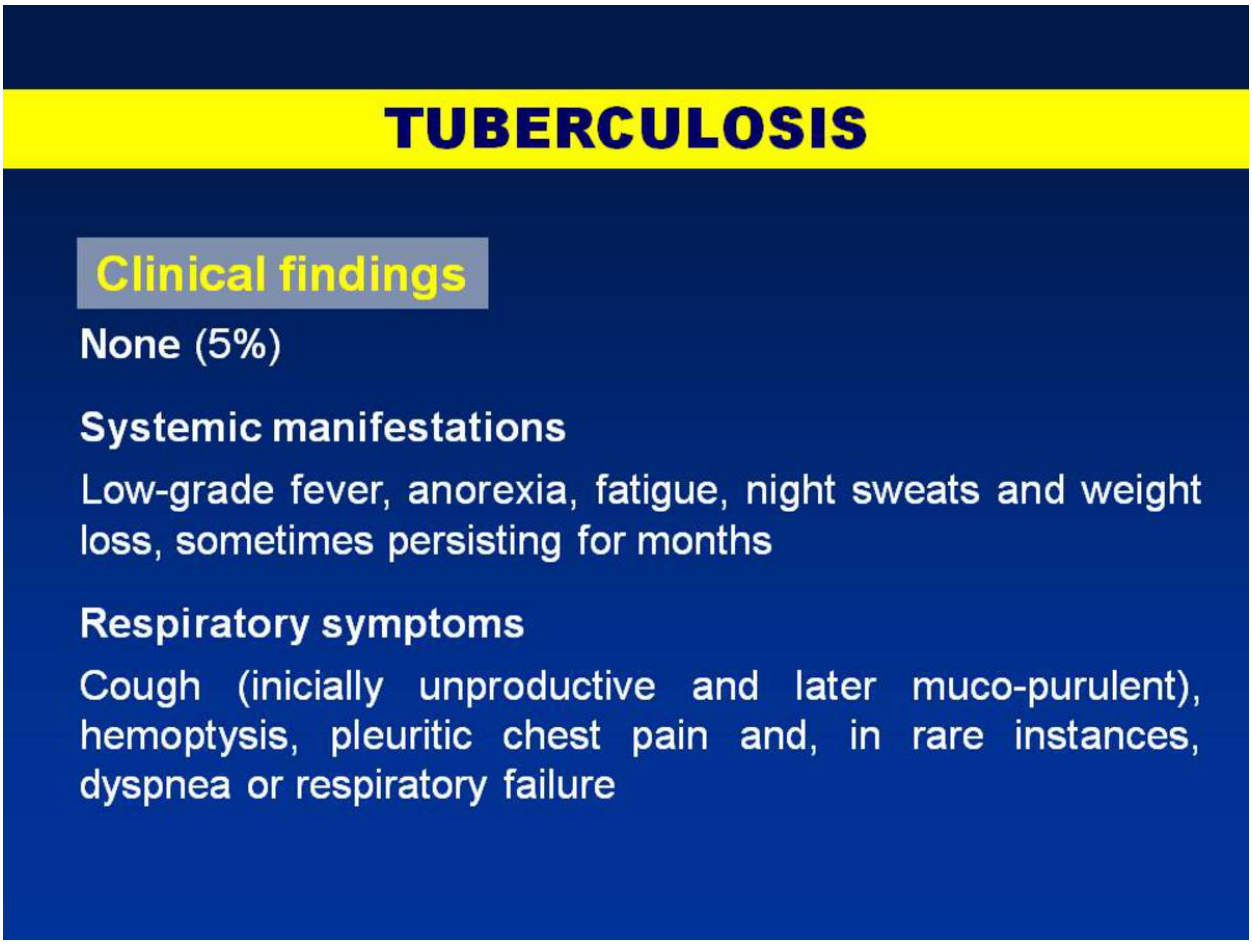


Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

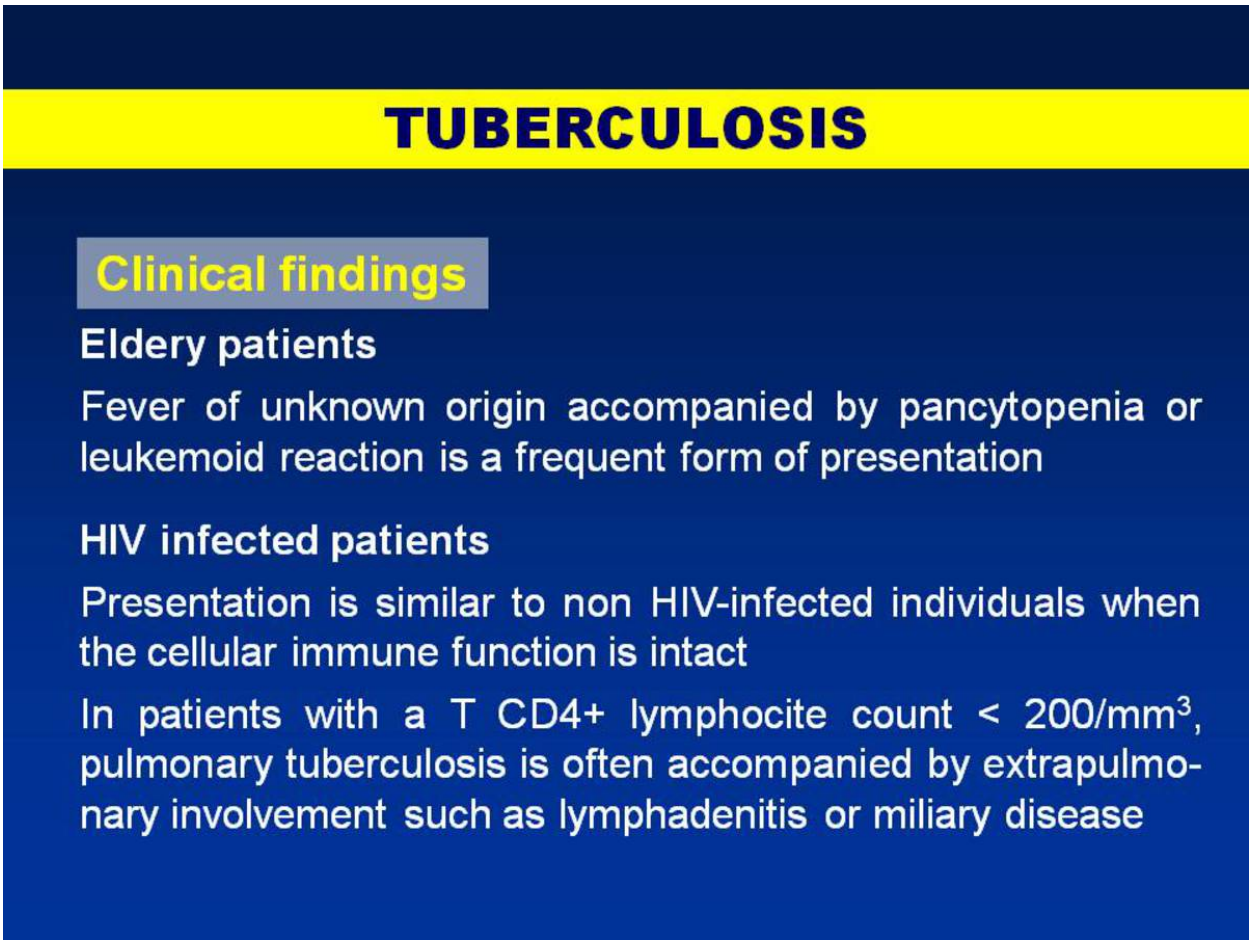
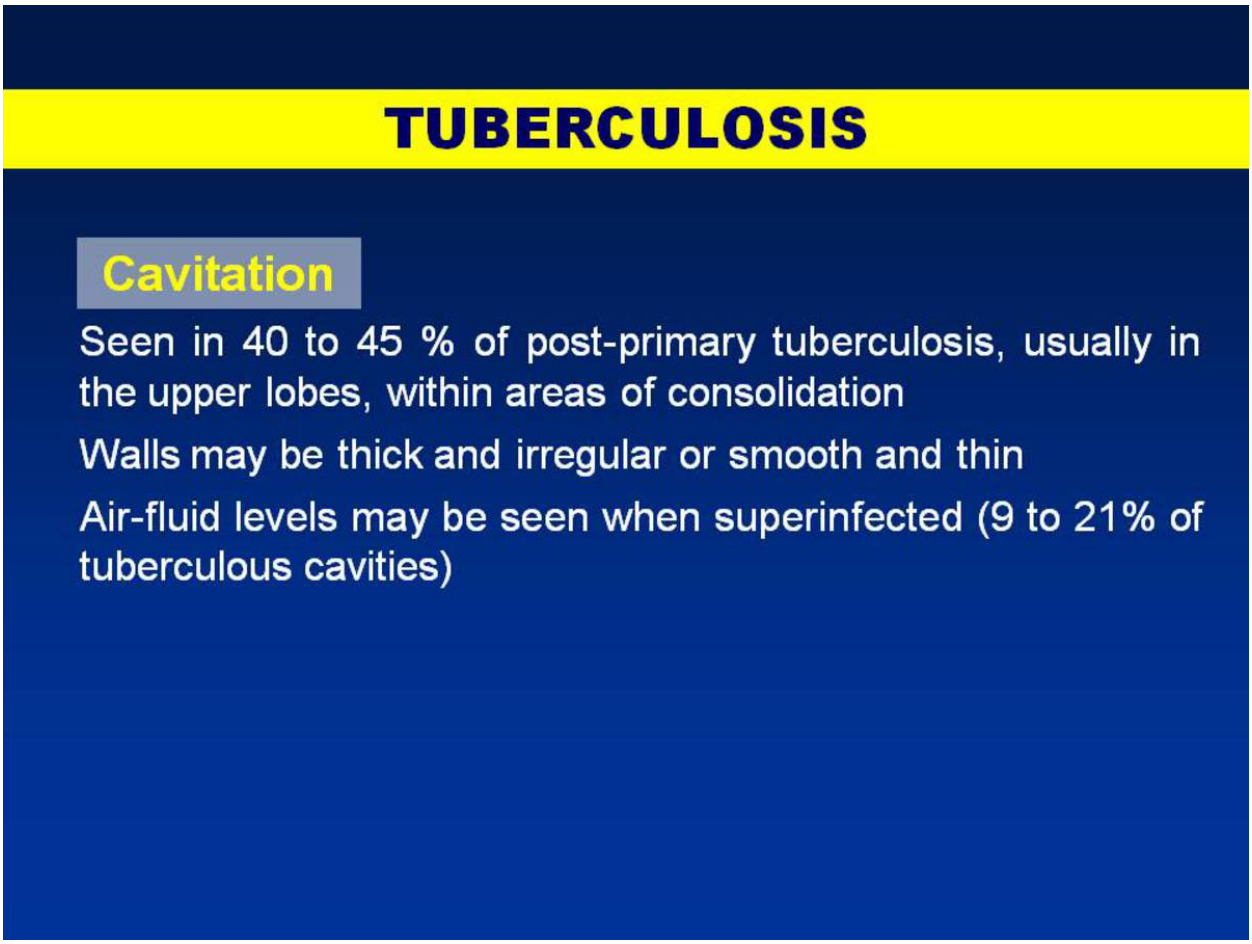


Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL



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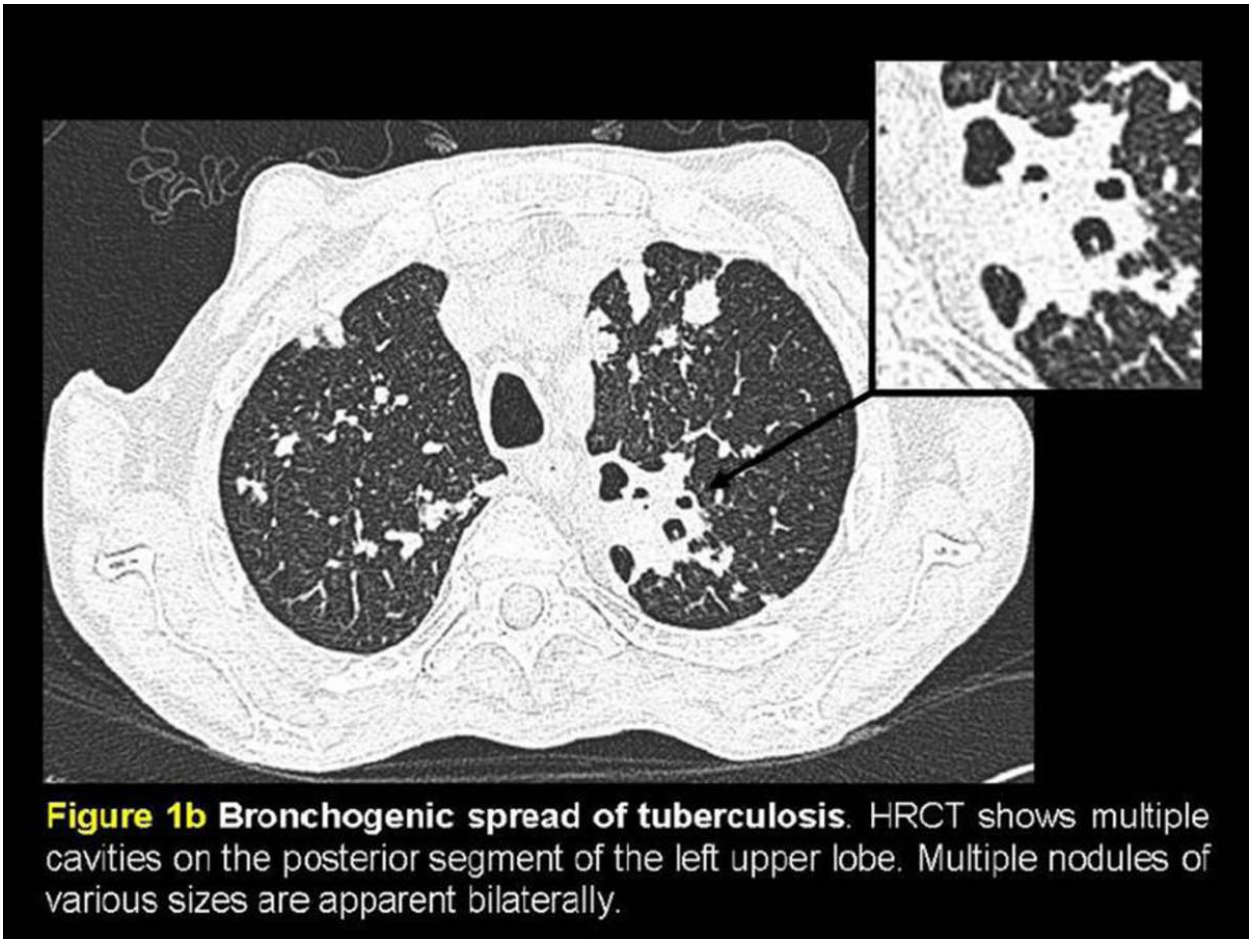


Figure 1b Bronchogenic spread of tuberculosis. HRCT shows multiple cavities on the posterior segment of the left upper lobe. Multiple nodules of various sizes are apparent bilaterally.

Fig.: _

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

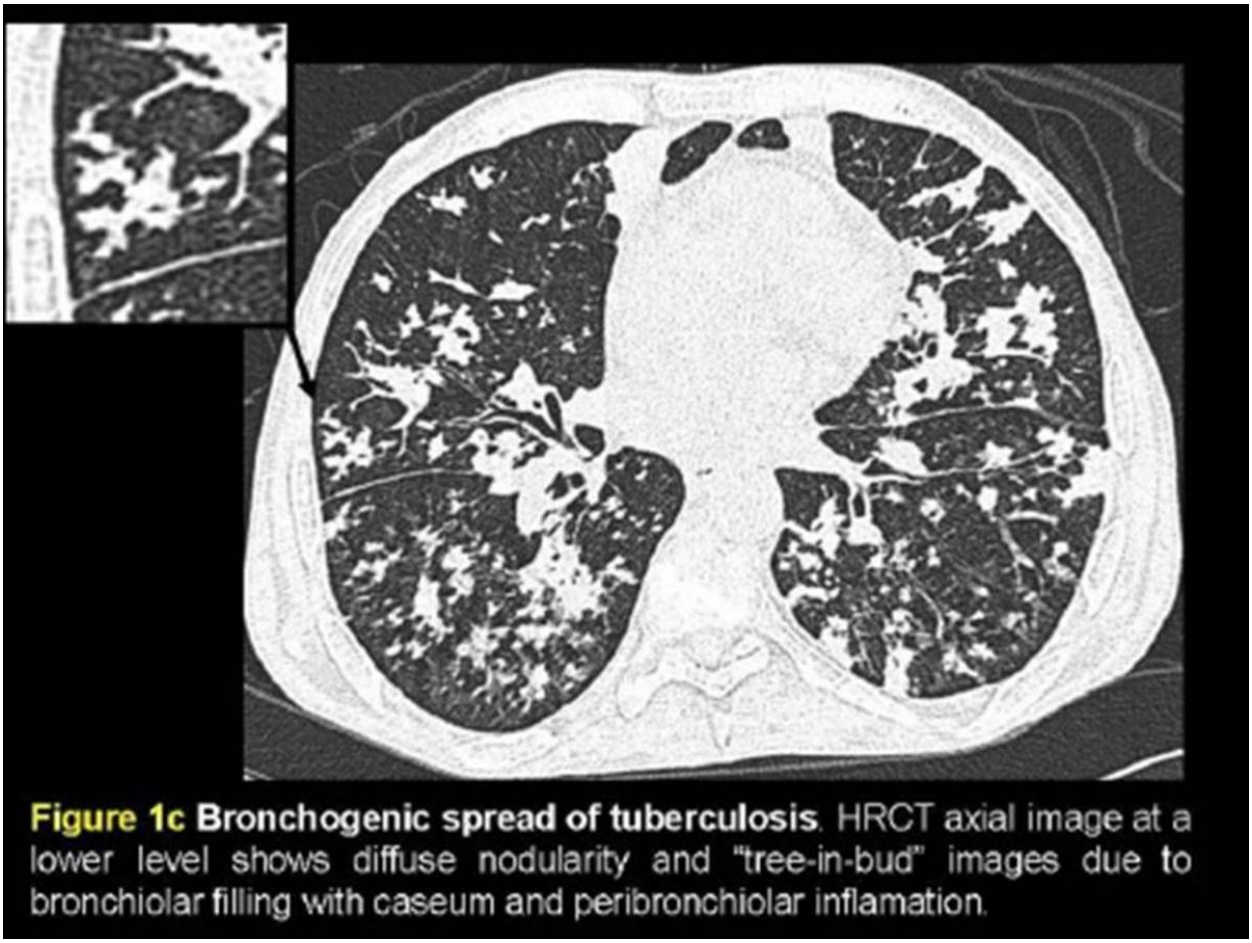


Figure 1c Bronchogenic spread of tuberculosis. HRCT axial image at a lower level shows diffuse nodularity and "tree-in-bud" images due to bronchiolar filling with caseum and peribronchiolar inflamation.

Fig.: _

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

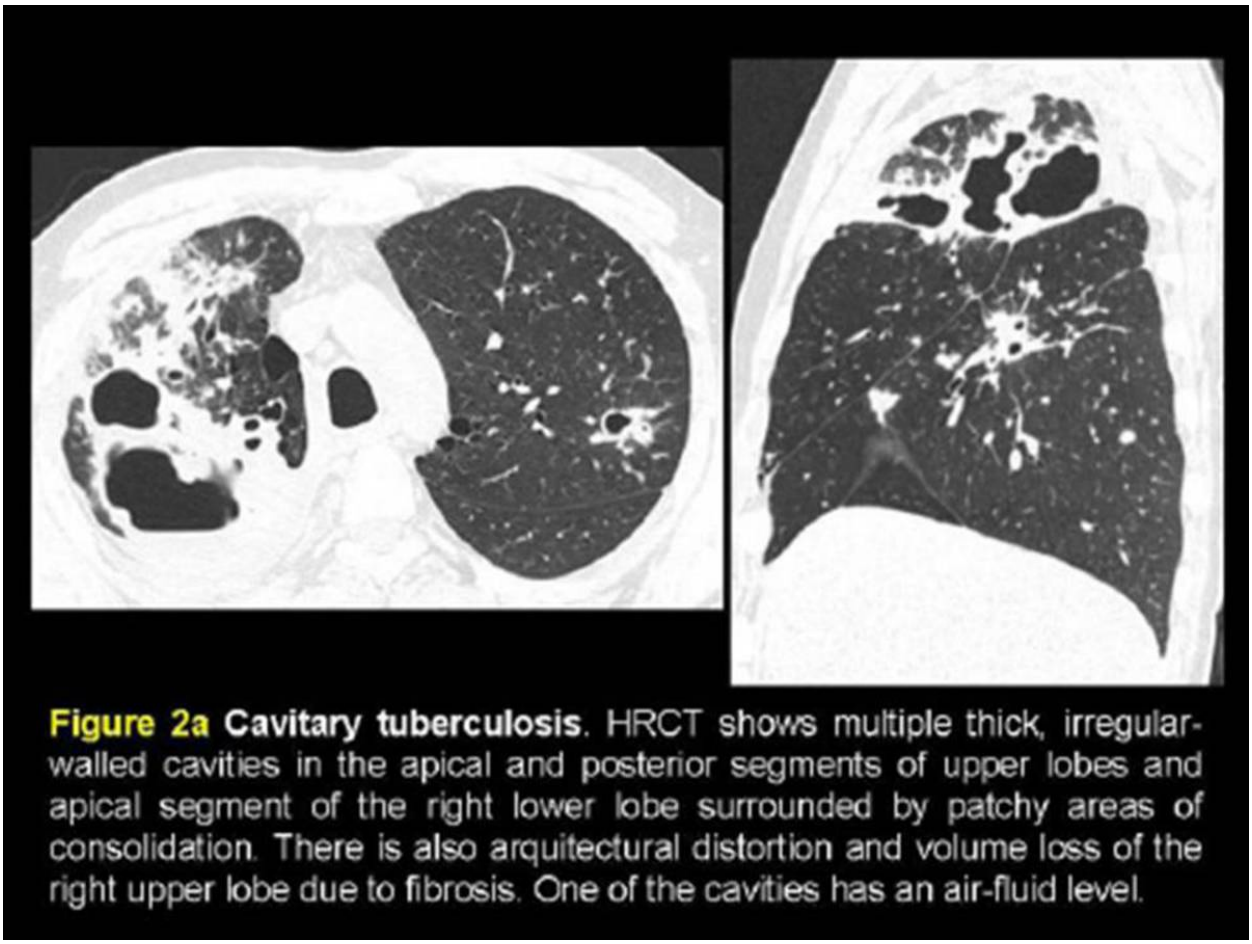


Figure 2a Cavitary tuberculosis. HRCT shows multiple thick, irregular-walled cavities in the apical and posterior segments of upper lobes and apical segment of the right lower lobe surrounded by patchy areas of consolidation. There is also arquitectural distortion and volume loss of the right upper lobe due to fibrosis. One of the cavities has an air-fluid level.

Fig.: _

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

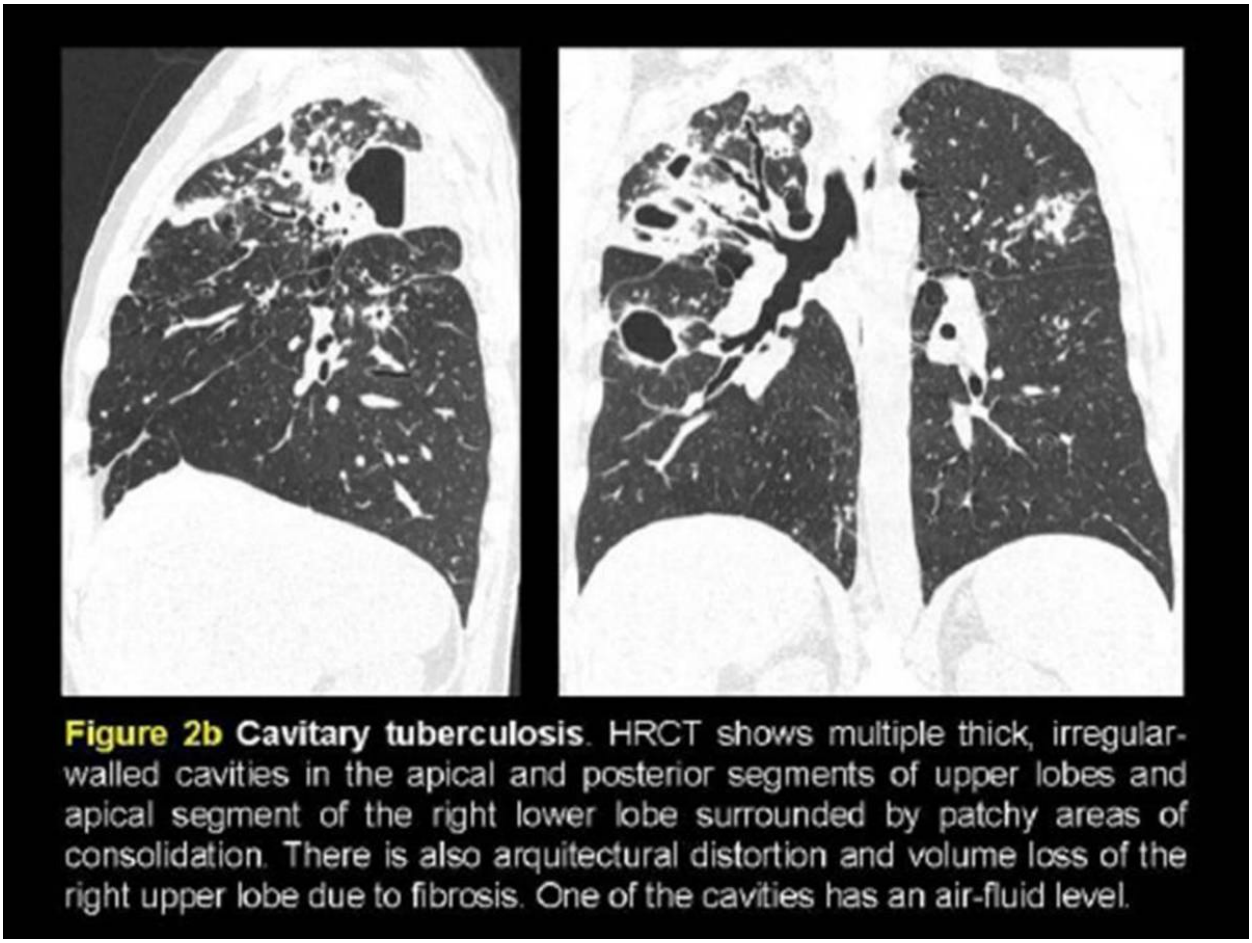


Figure 2b Cavitary tuberculosis. HRCT shows multiple thick, irregular-walled cavities in the apical and posterior segments of upper lobes and apical segment of the right lower lobe surrounded by patchy areas of consolidation. There is also arquitectural distortion and volume loss of the right upper lobe due to fibrosis. One of the cavities has an air-fluid level.

Fig.: _

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

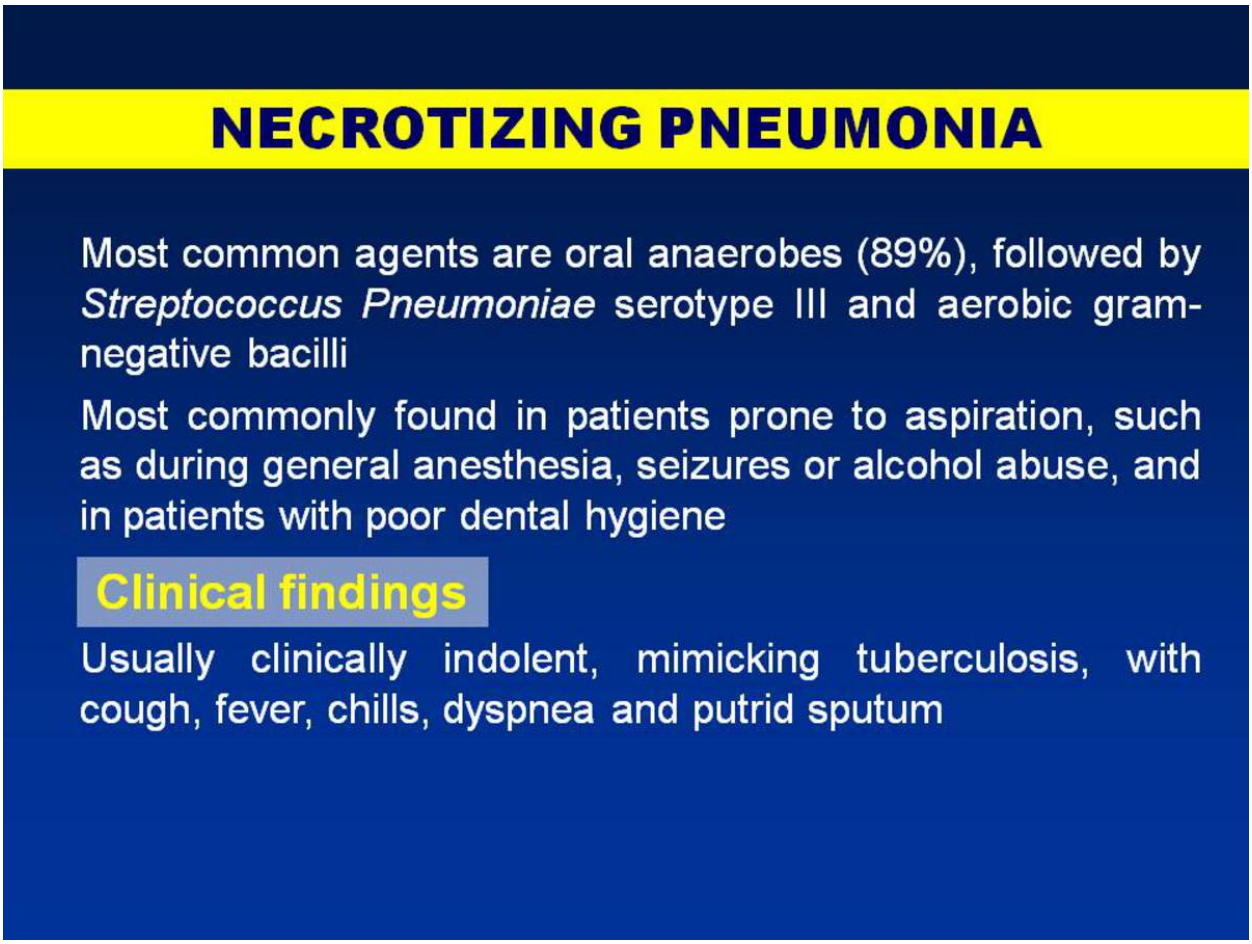


Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

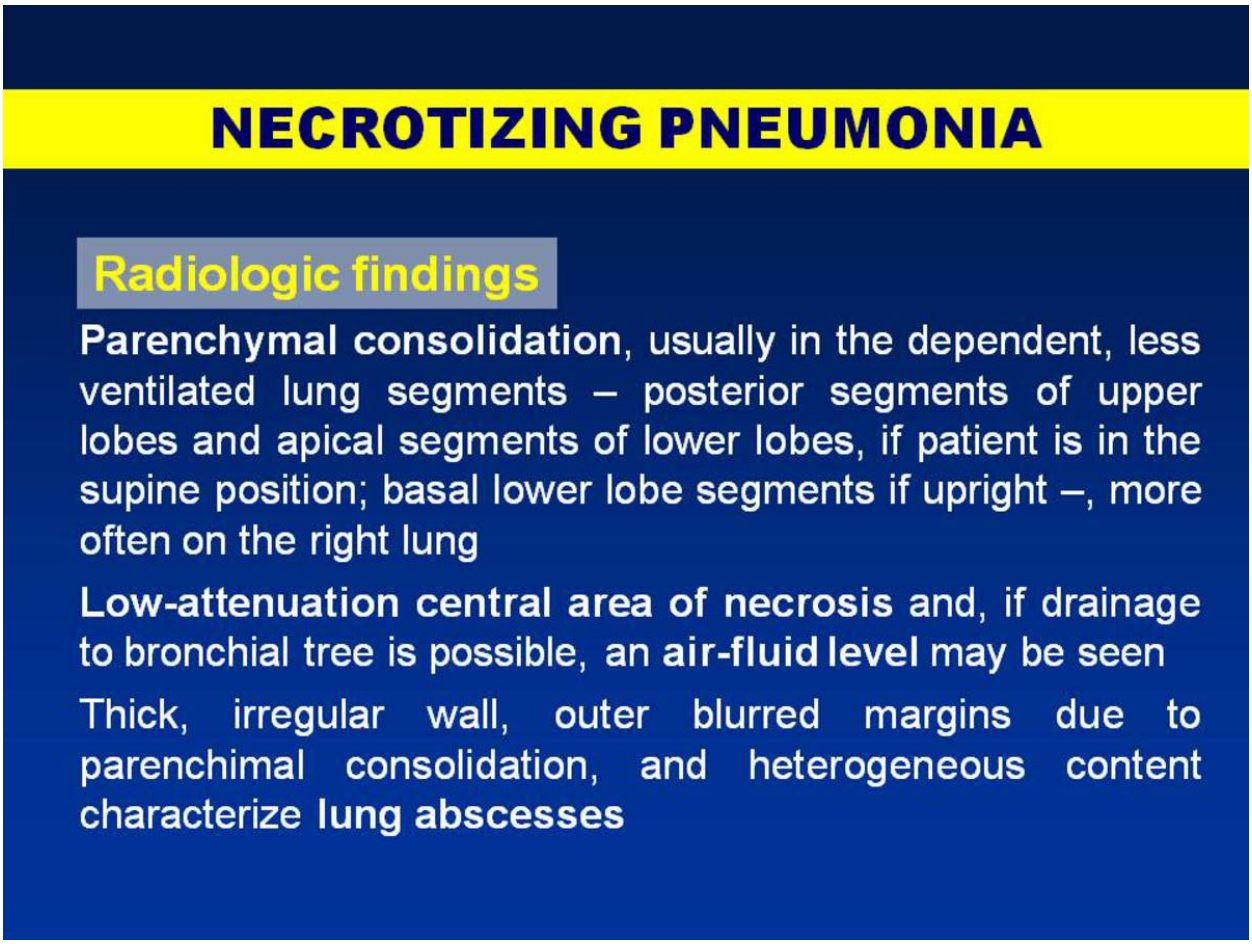


Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

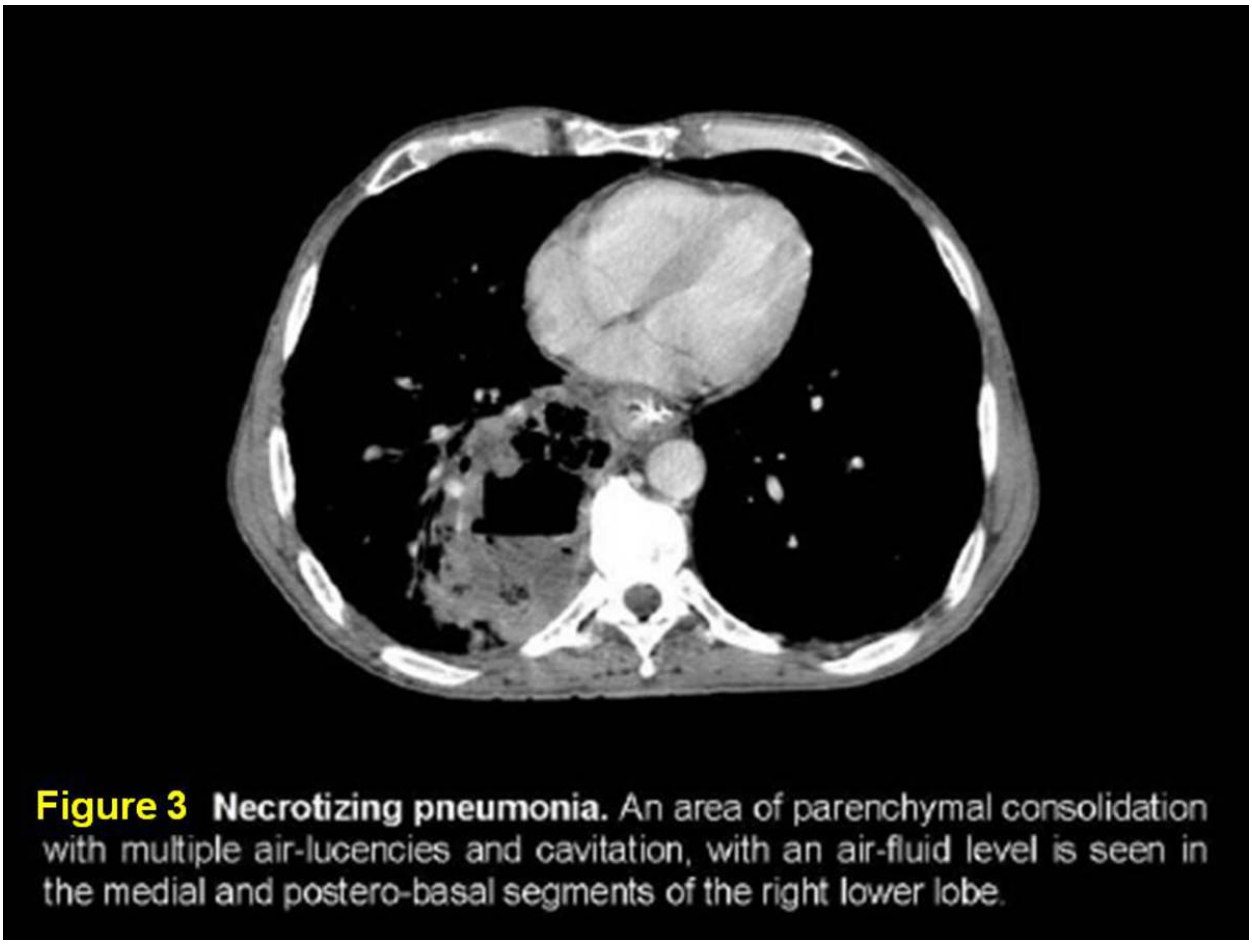
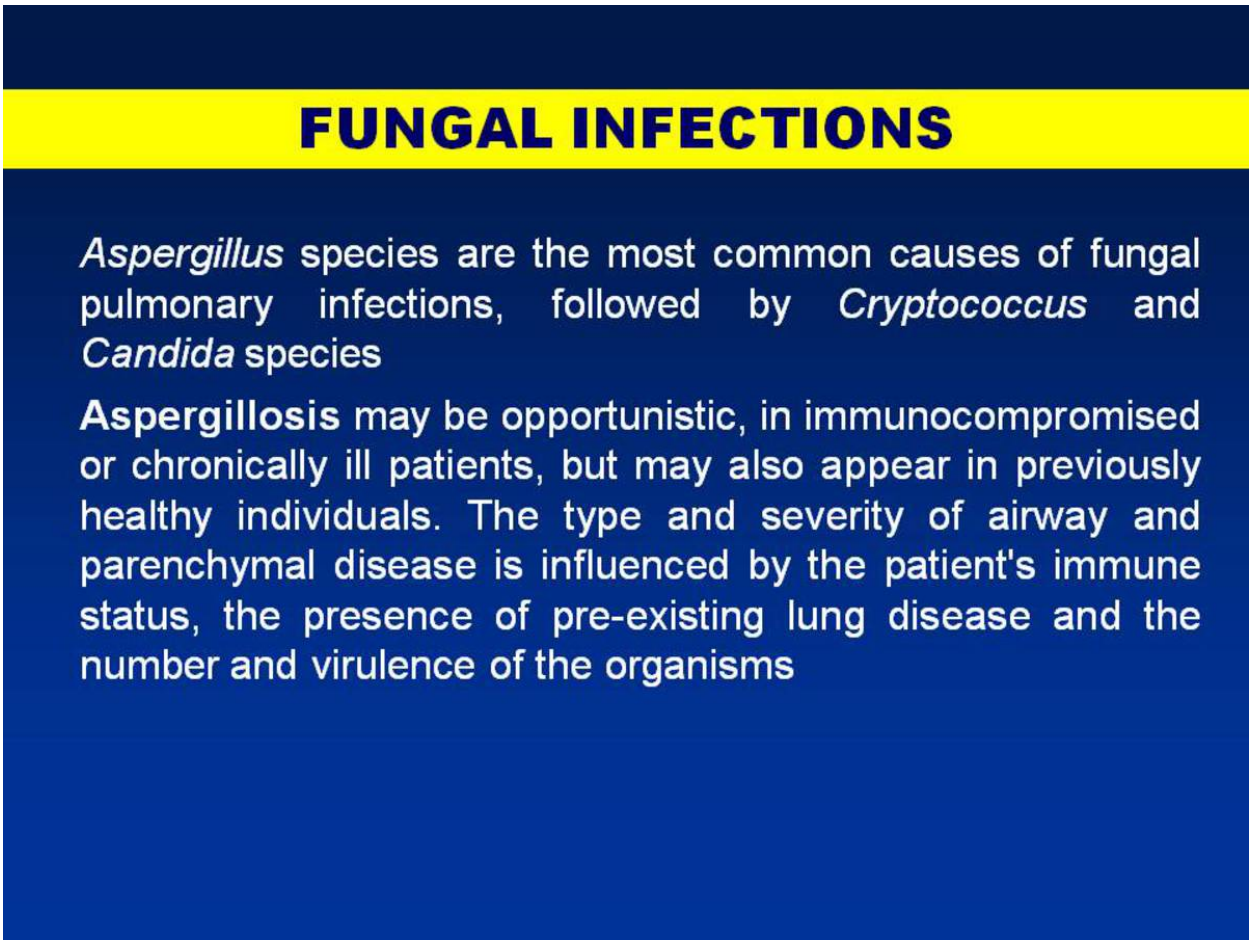


Fig.: _

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL



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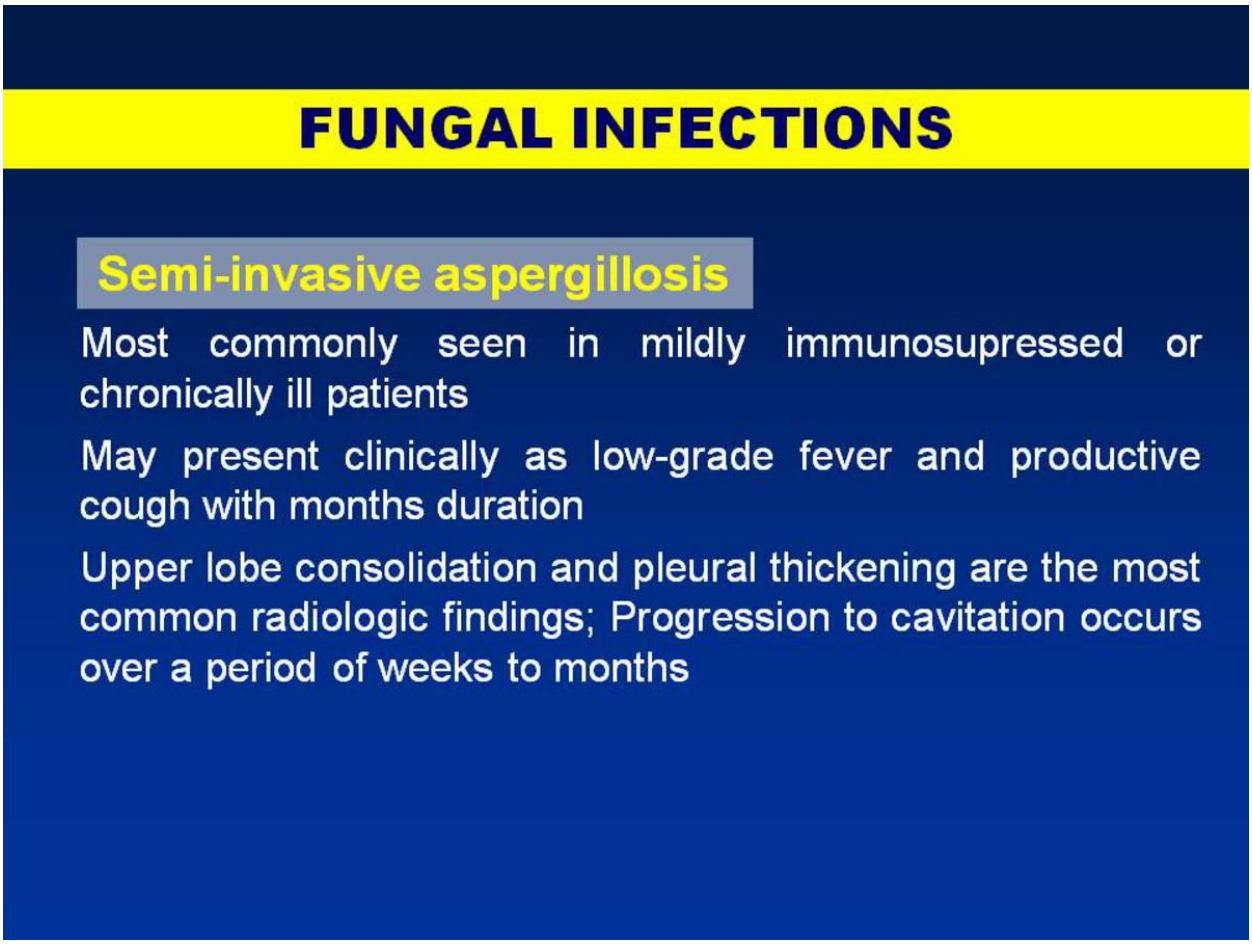

Fig.: _
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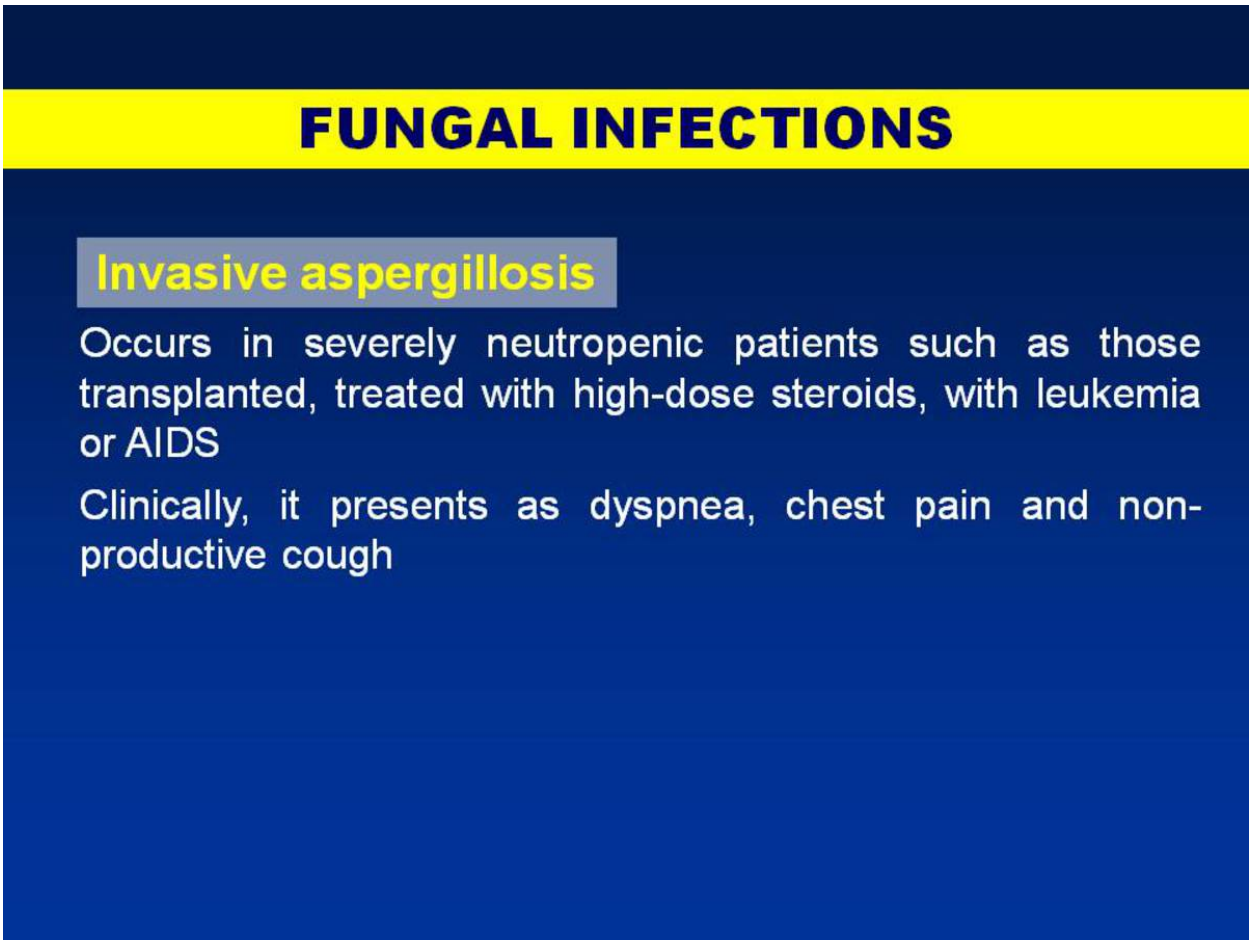
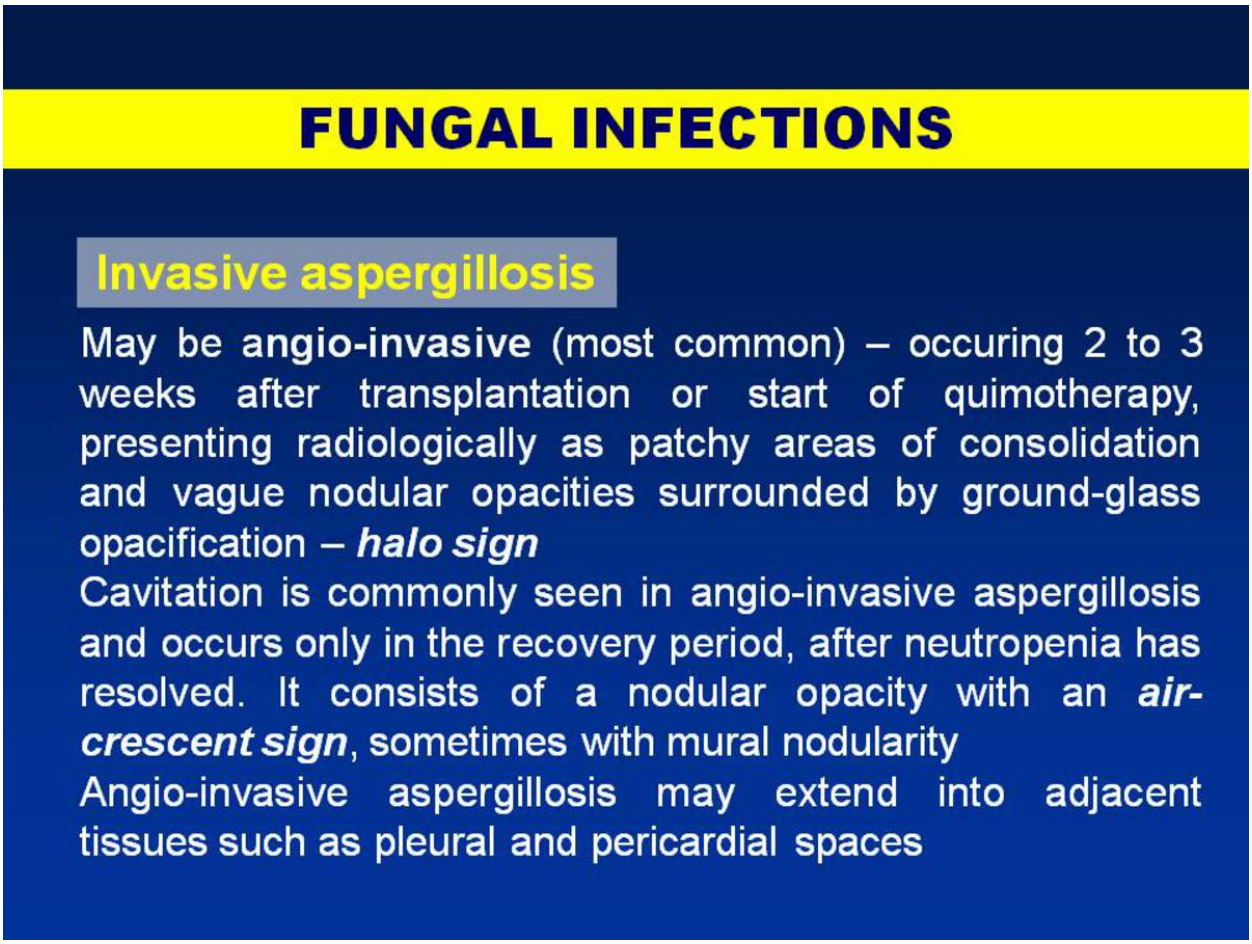


Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL



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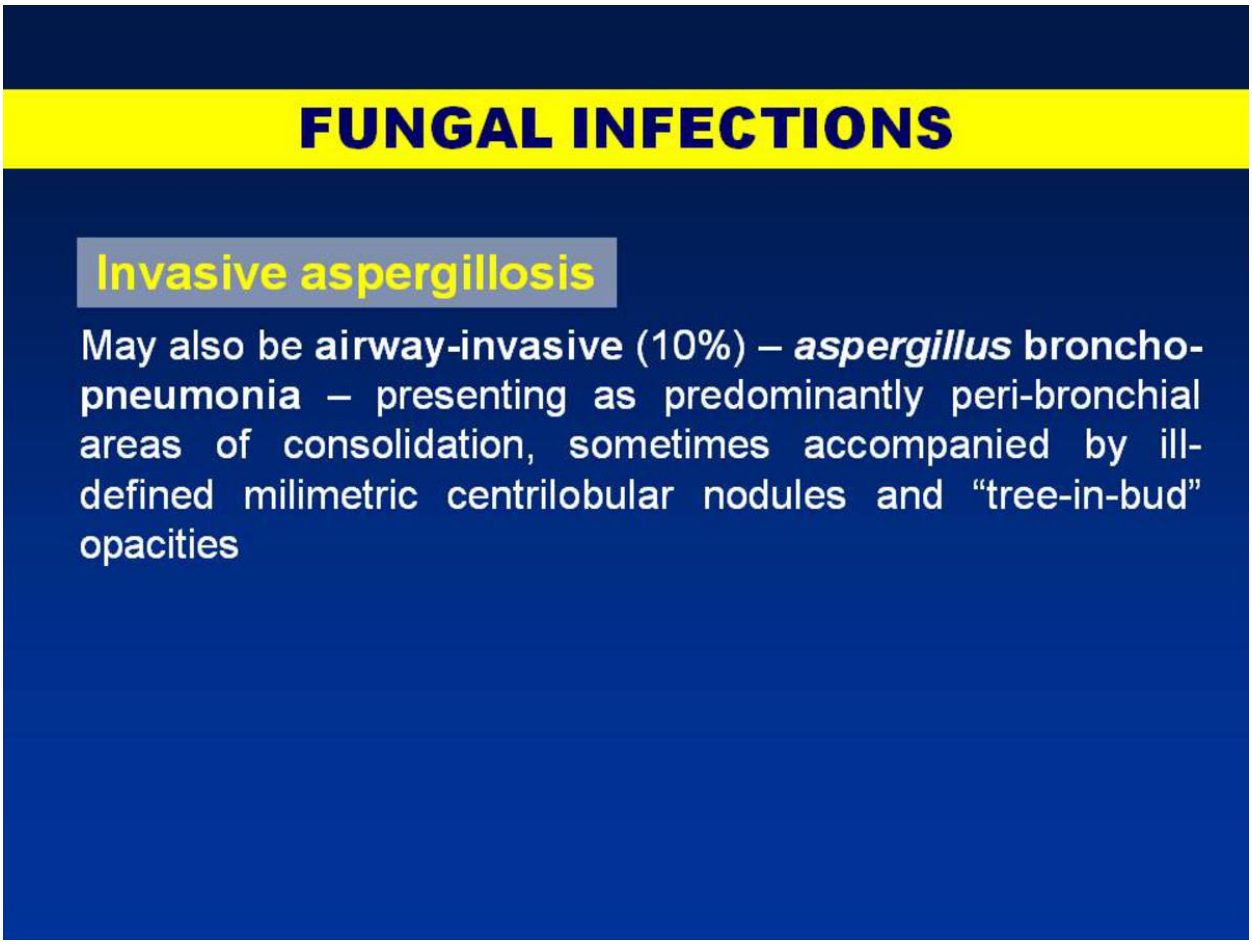

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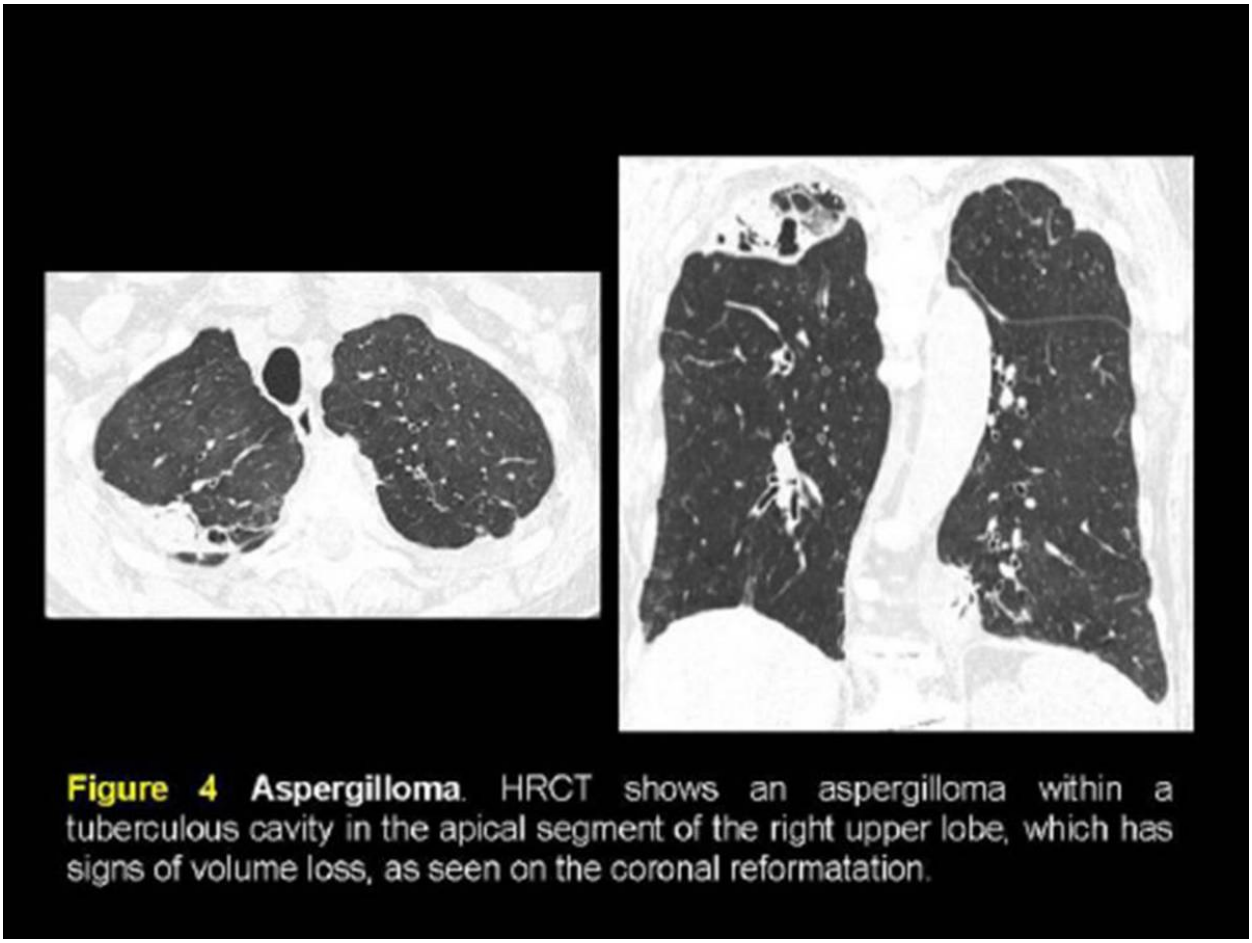

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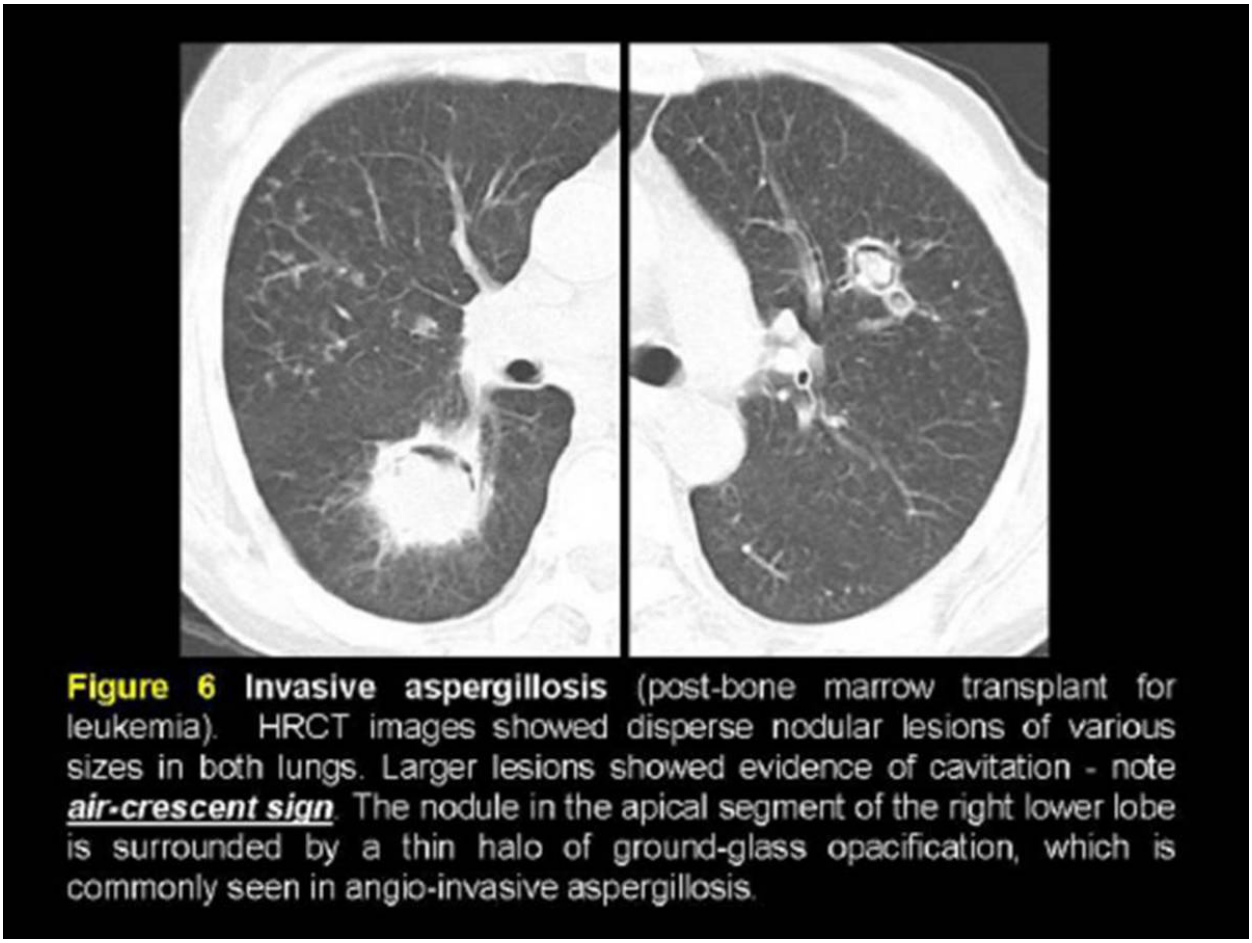

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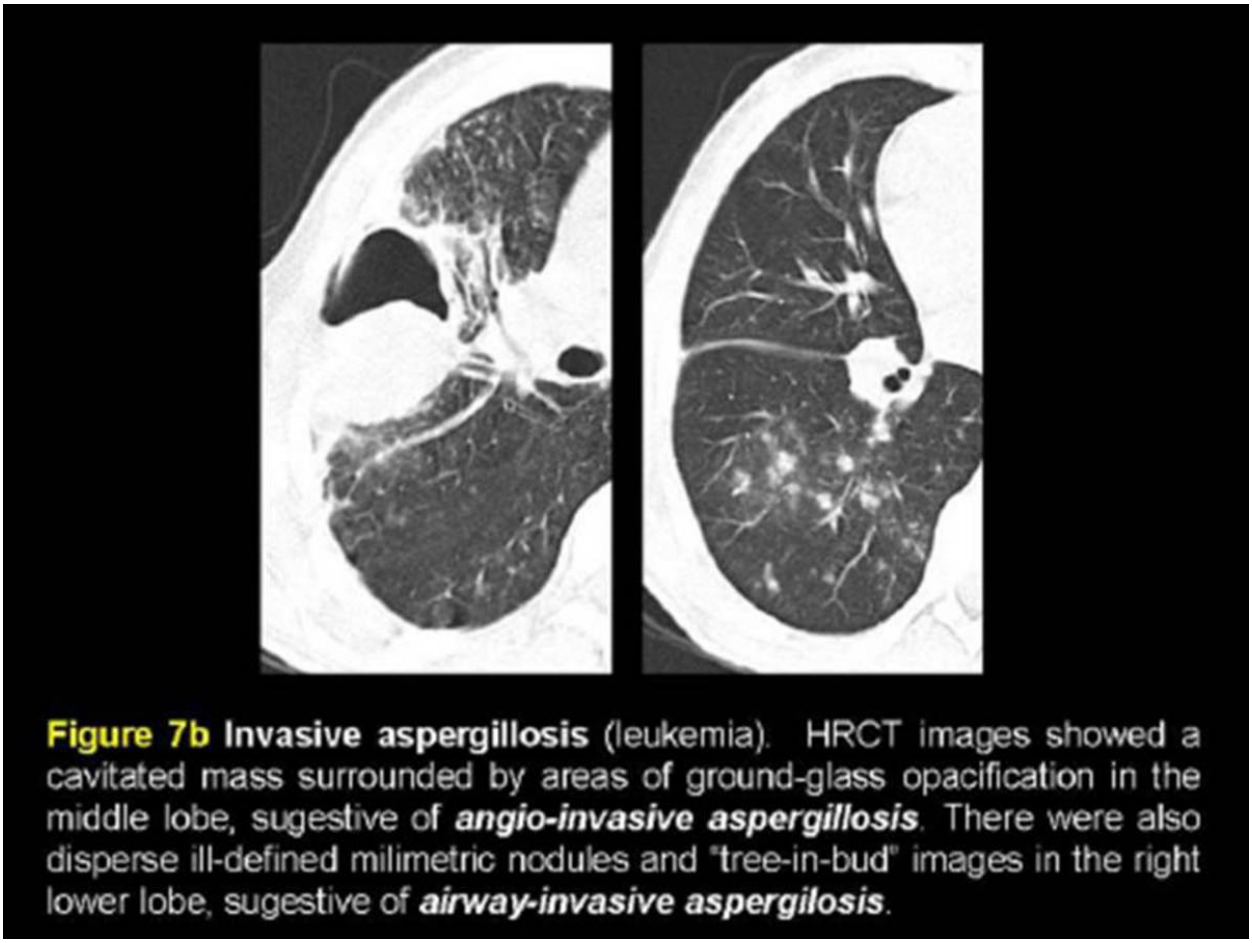


Figure 7b Invasive aspergillosis (leukemia). HRCT images showed a cavitated mass surrounded by areas of ground-glass opacification in the middle lobe, sugestive of ***angio-invasive aspergillosis***. There were also disperse ill-defined milimetric nodules and "tree-in-bud" images in the right lower lobe, sugestive of ***airway-invasive aspergilosis***.

Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

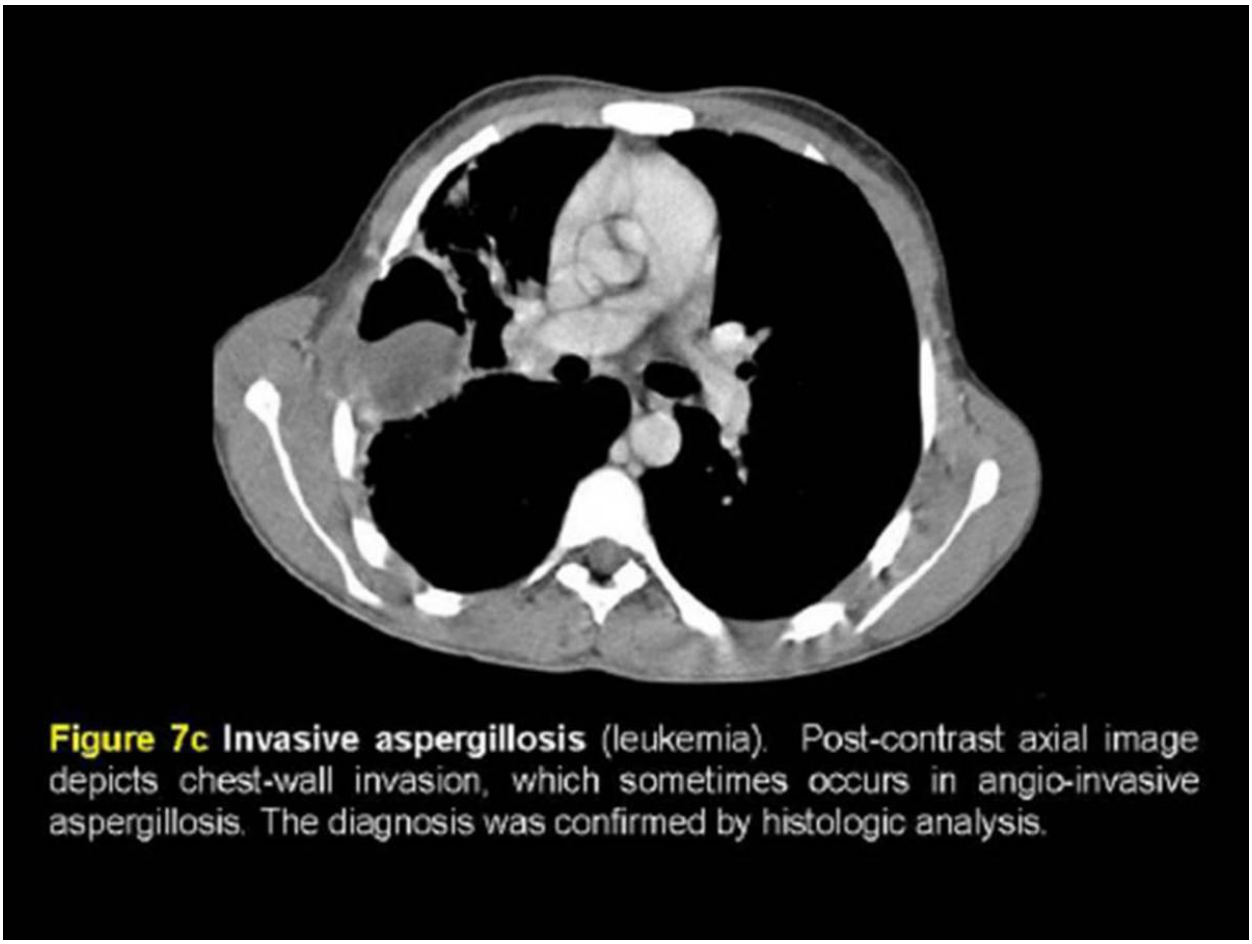
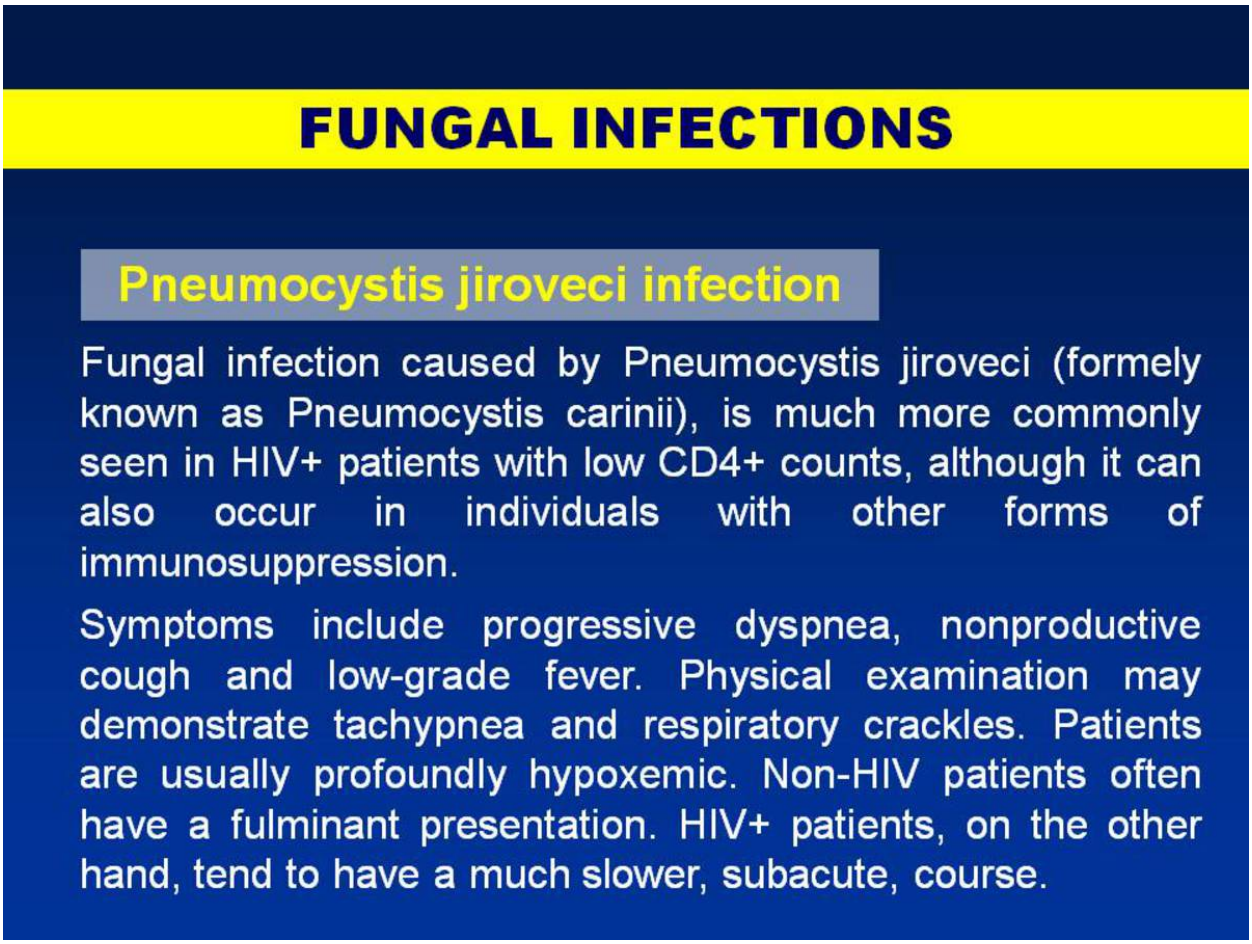


Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL



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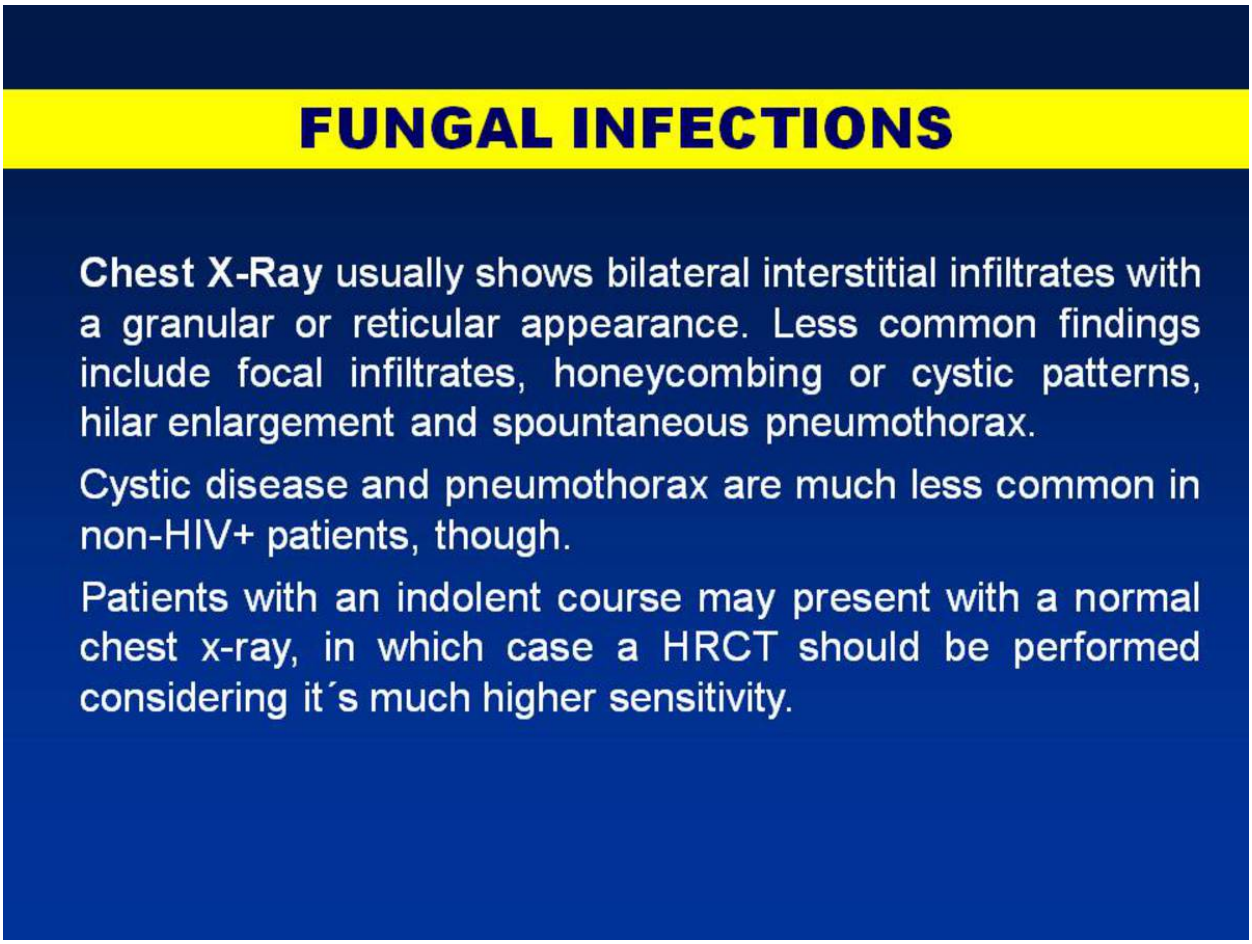

Fig.: _
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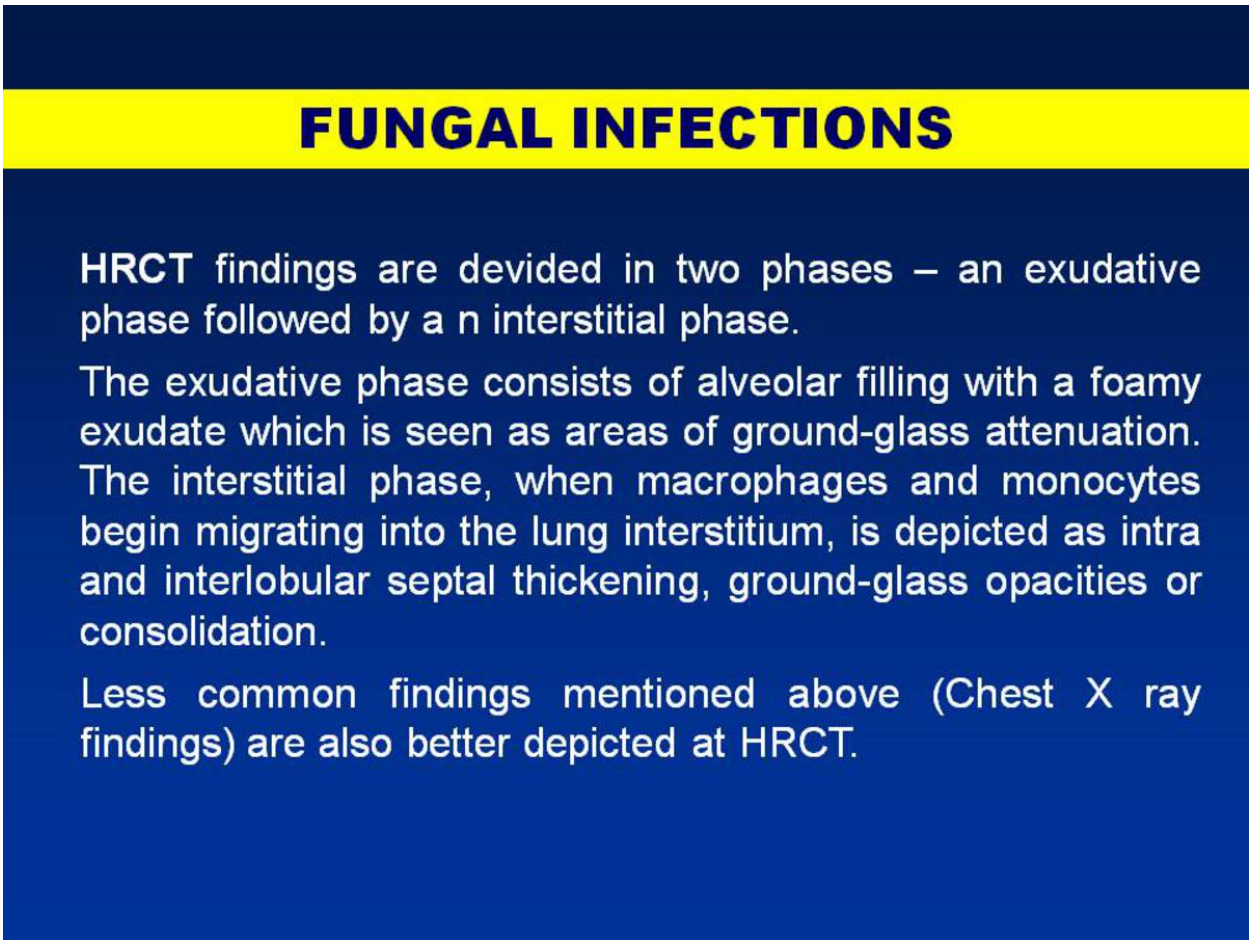

Fig.: _
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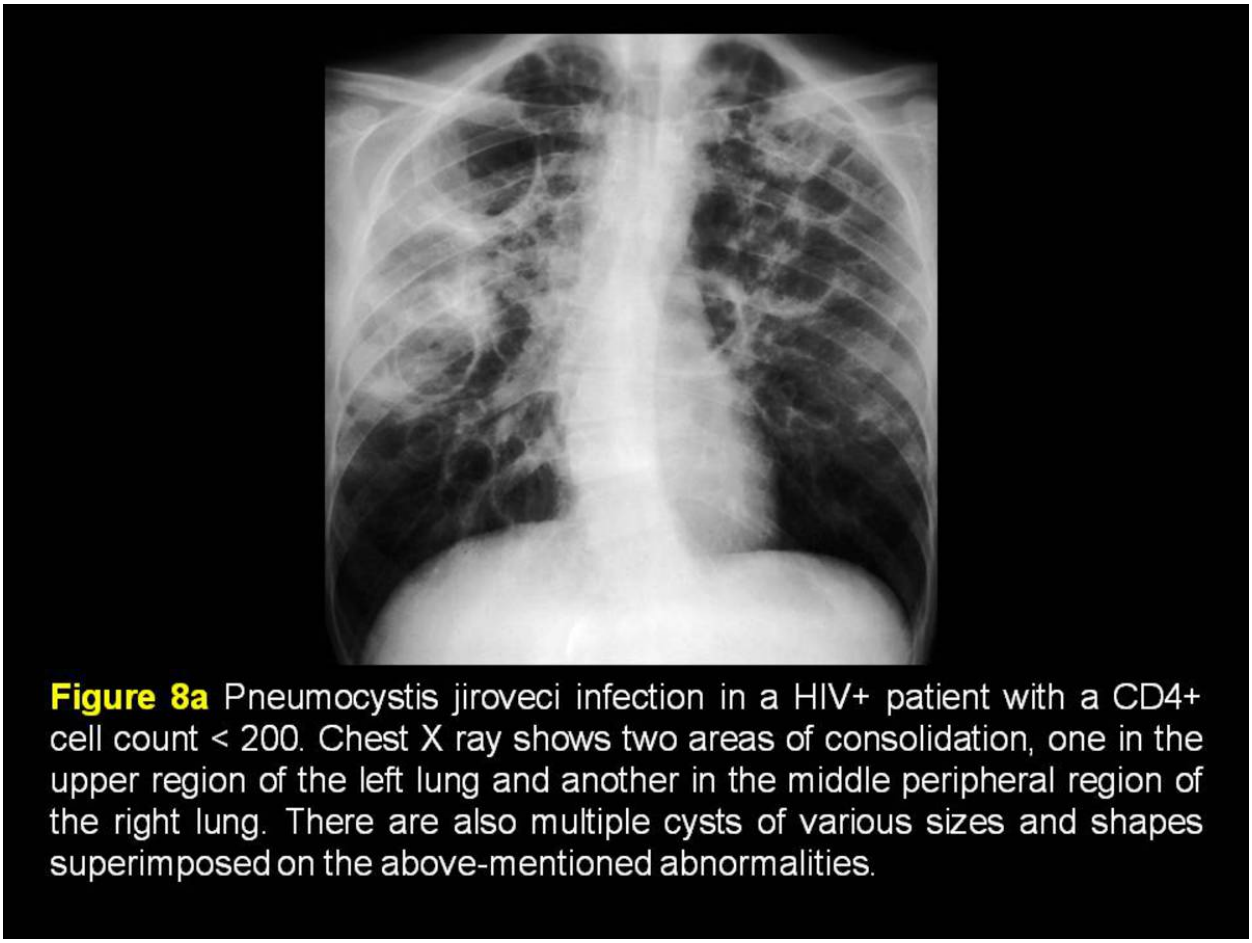

Fig.: _
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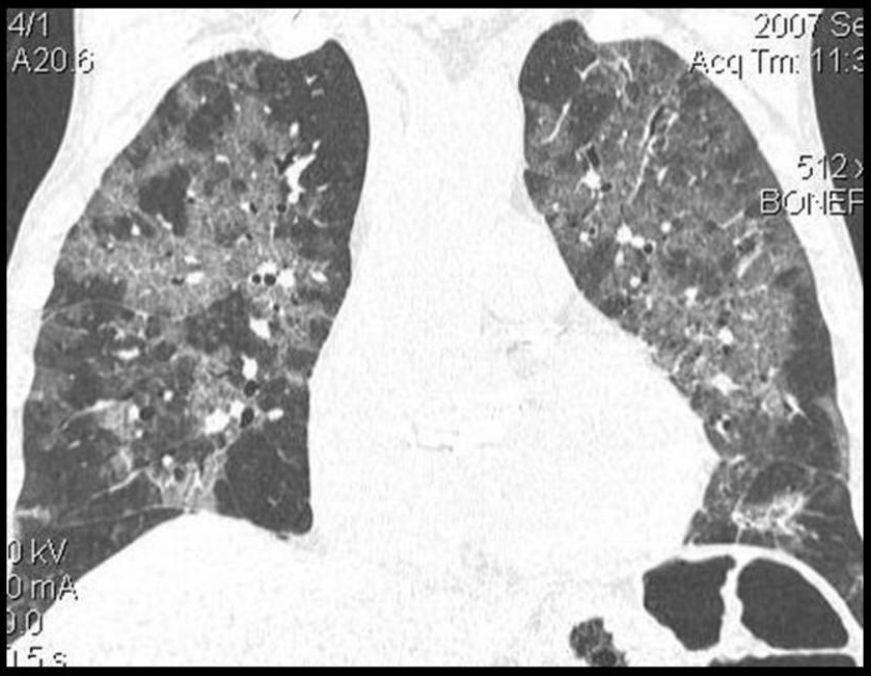
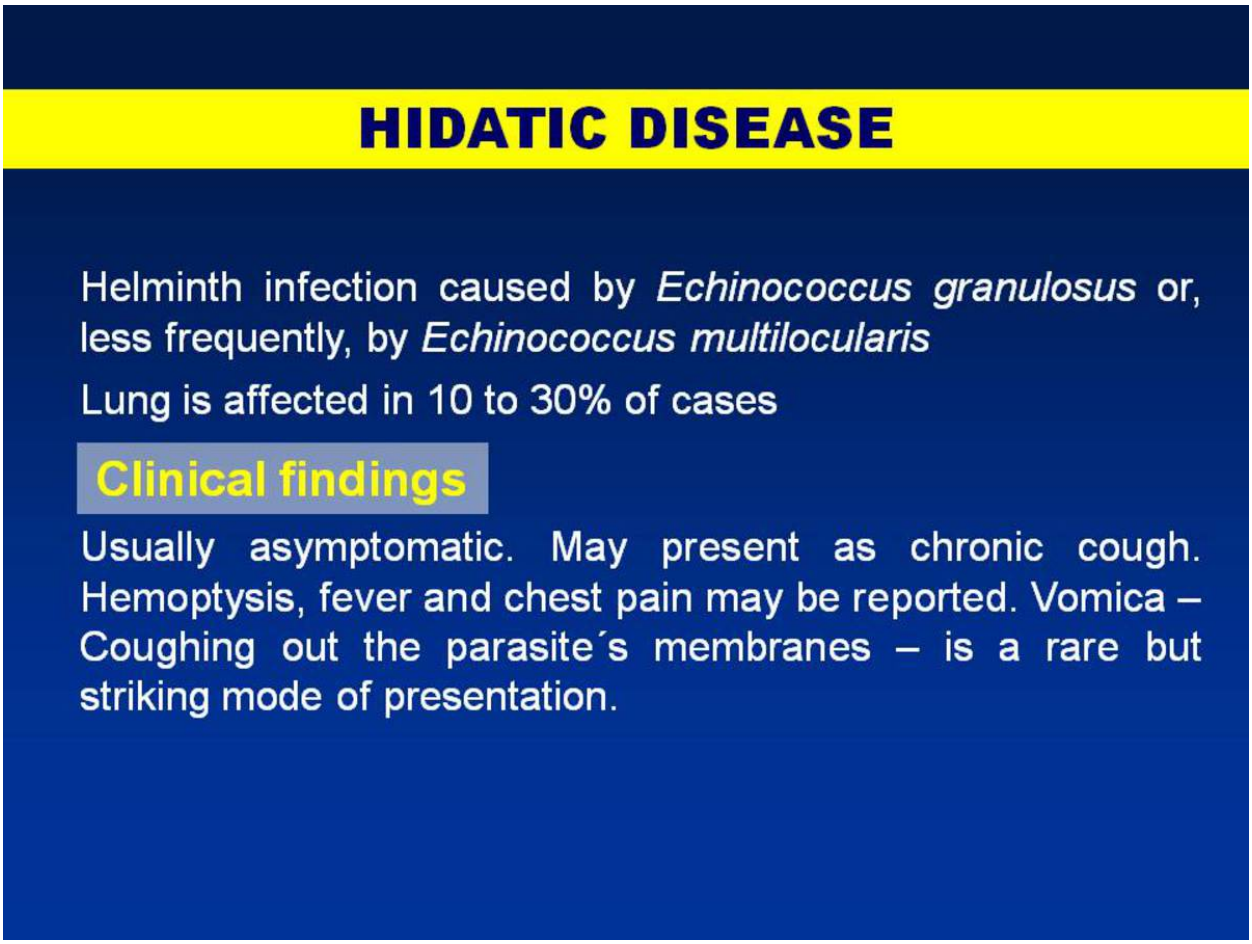


Figure 8b Pneumocystis jiroveci infection in another HIV+ patient with a CD4+ cell count < 200. HRCT shows dispersed areas of ground-glass opacification.

Fig.: _

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL



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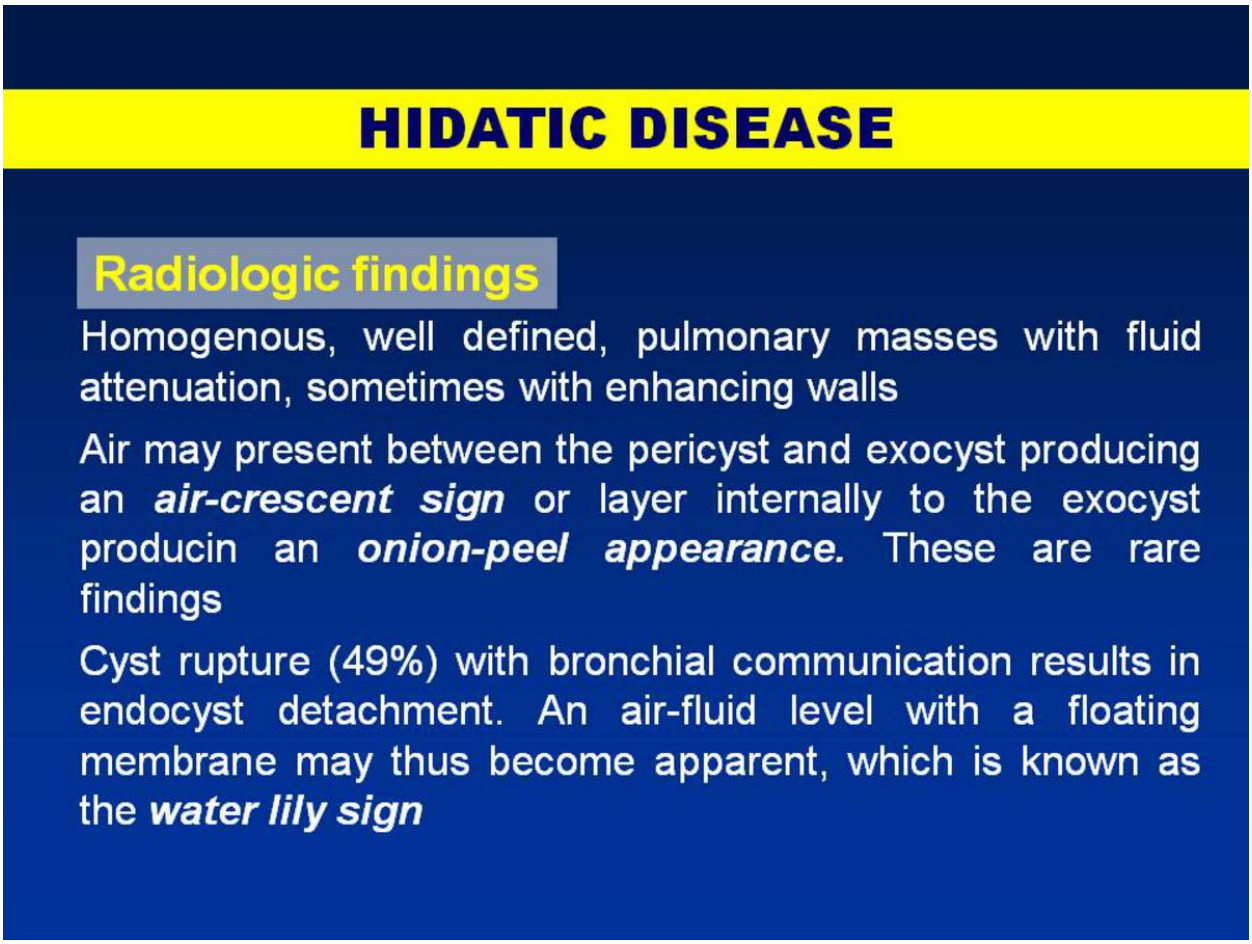

Fig.: _
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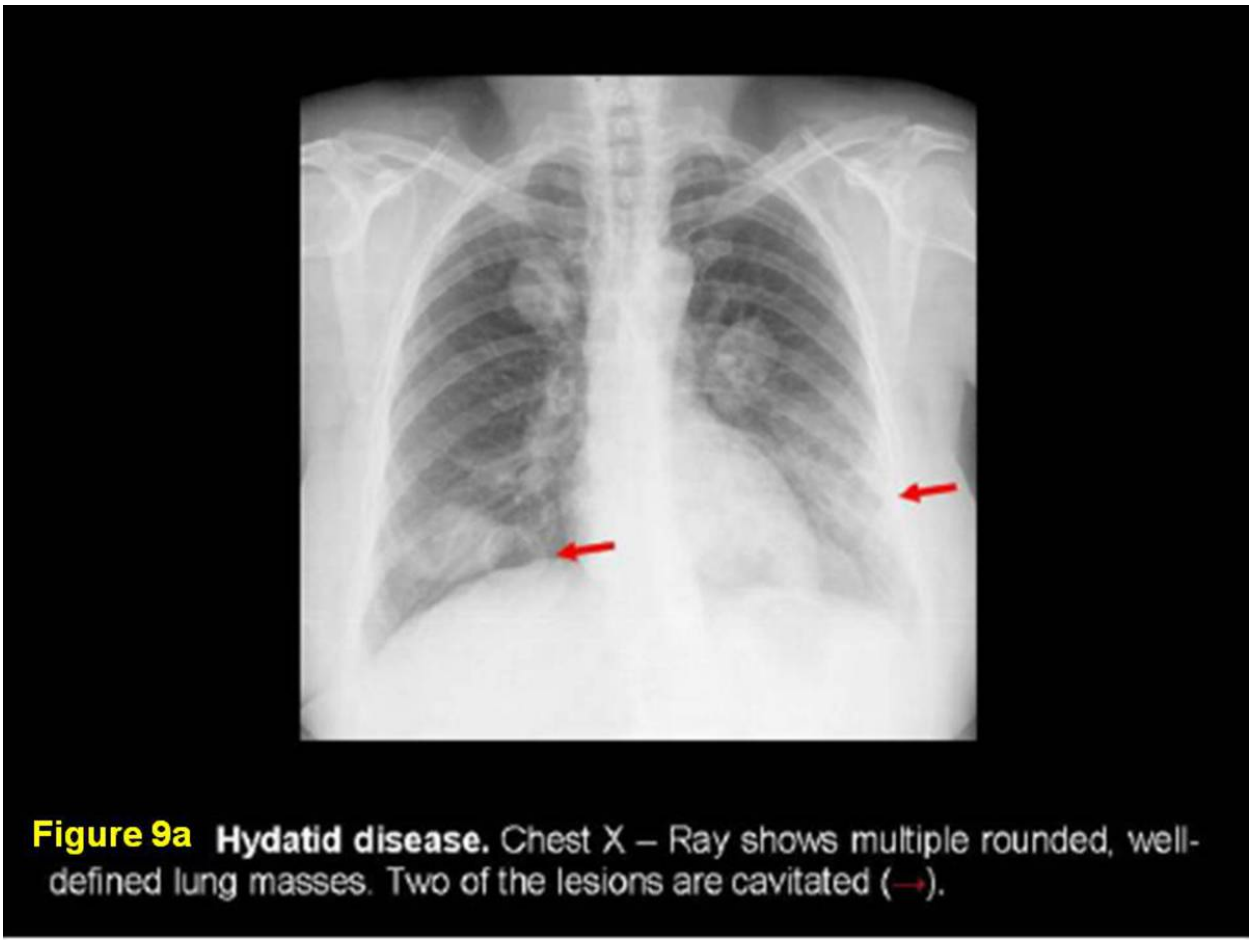

Figure 9a **Hydatid disease.** Chest X – Ray shows multiple rounded, well-defined lung masses. Two of the lesions are cavitated (→).

Fig.: _

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

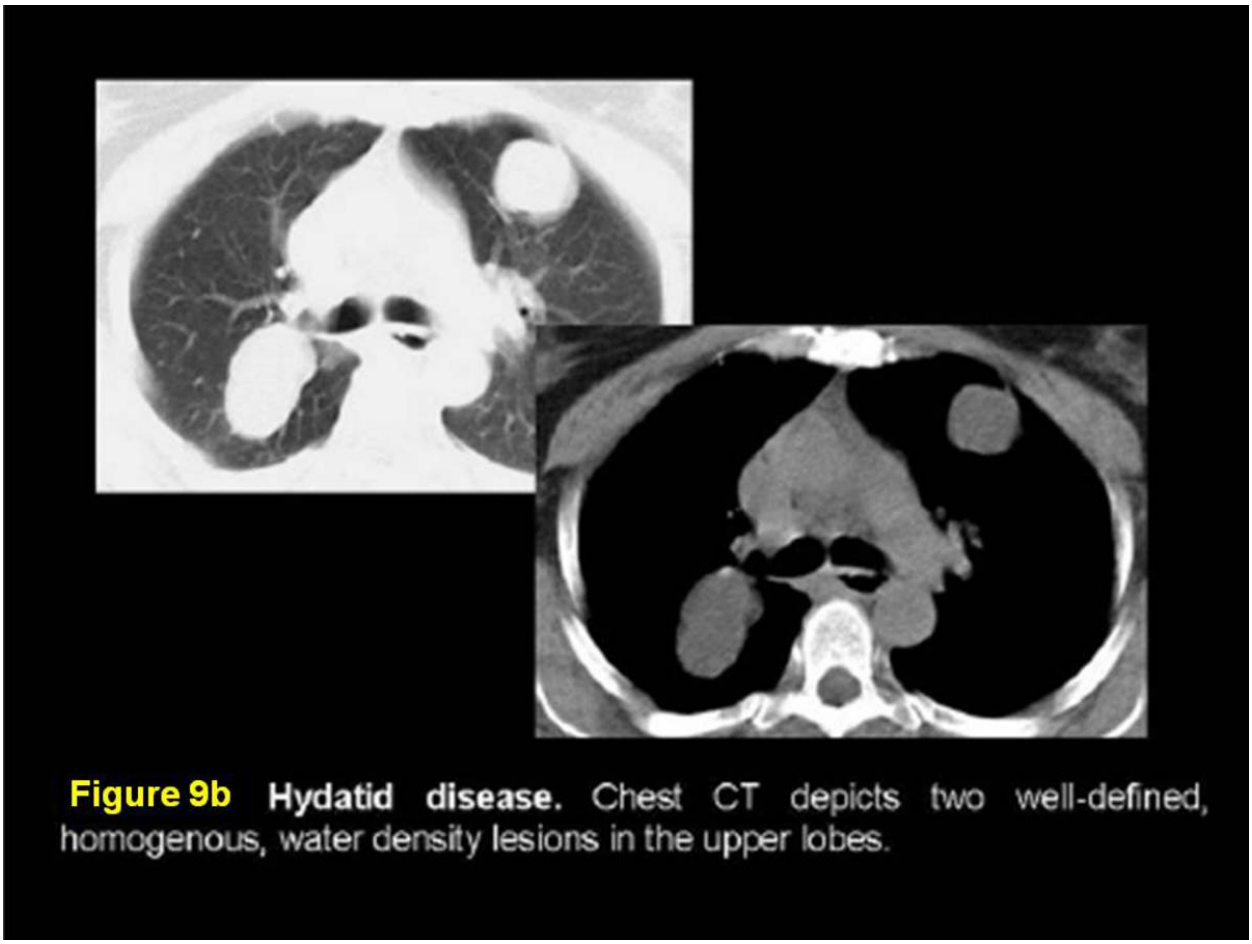

Fig.: _
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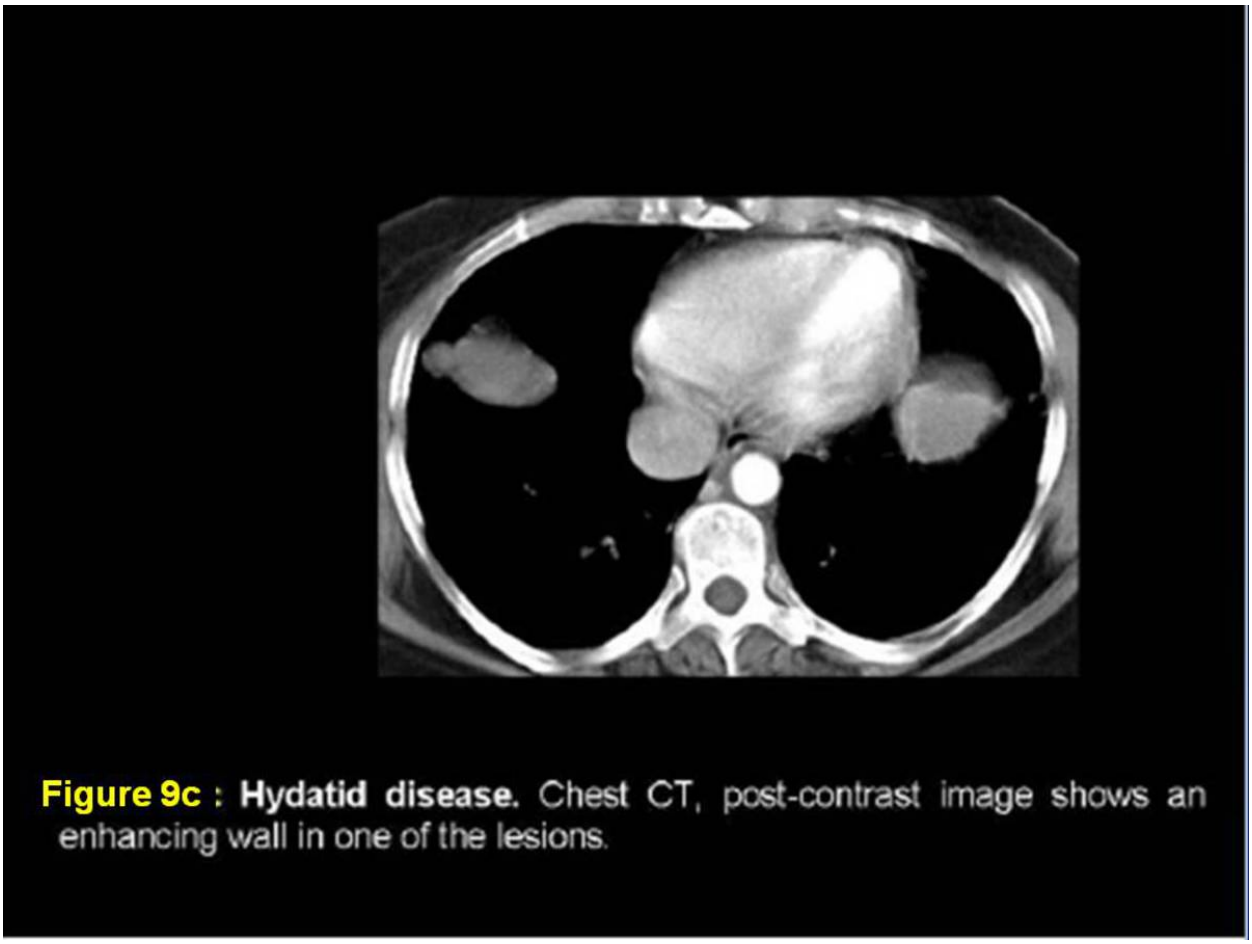

Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

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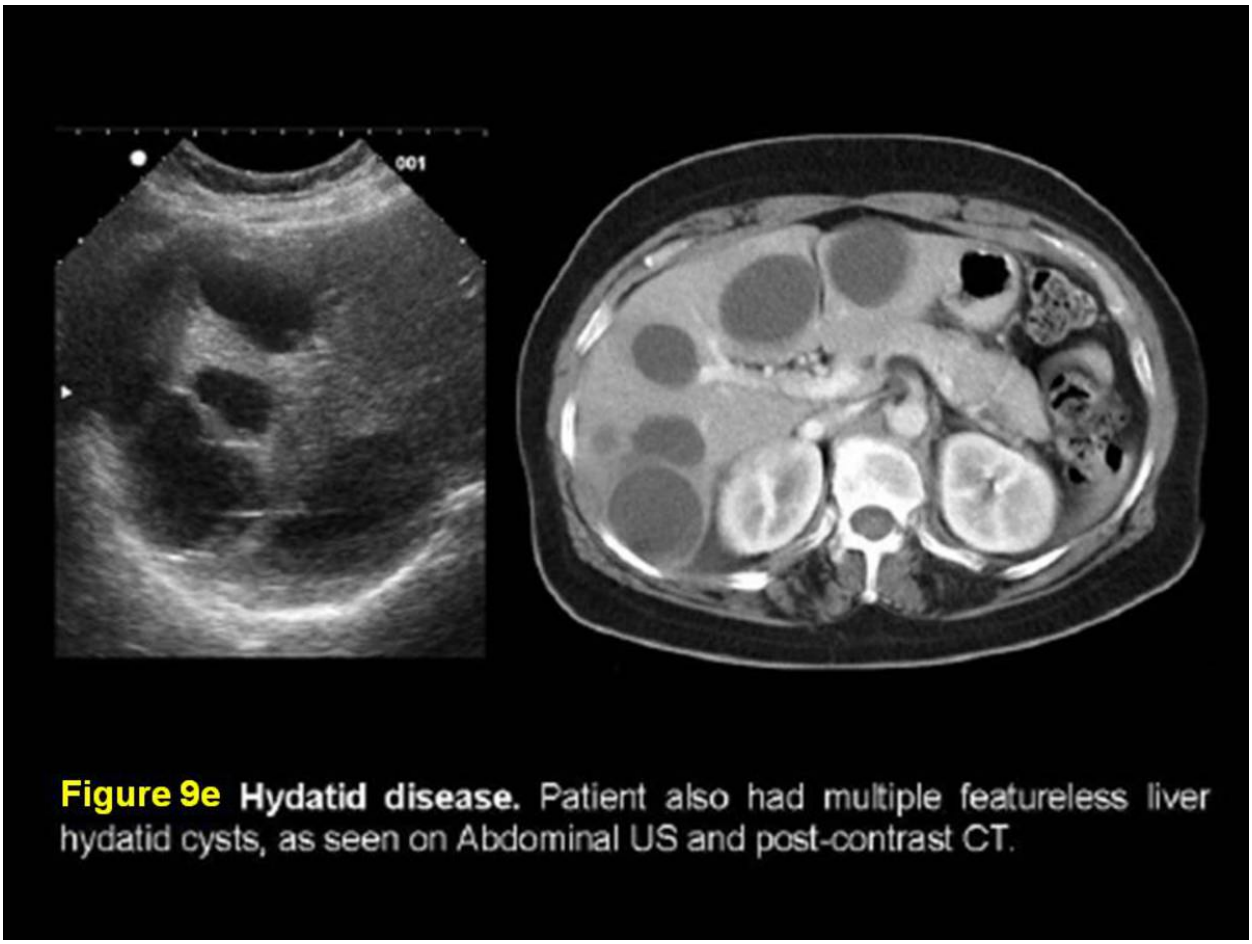


Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

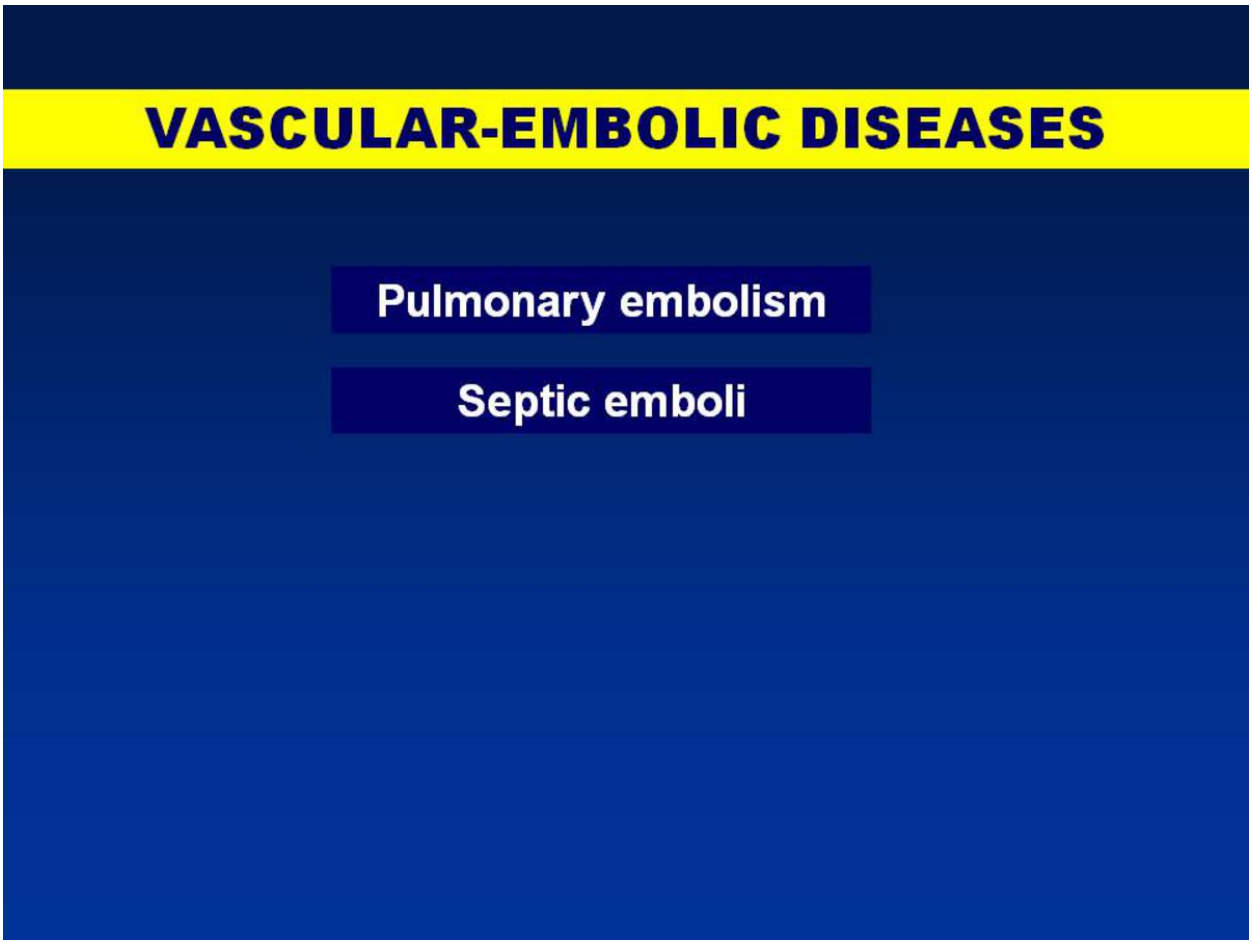


Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

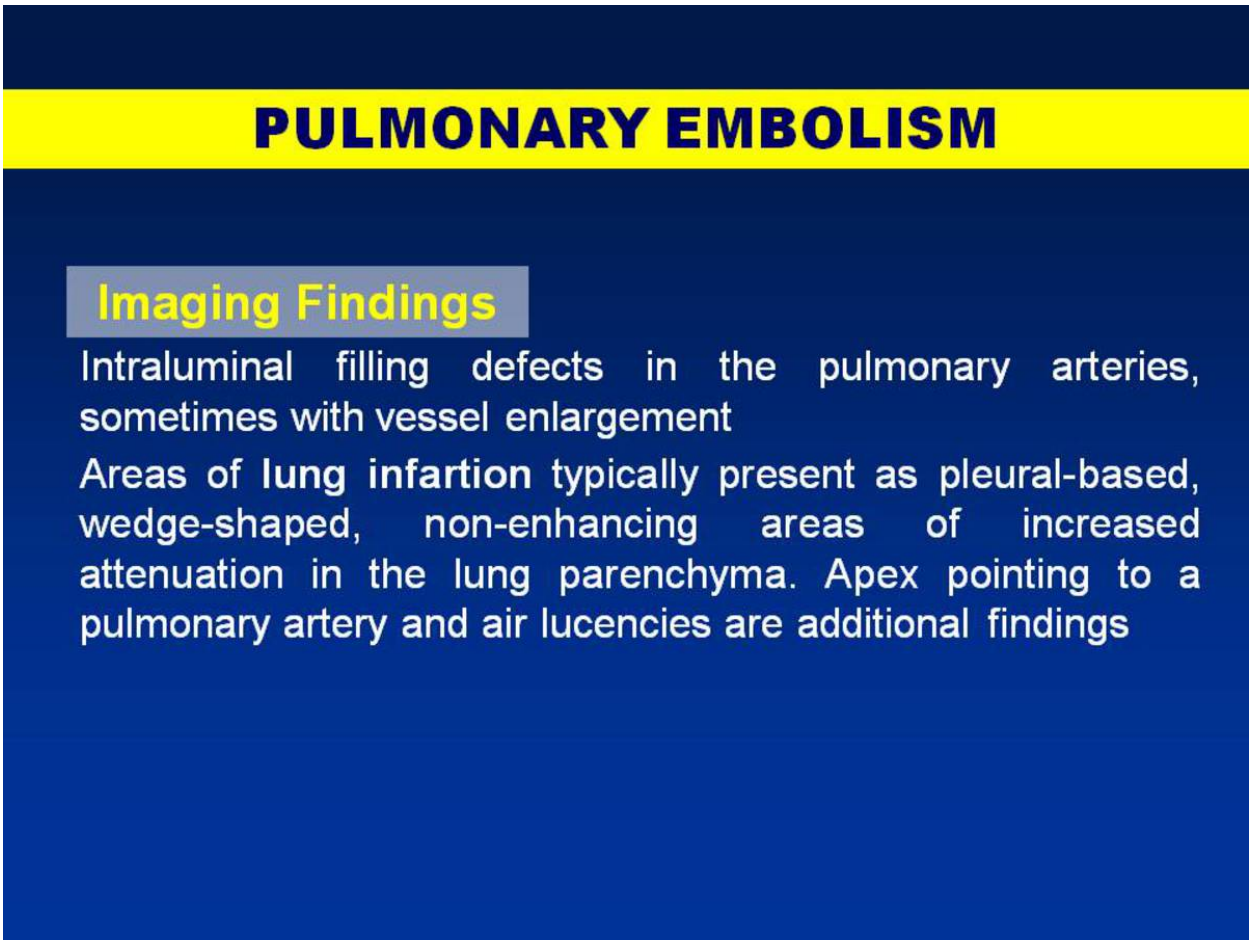
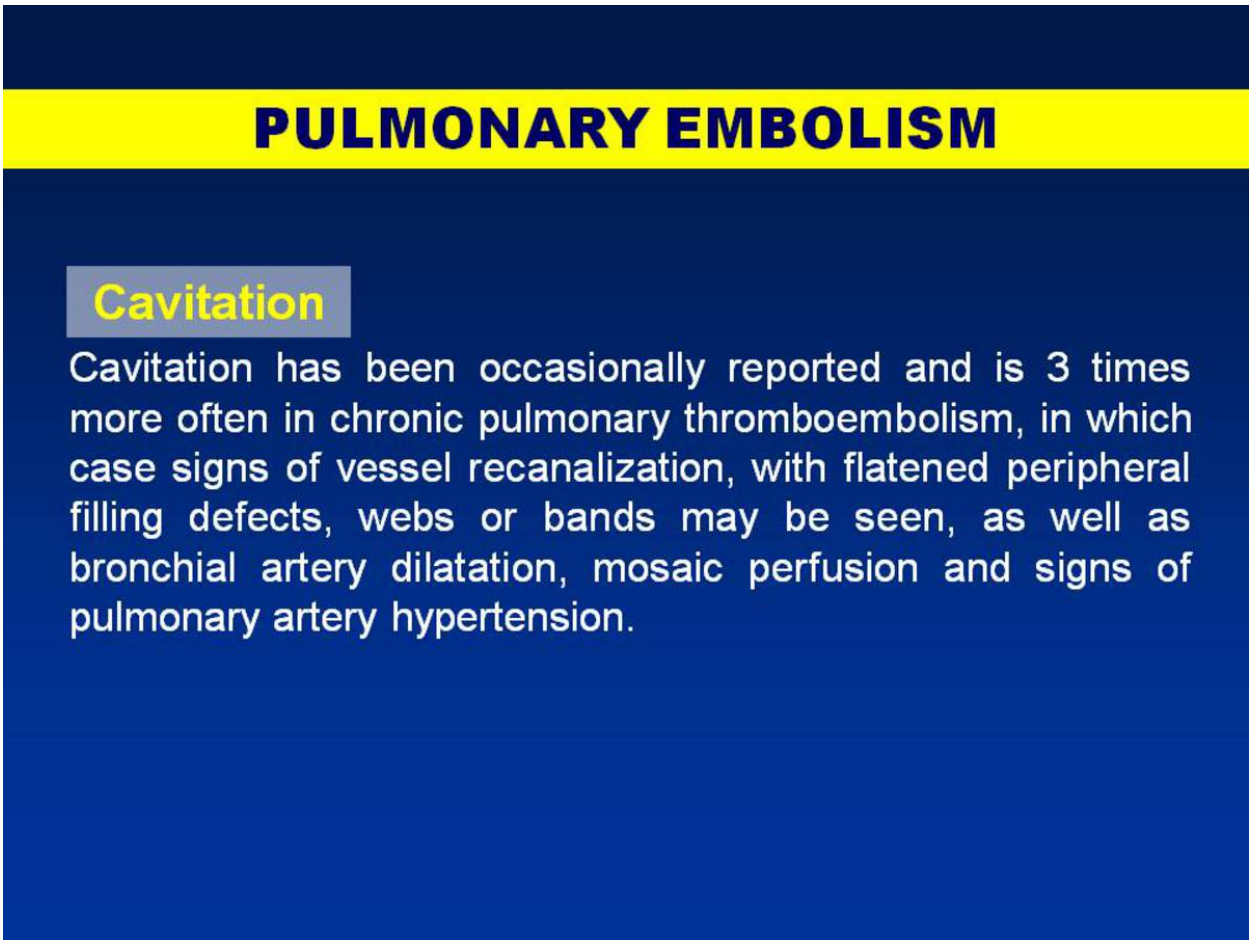


Fig.: _
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL



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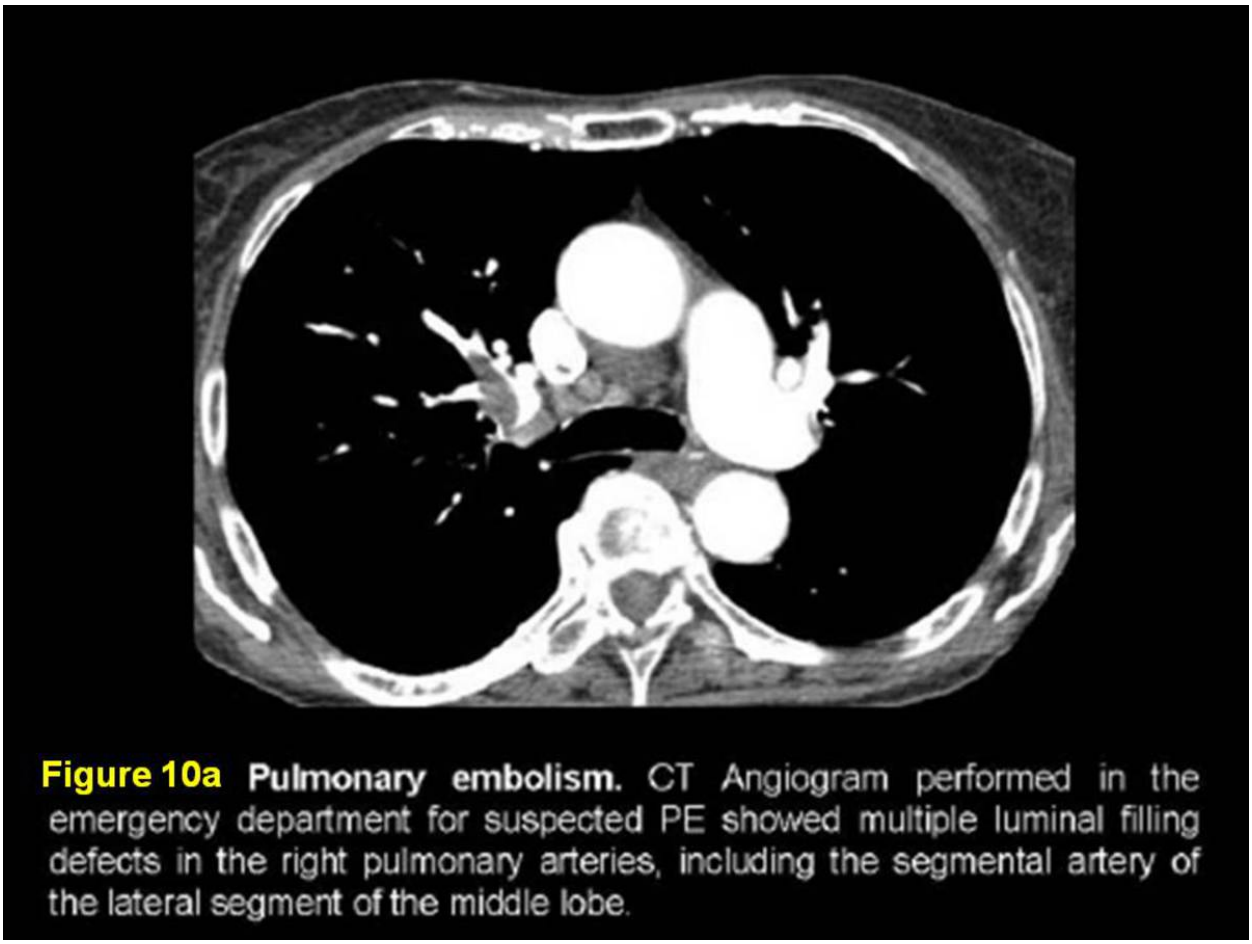

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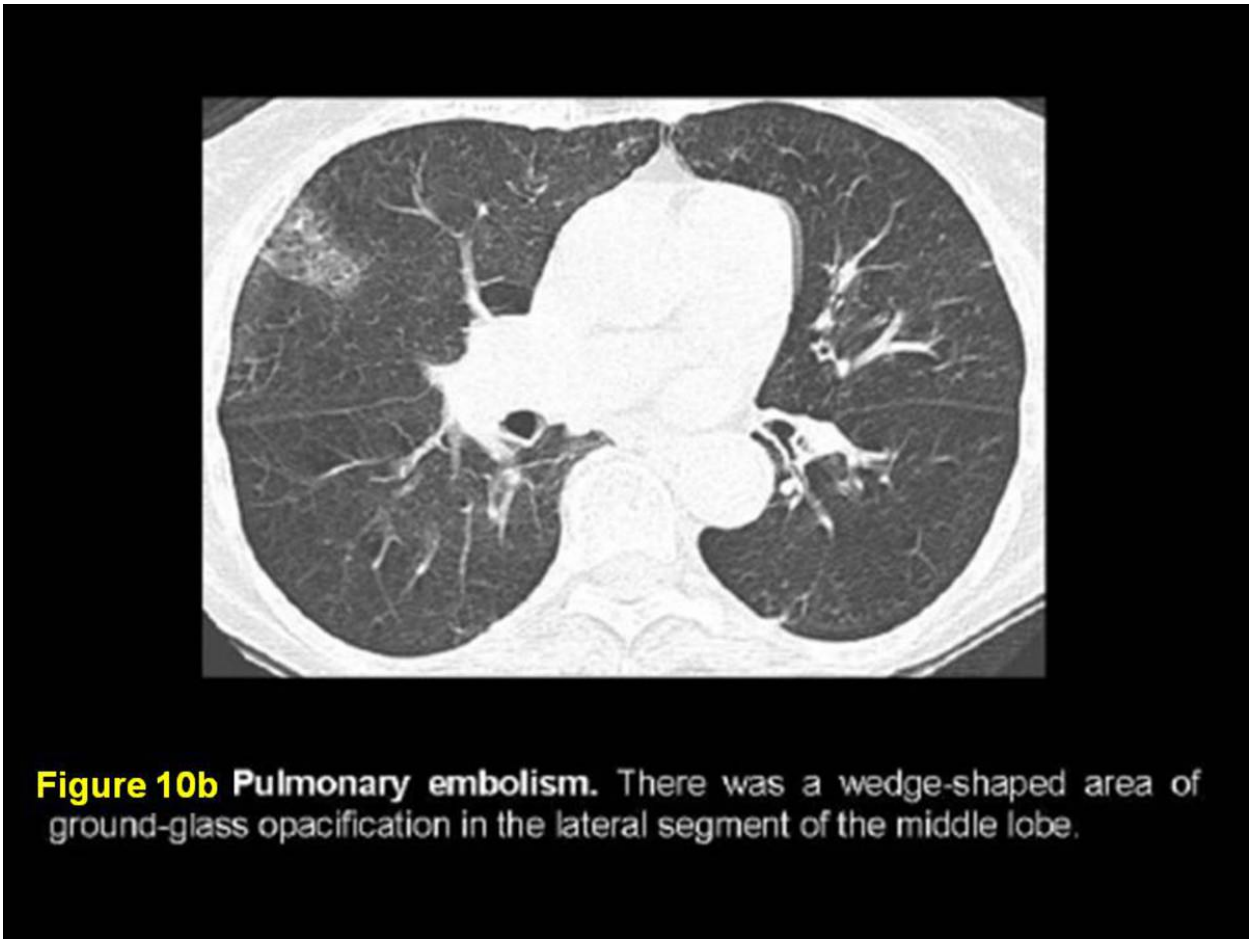

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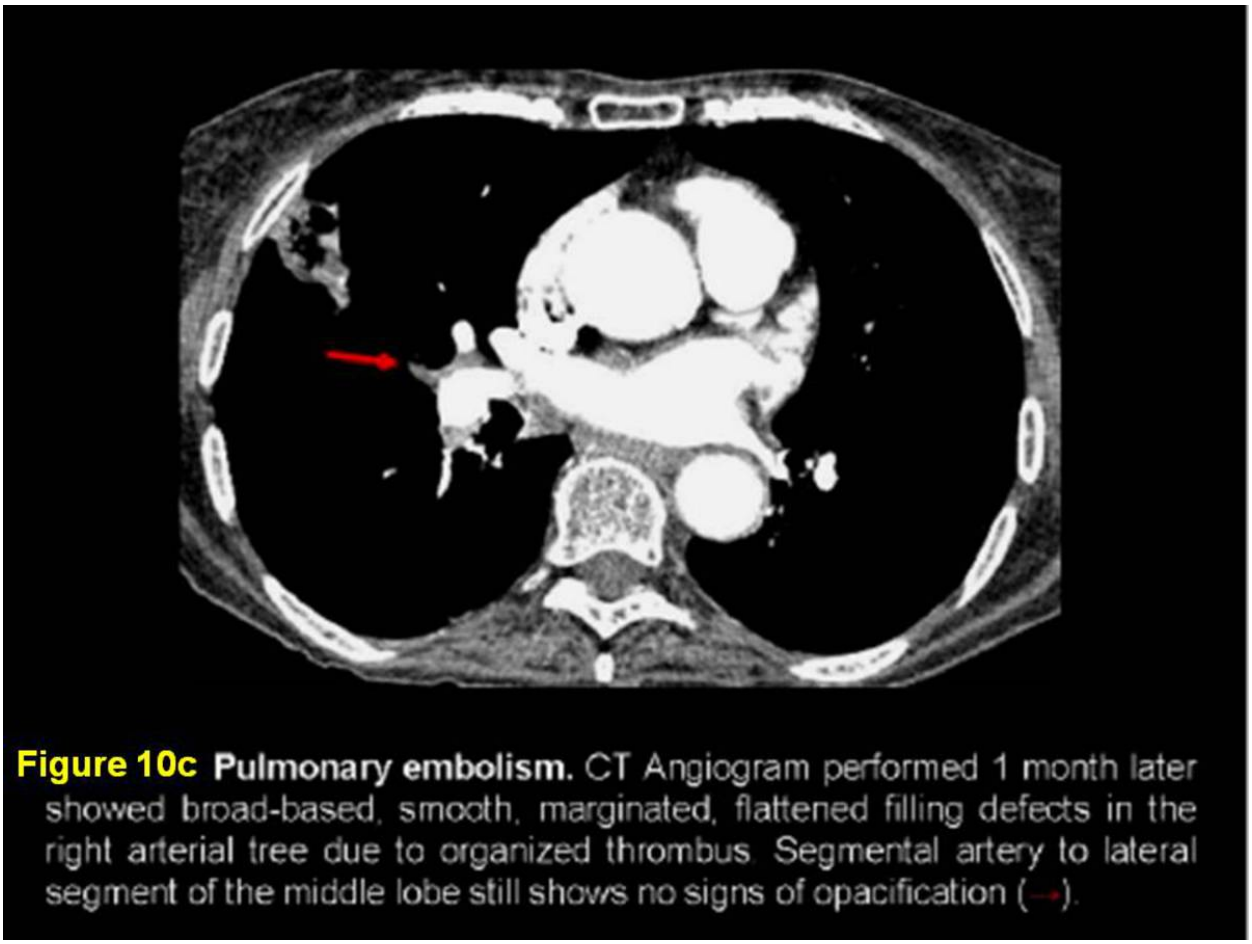

Figure 10c Pulmonary embolism. CT Angiogram performed 1 month later showed broad-based, smooth, marginated, flattened filling defects in the right arterial tree due to organized thrombus. Segmental artery to lateral segment of the middle lobe still shows no signs of opacification (→).

Fig.: _

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

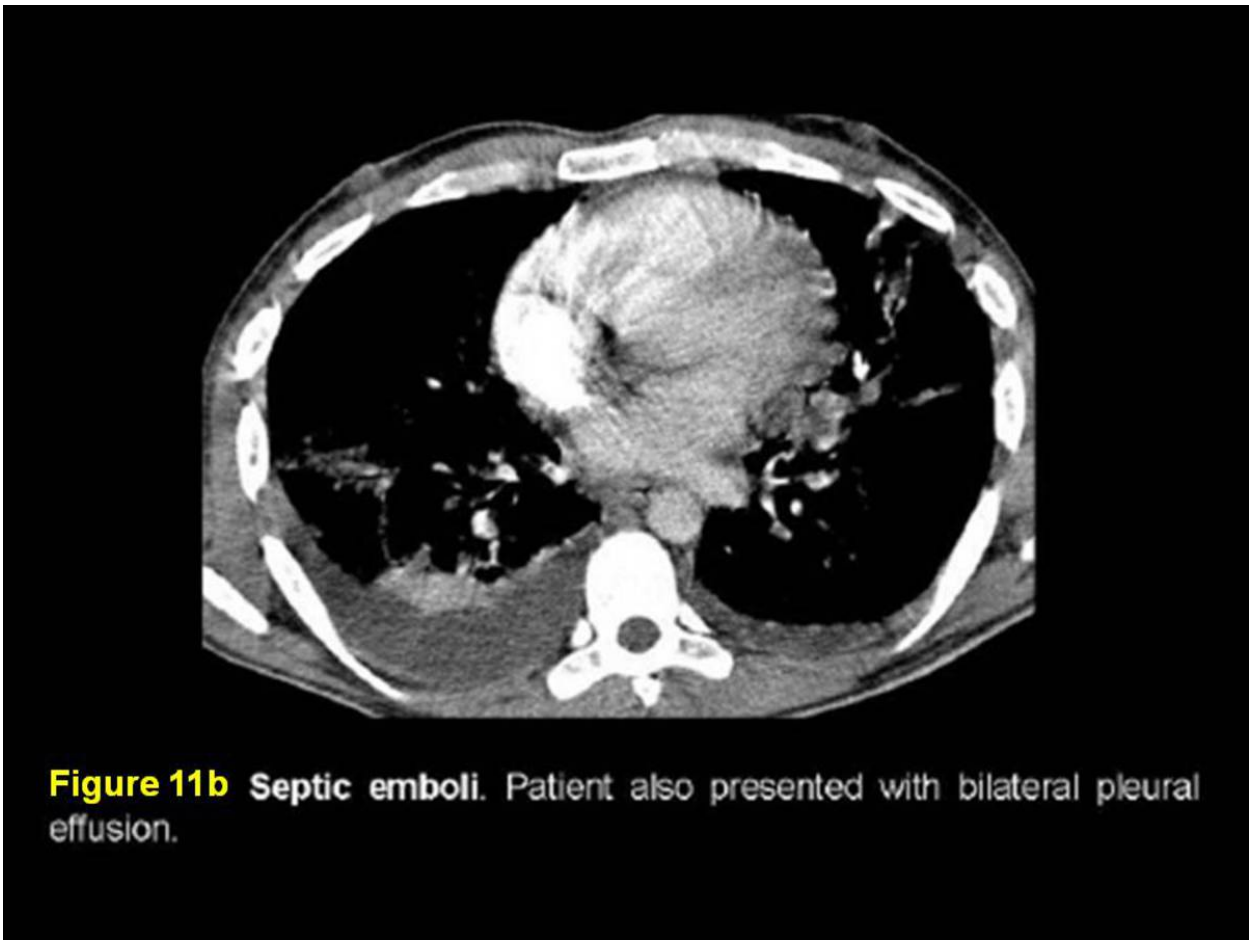

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

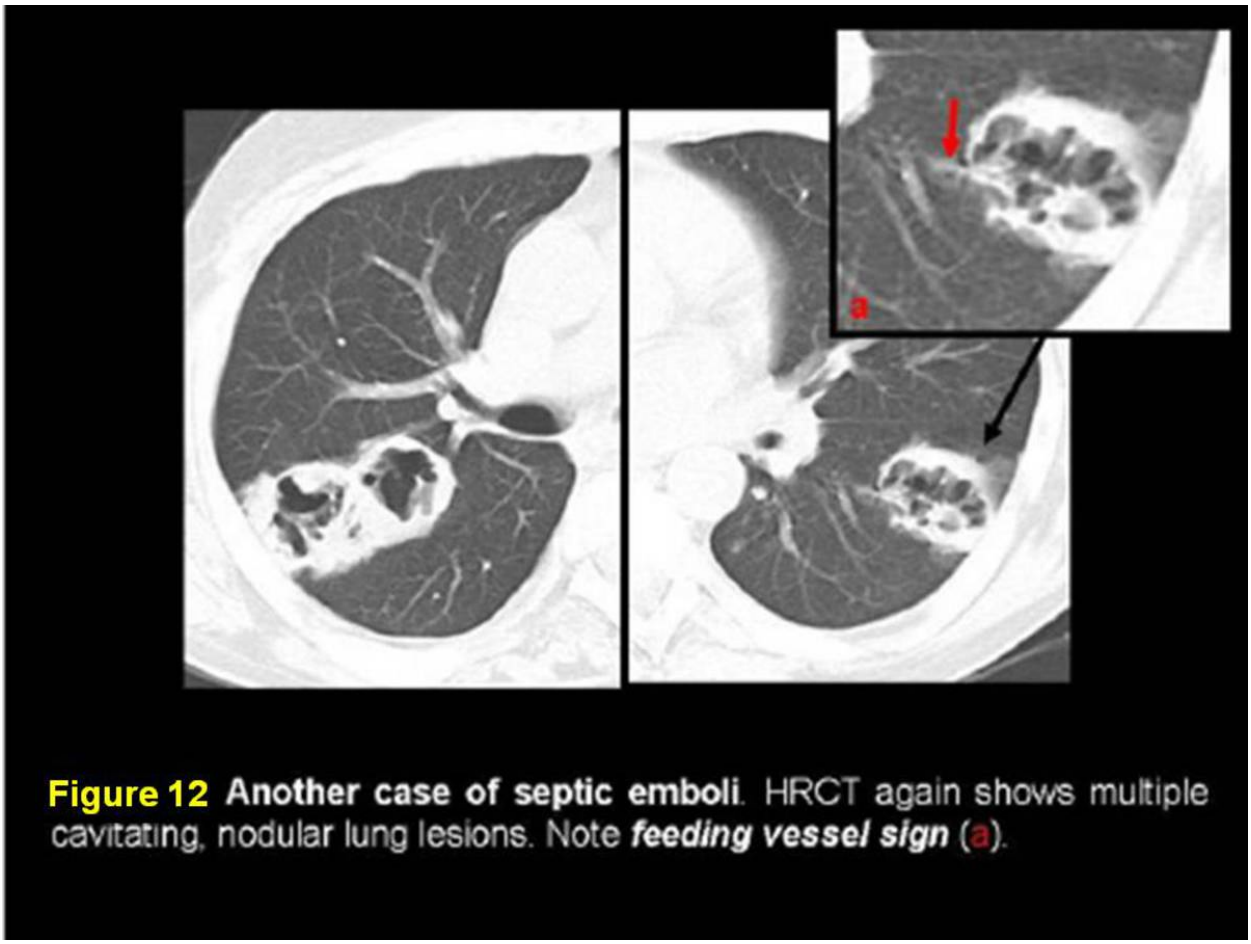

Figure 12 Another case of septic emboli. HRCT again shows multiple cavitating, nodular lung lesions. Note ***feeding vessel sign*** (a).

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

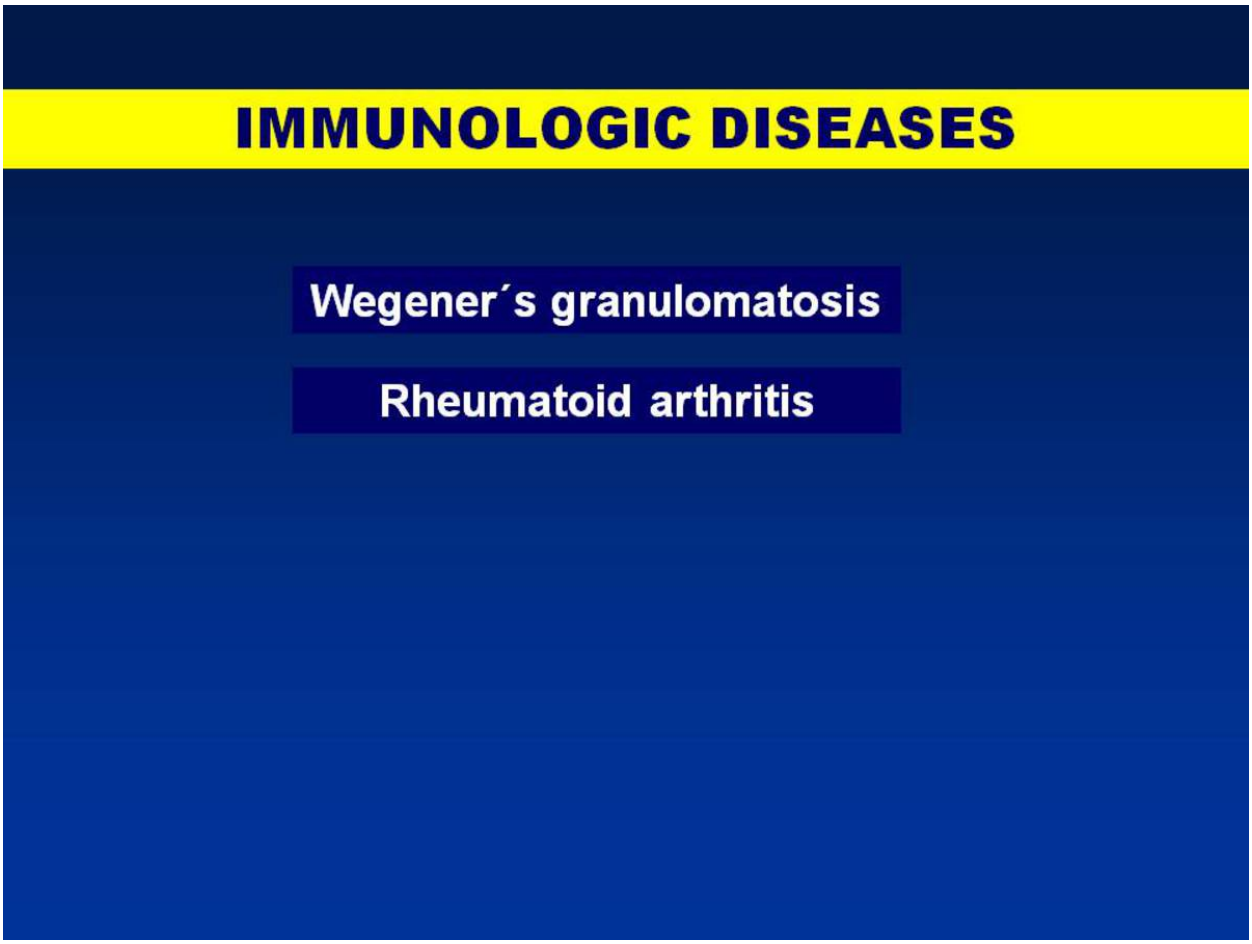

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

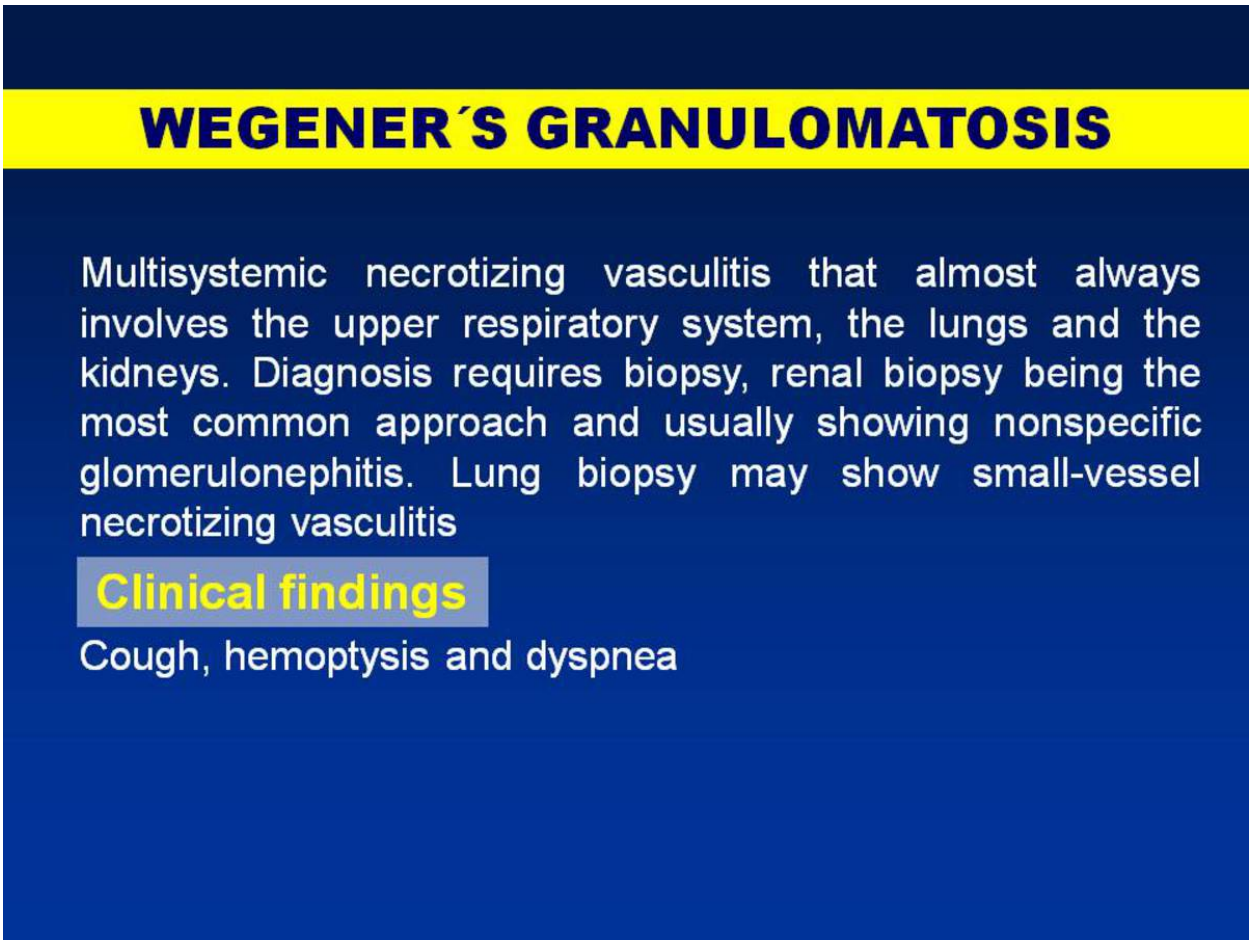

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

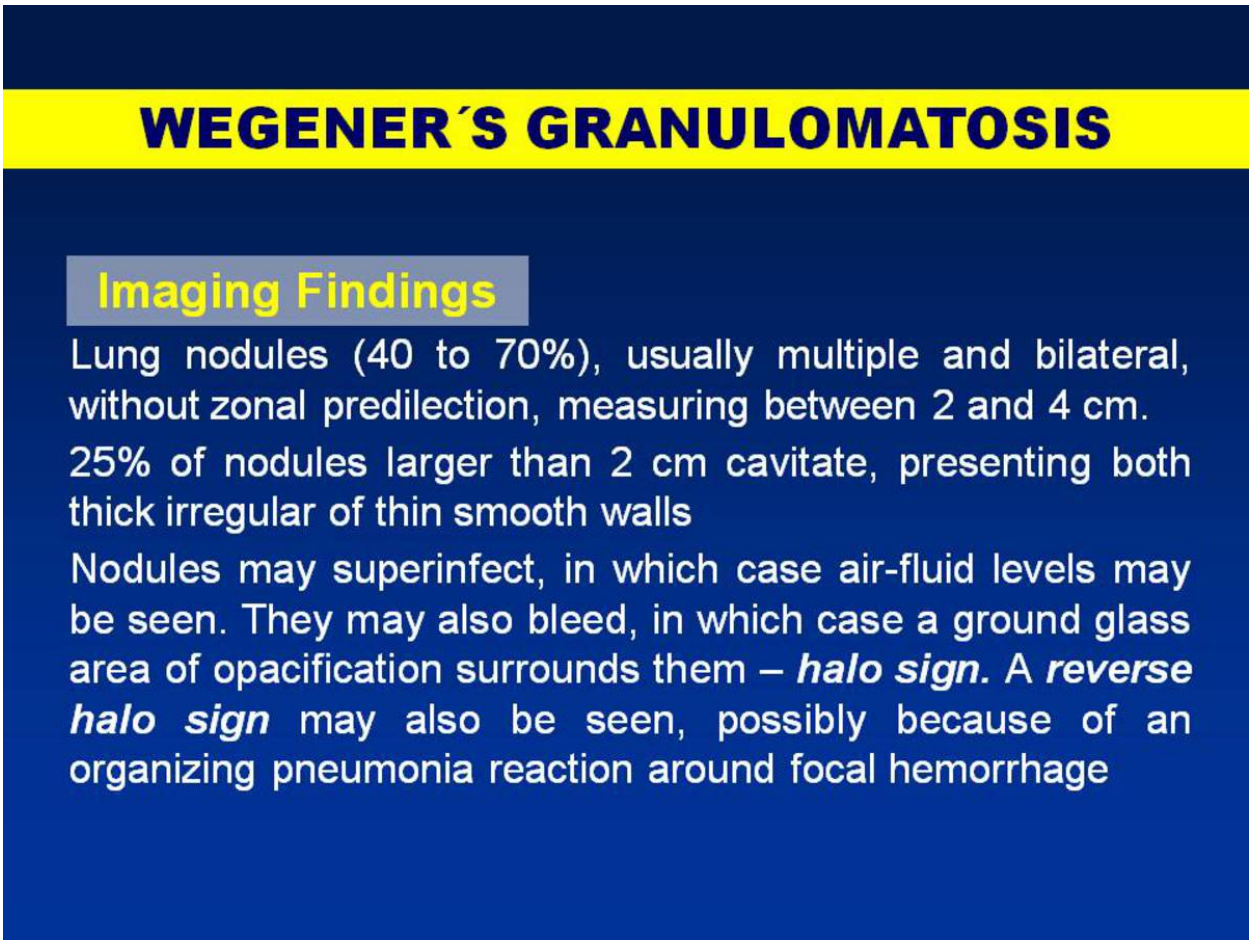

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

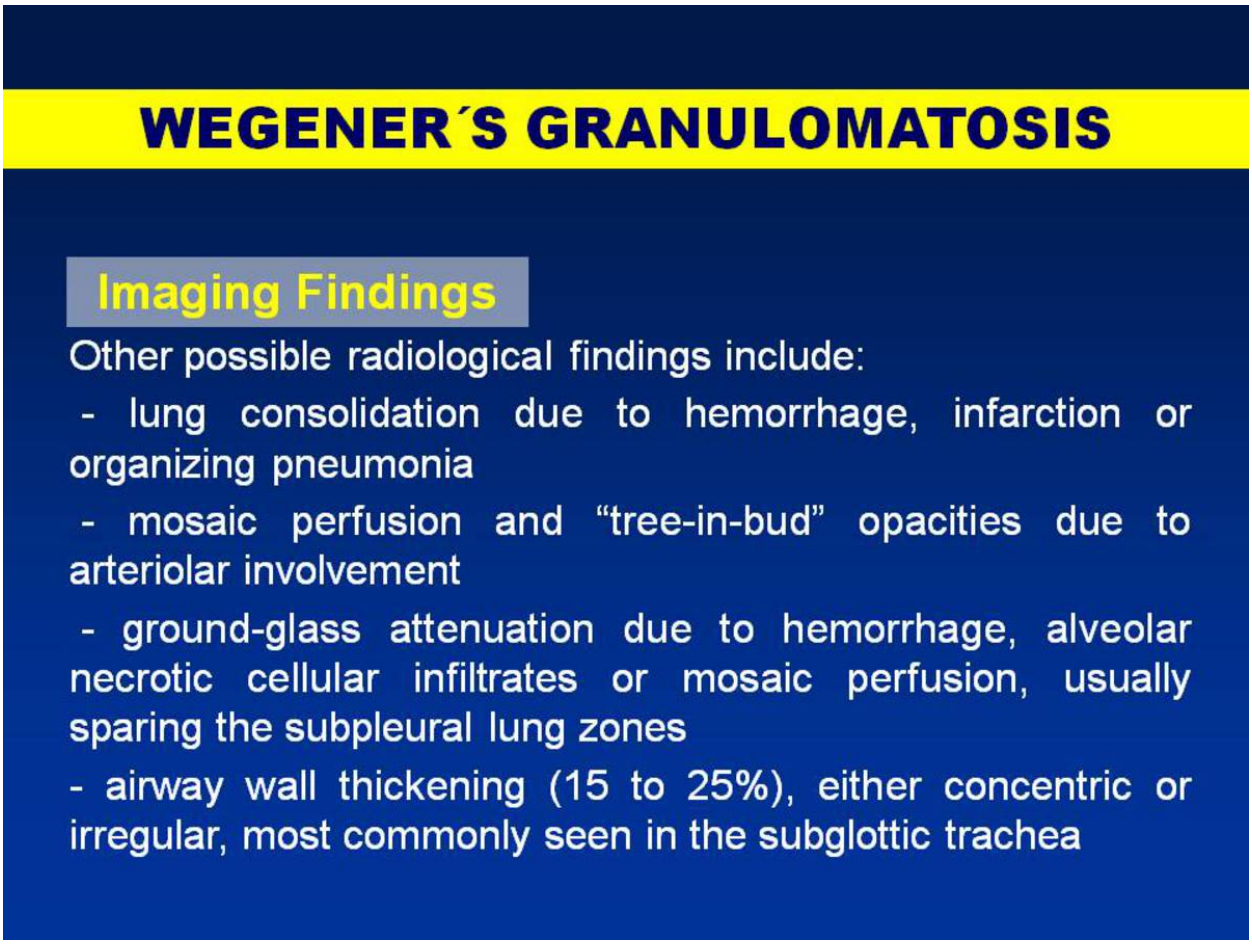

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

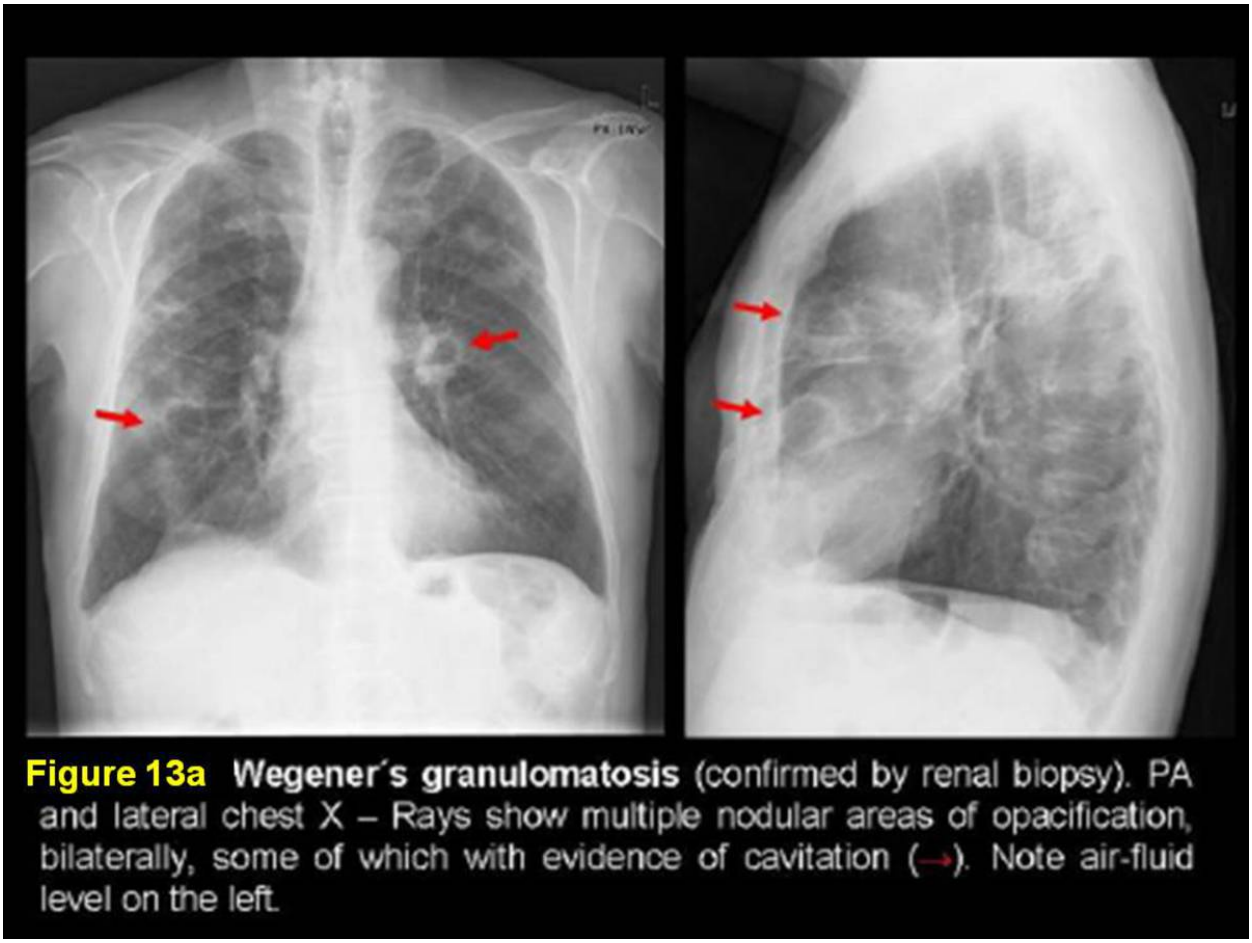

Figure 13a **Wegener´s granulomatosis** (confirmed by renal biopsy). PA and lateral chest X – Rays show multiple nodular areas of opacification, bilaterally, some of which with evidence of cavitation (→). Note air-fluid level on the left.

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

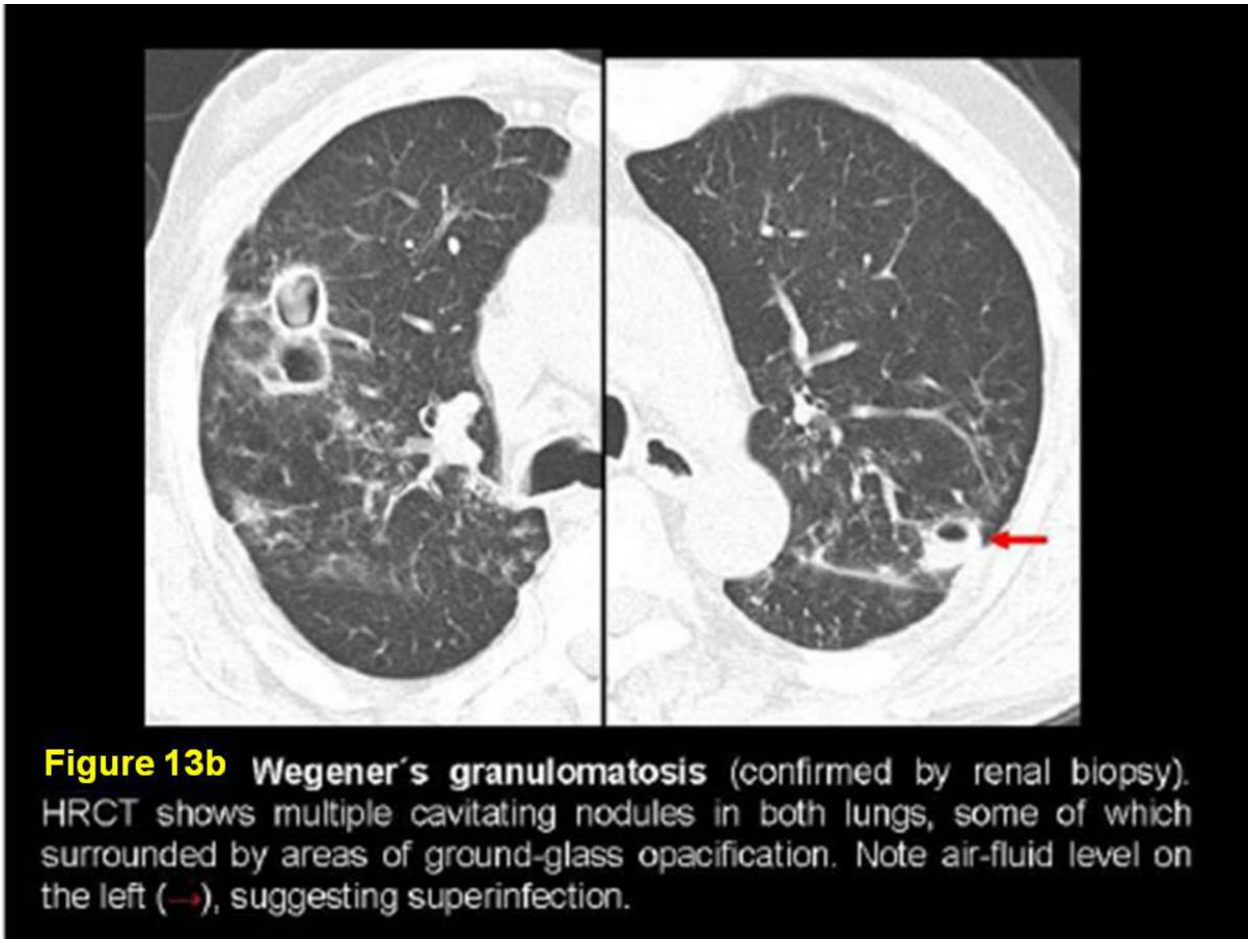

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

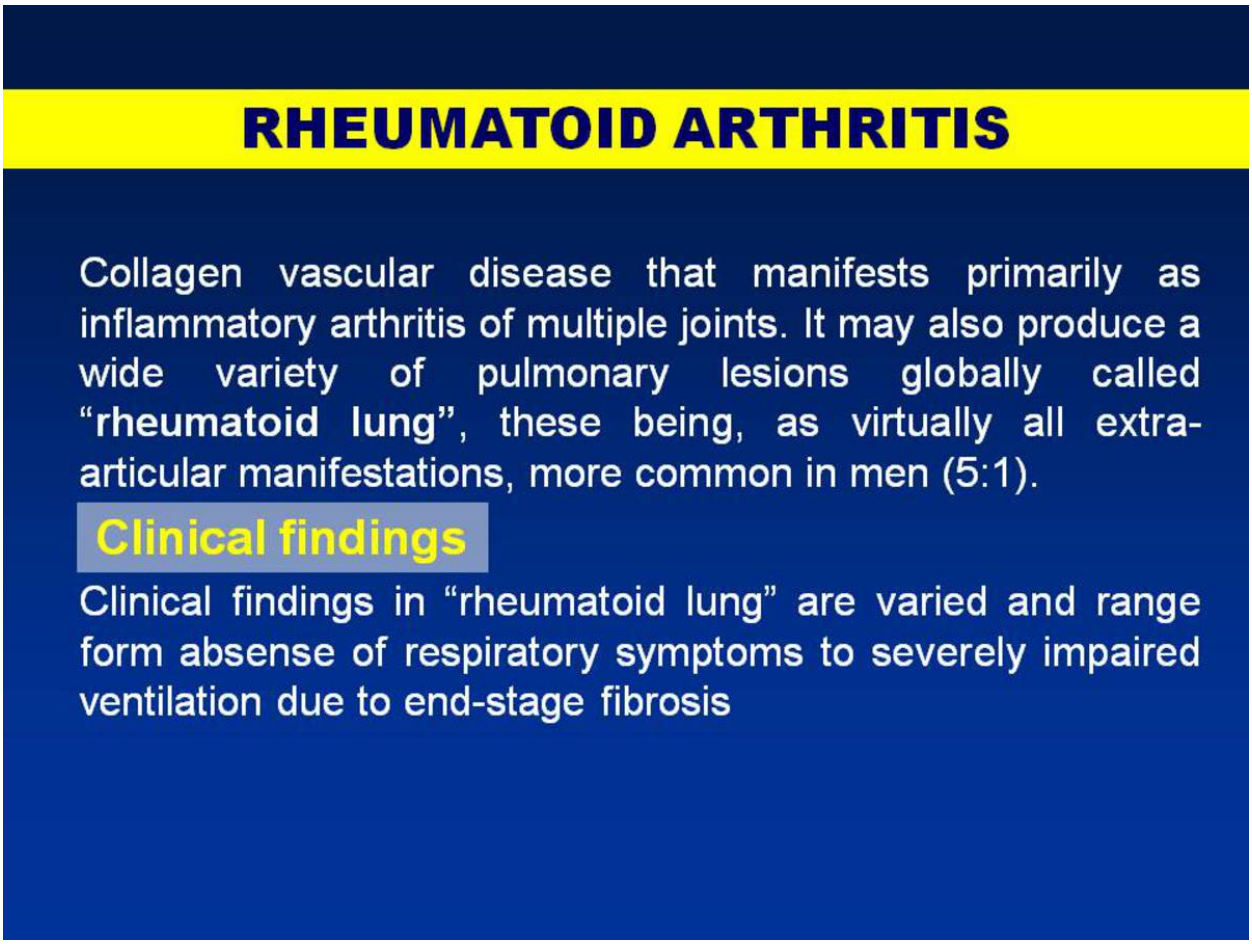

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

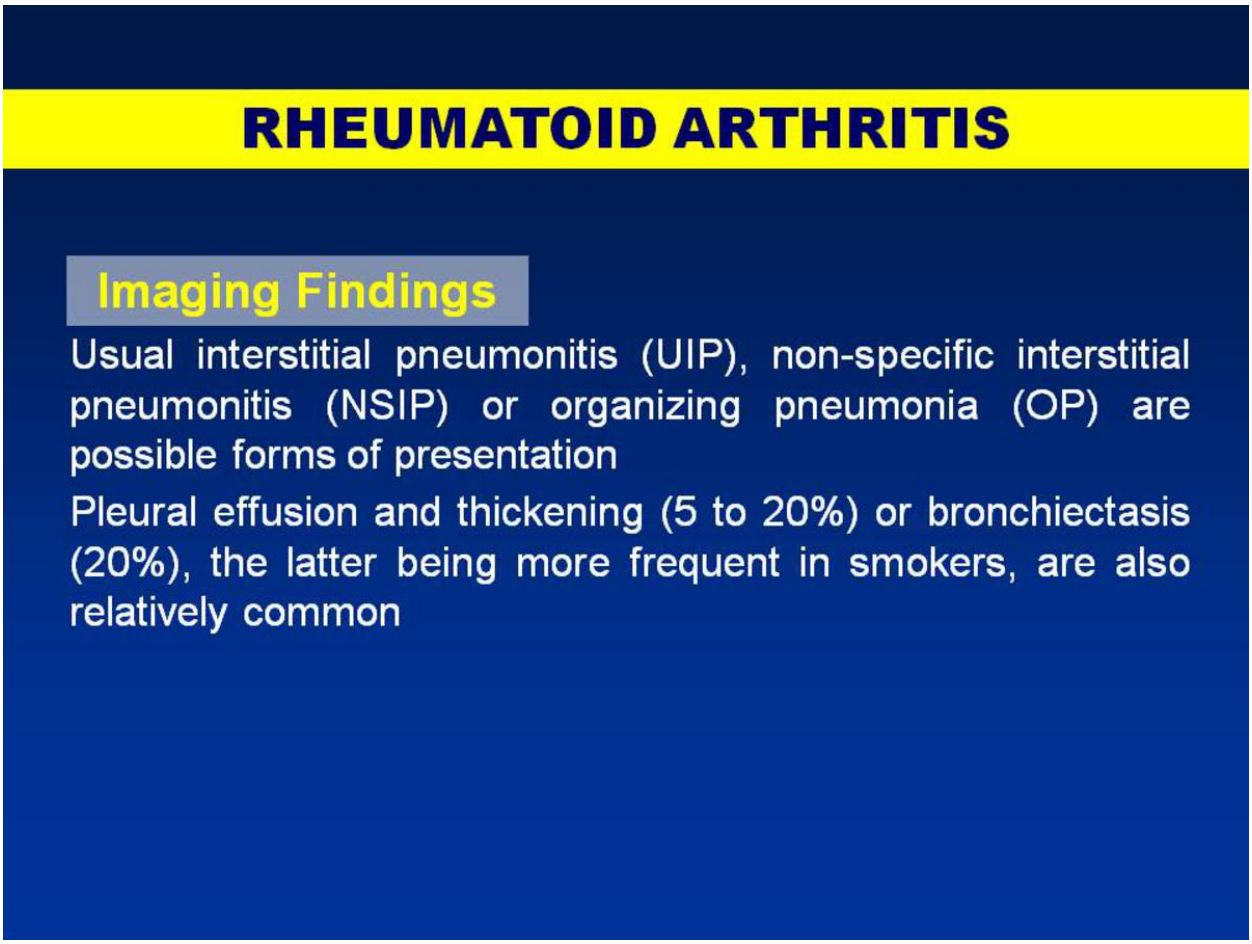

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

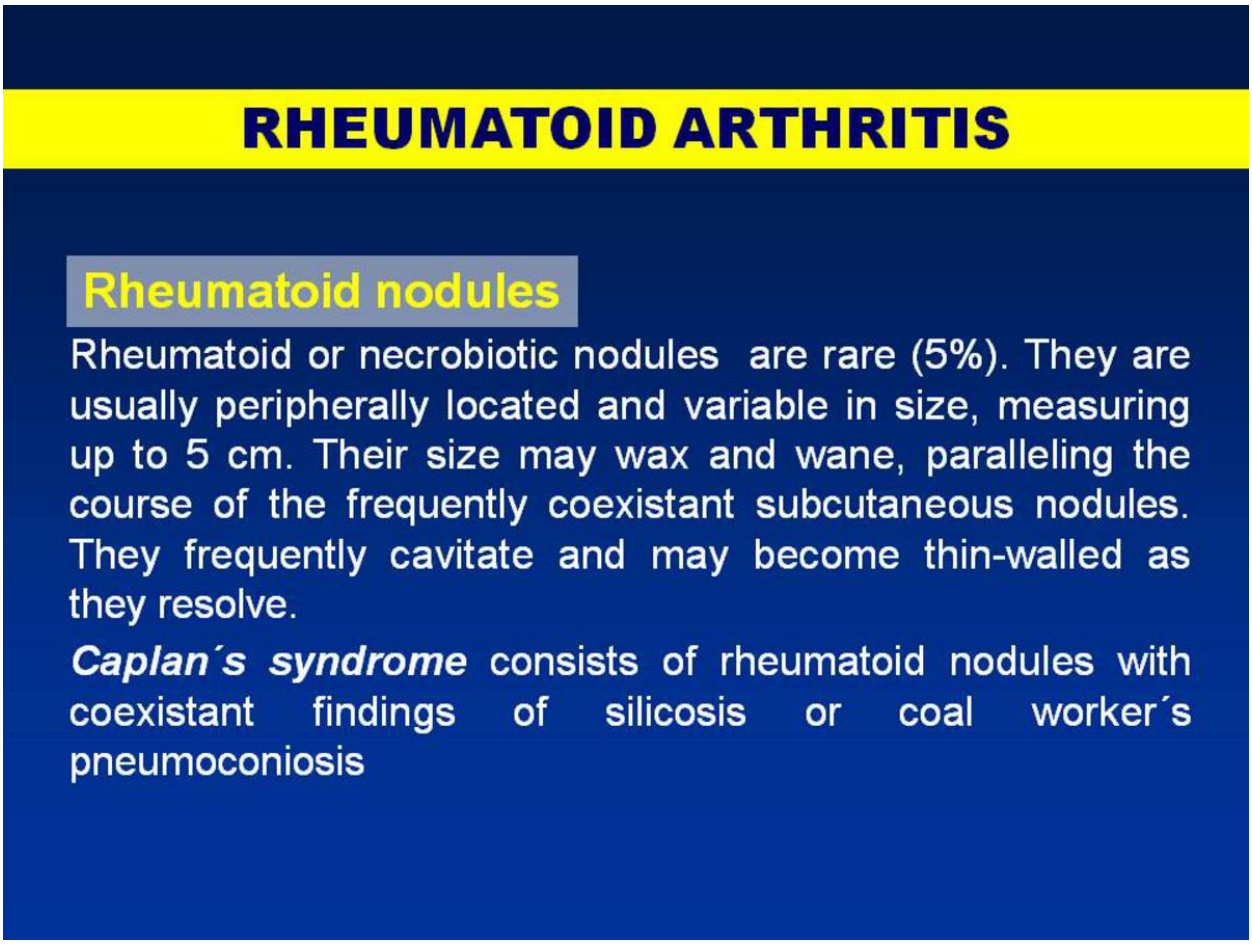

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

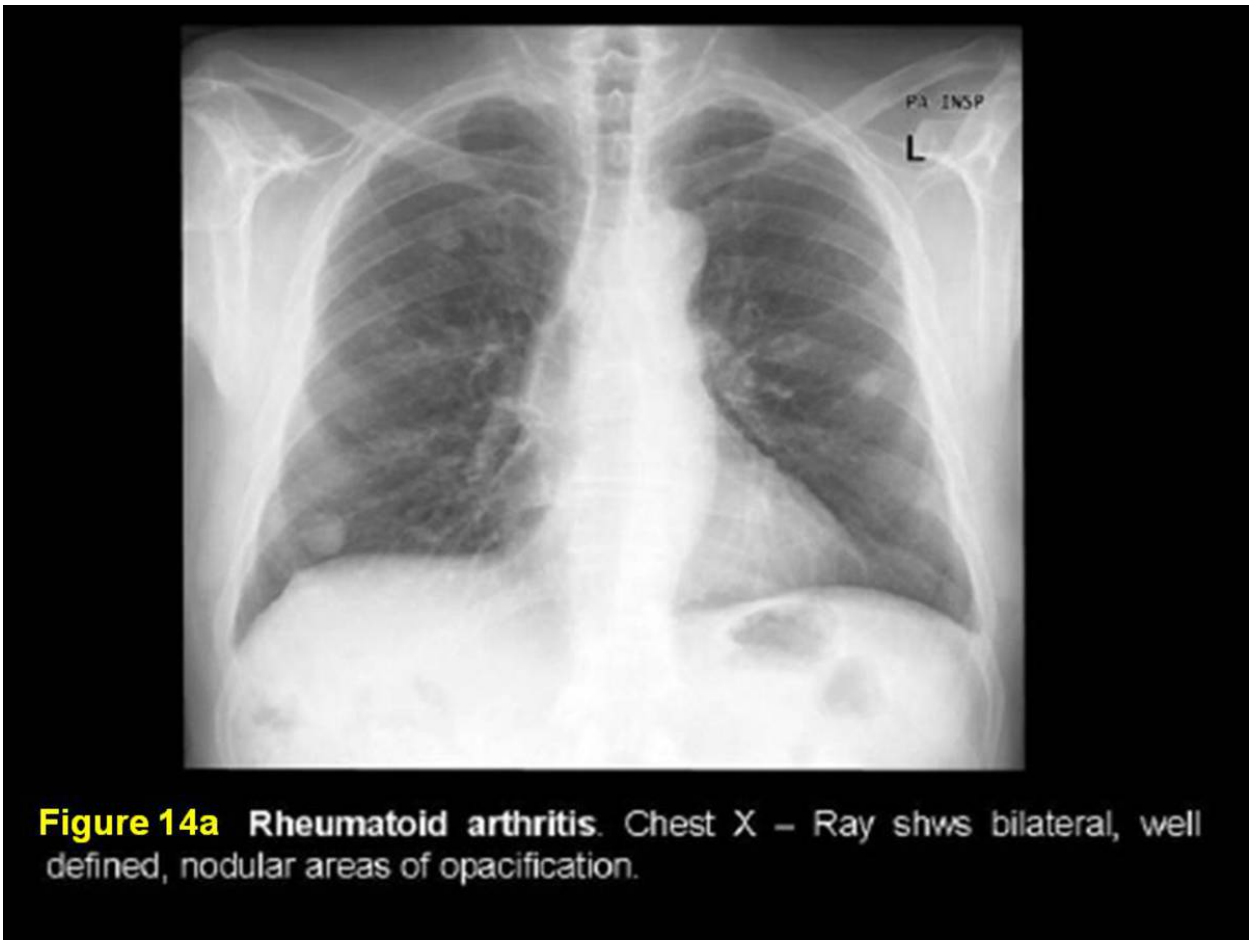

Figure 14a **Rheumatoid arthritis**. Chest X – Ray shws bilateral, well defined, nodular areas of opacification.

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

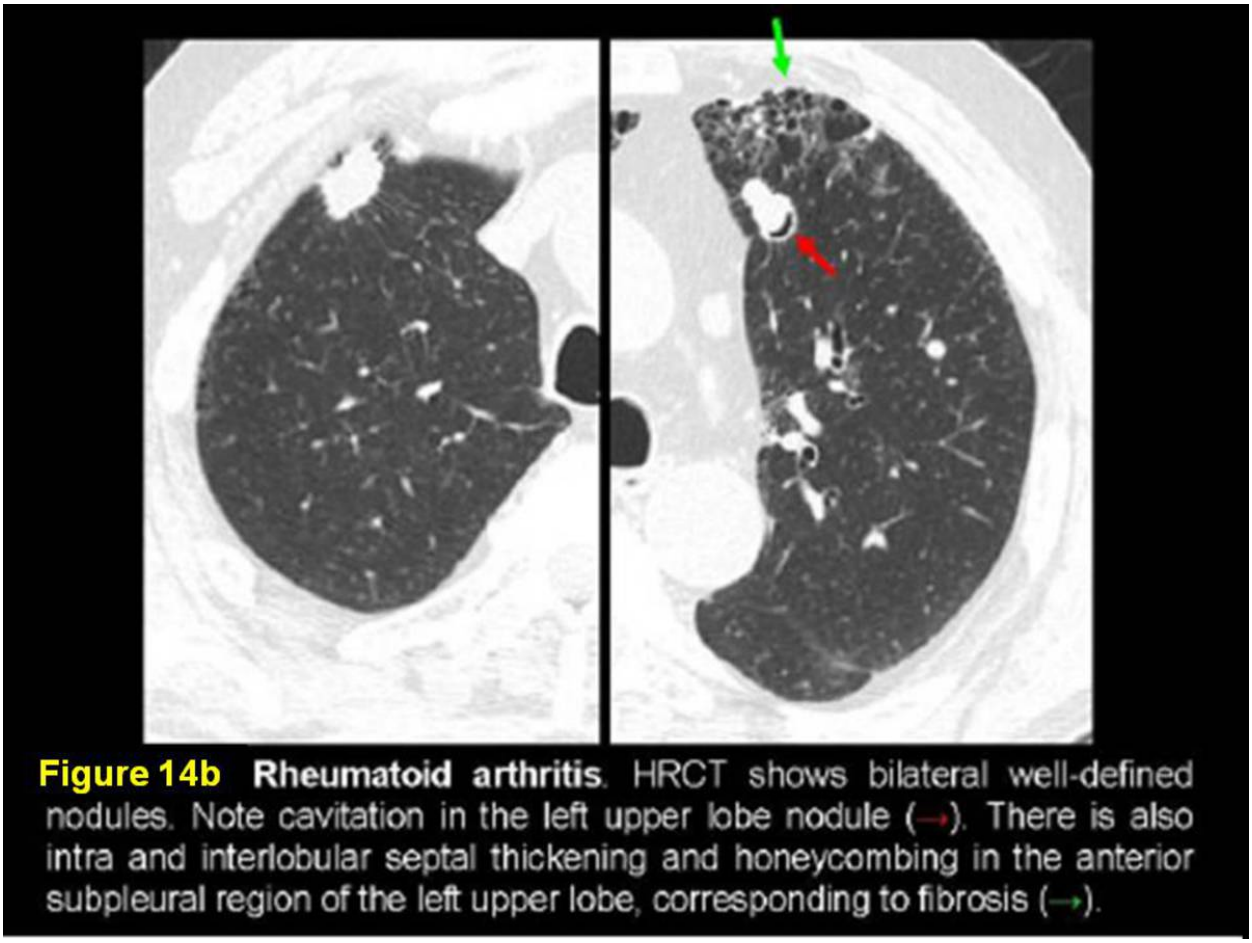

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

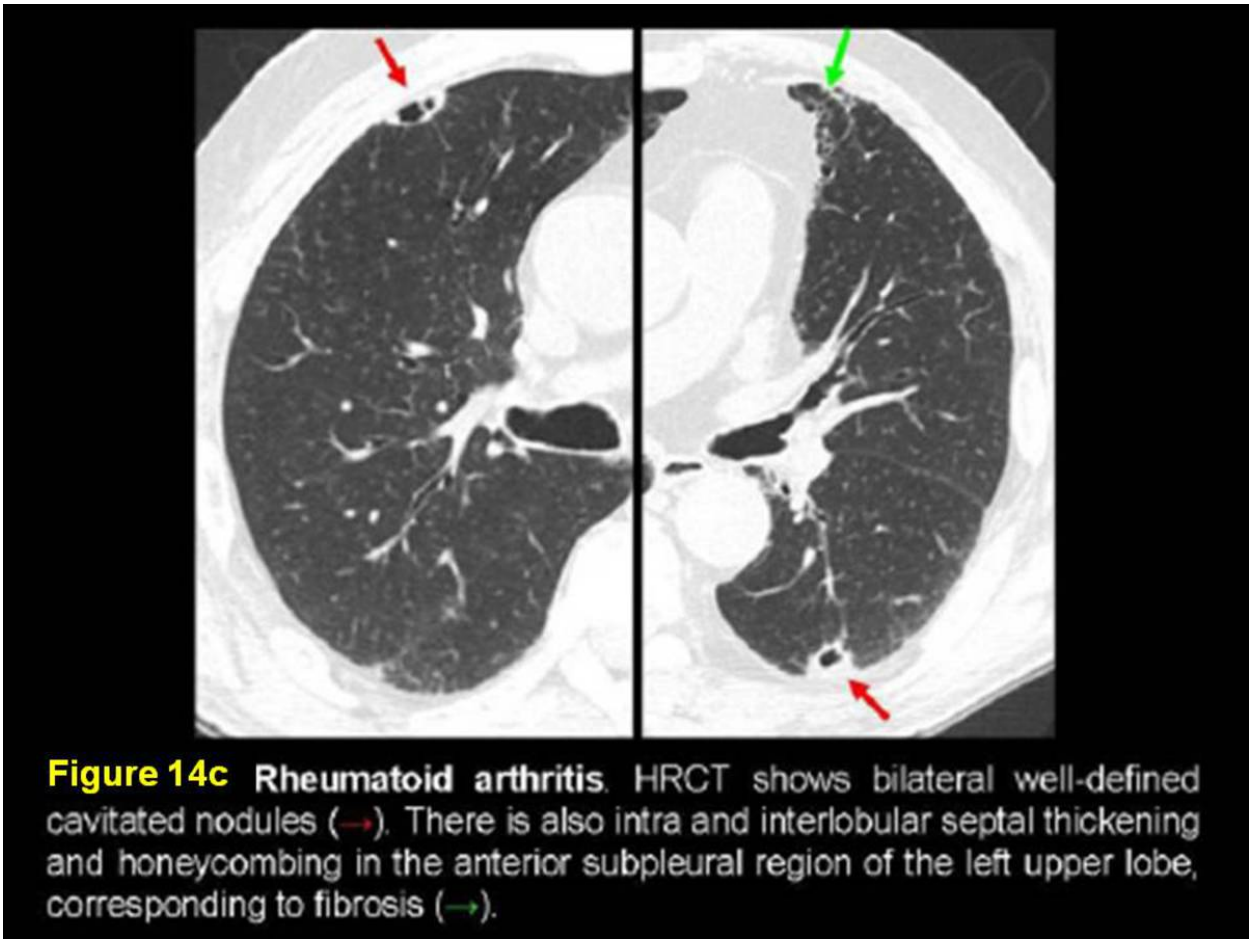

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

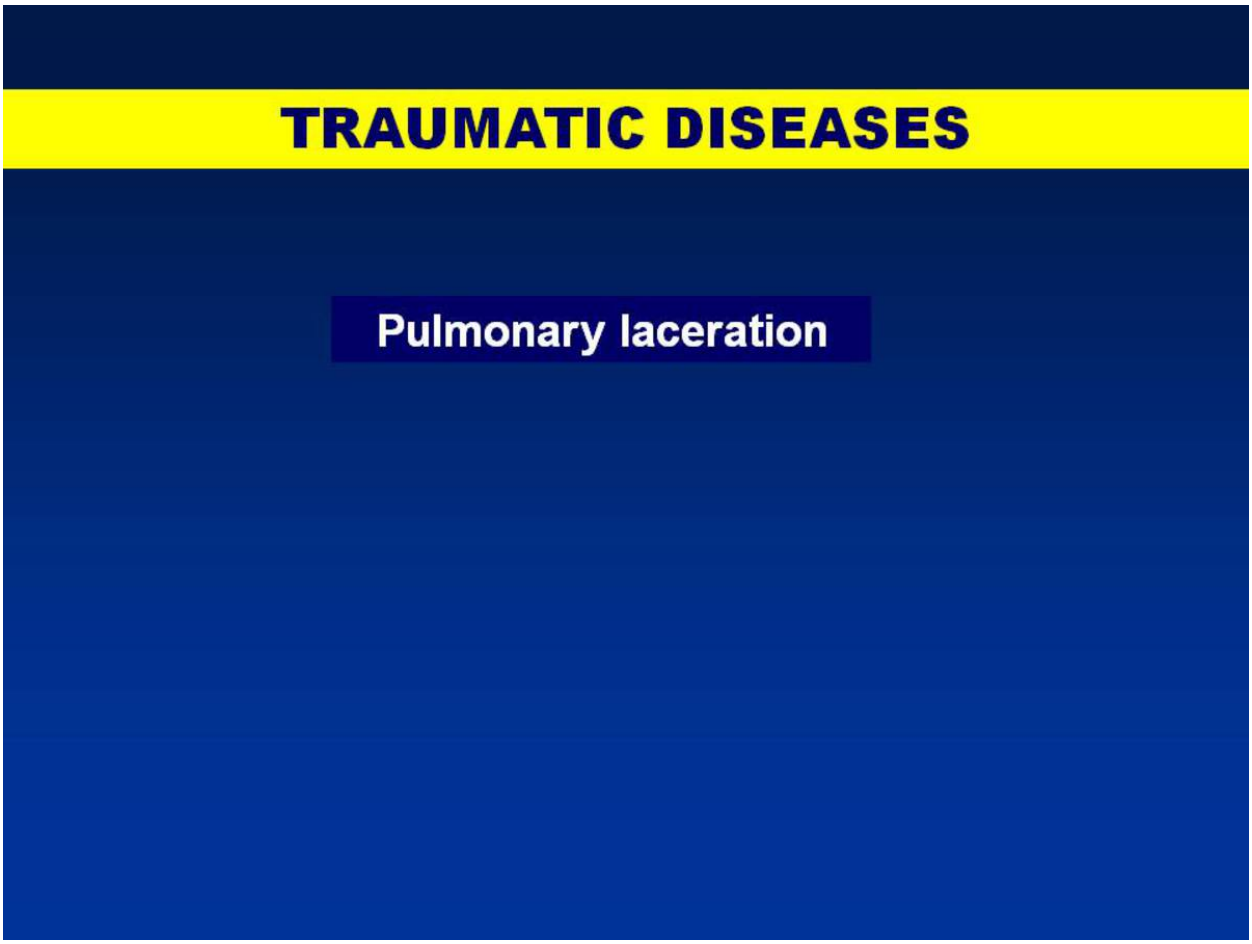

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

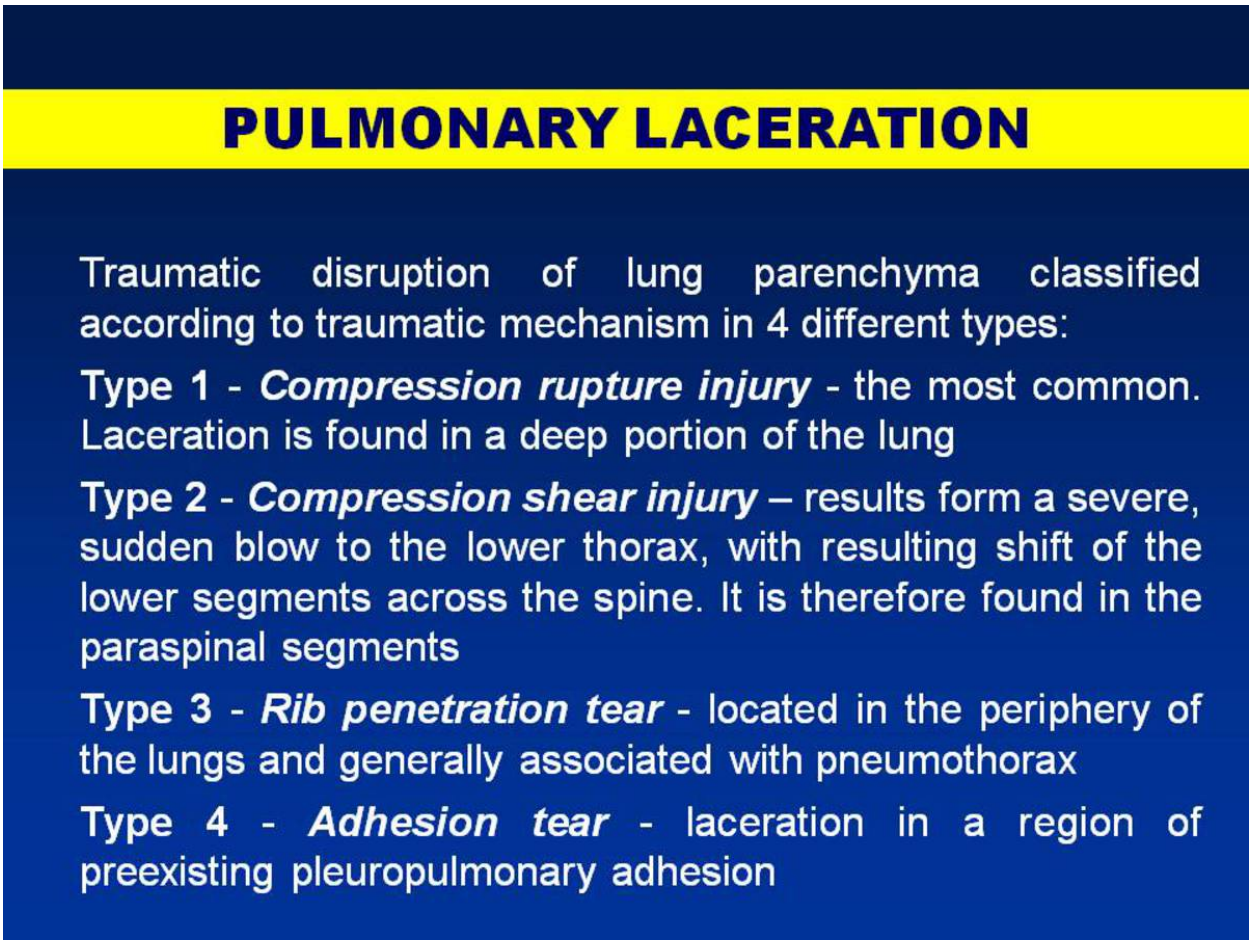

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

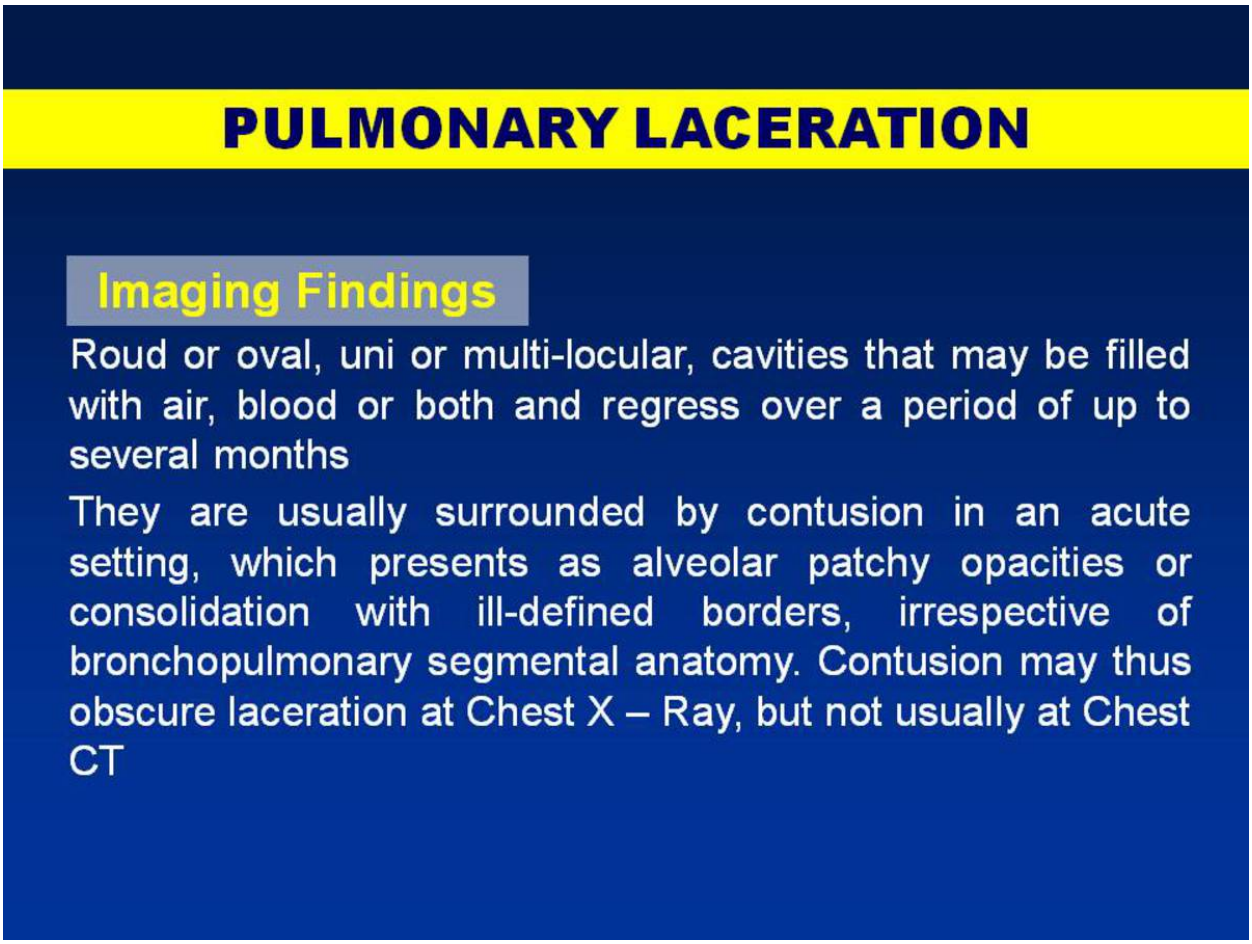

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

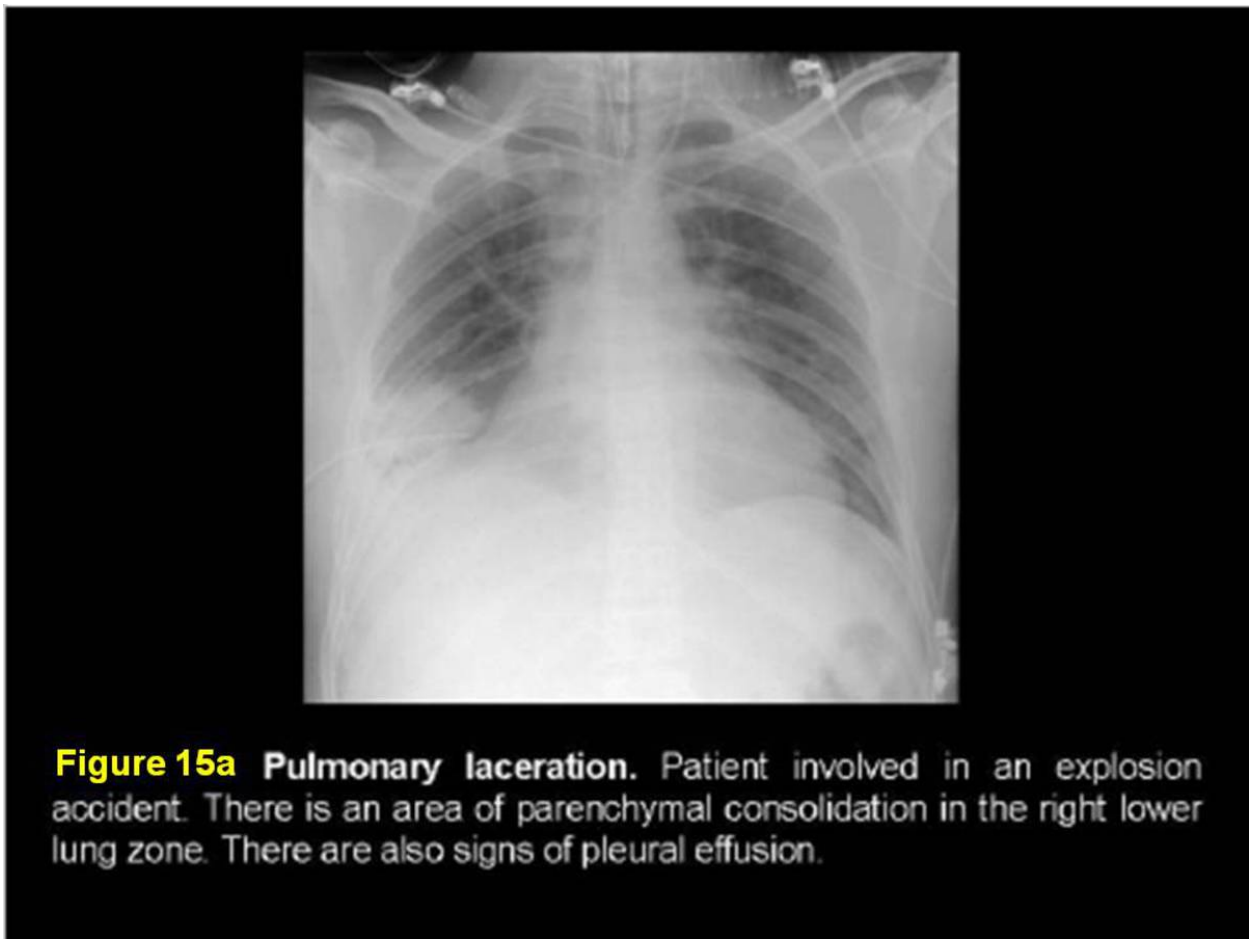

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

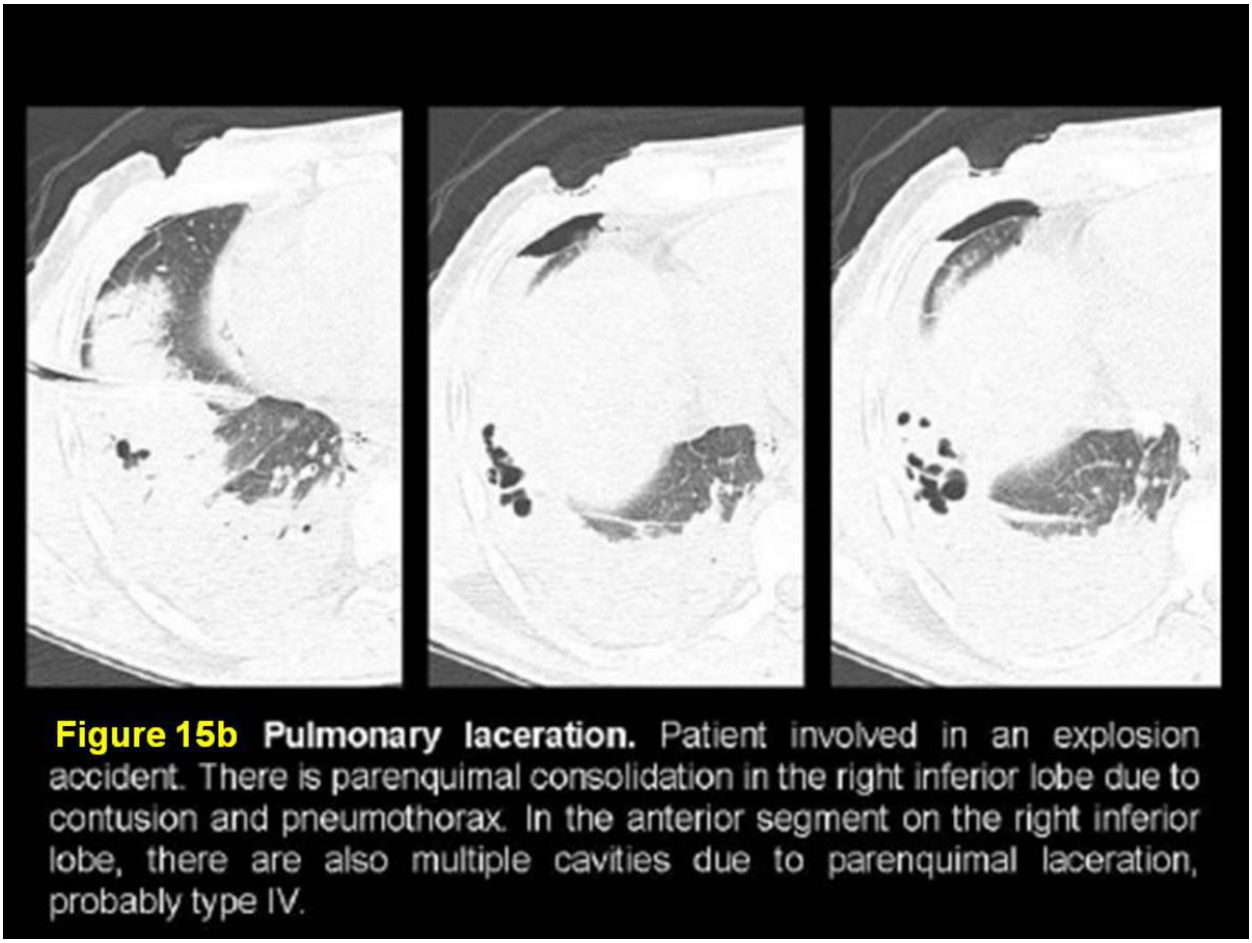

Figure 15b Pulmonary laceration. Patient involved in an explosion accident. There is parenquimal consolidation in the right inferior lobe due to contusion and pneumothorax. In the anterior segment on the right inferior lobe, there are also multiple cavities due to parenquimal laceration, probably type IV.

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

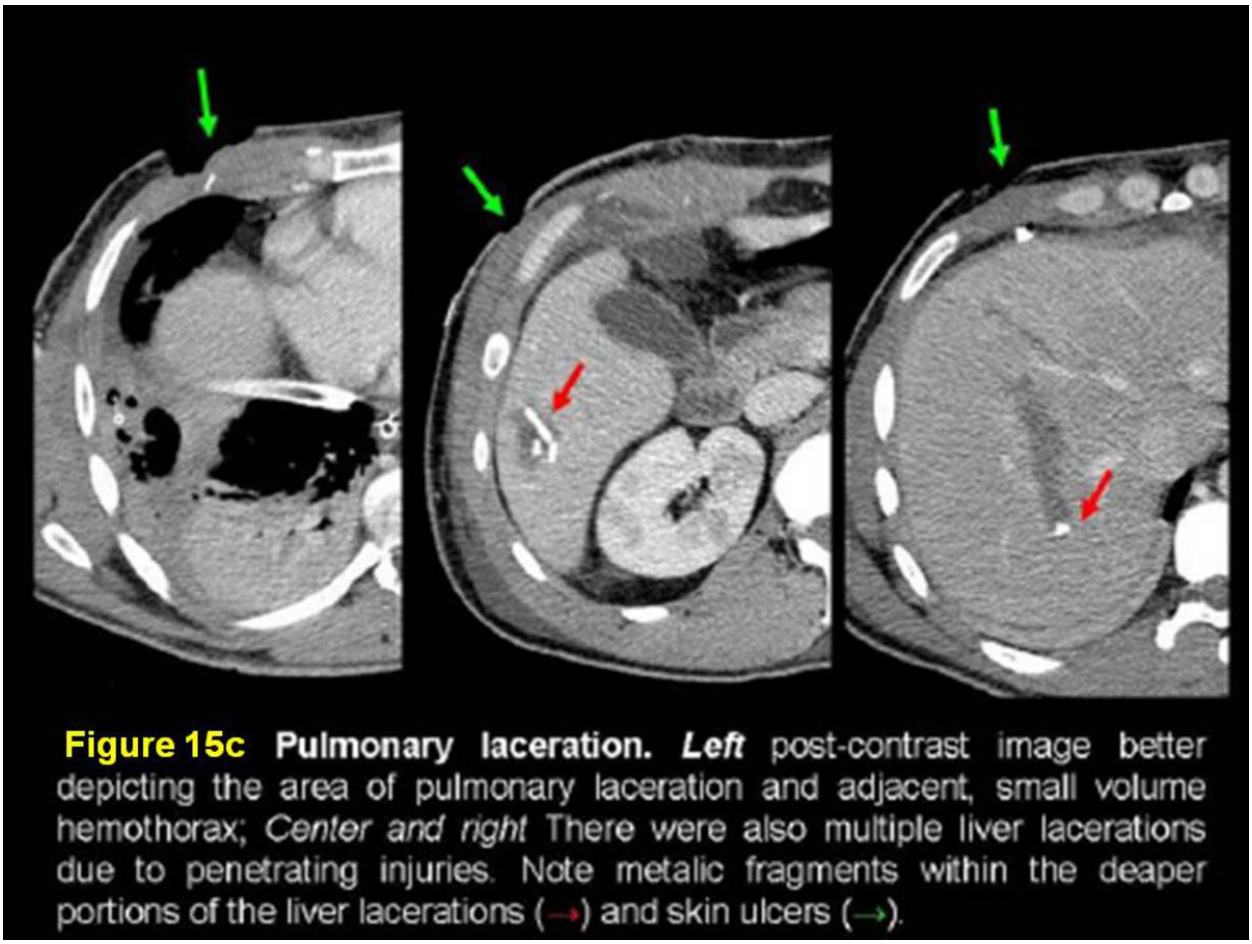

Figure 15c Pulmonary laceration. ***Left*** post-contrast image better depicting the area of pulmonary laceration and adjacent, small volume hemothorax; *Center and right* There were also multiple liver lacerations due to penetrating injuries. Note metalic fragments within the deaper portions of the liver lacerations (→) and skin ulcers (→).

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

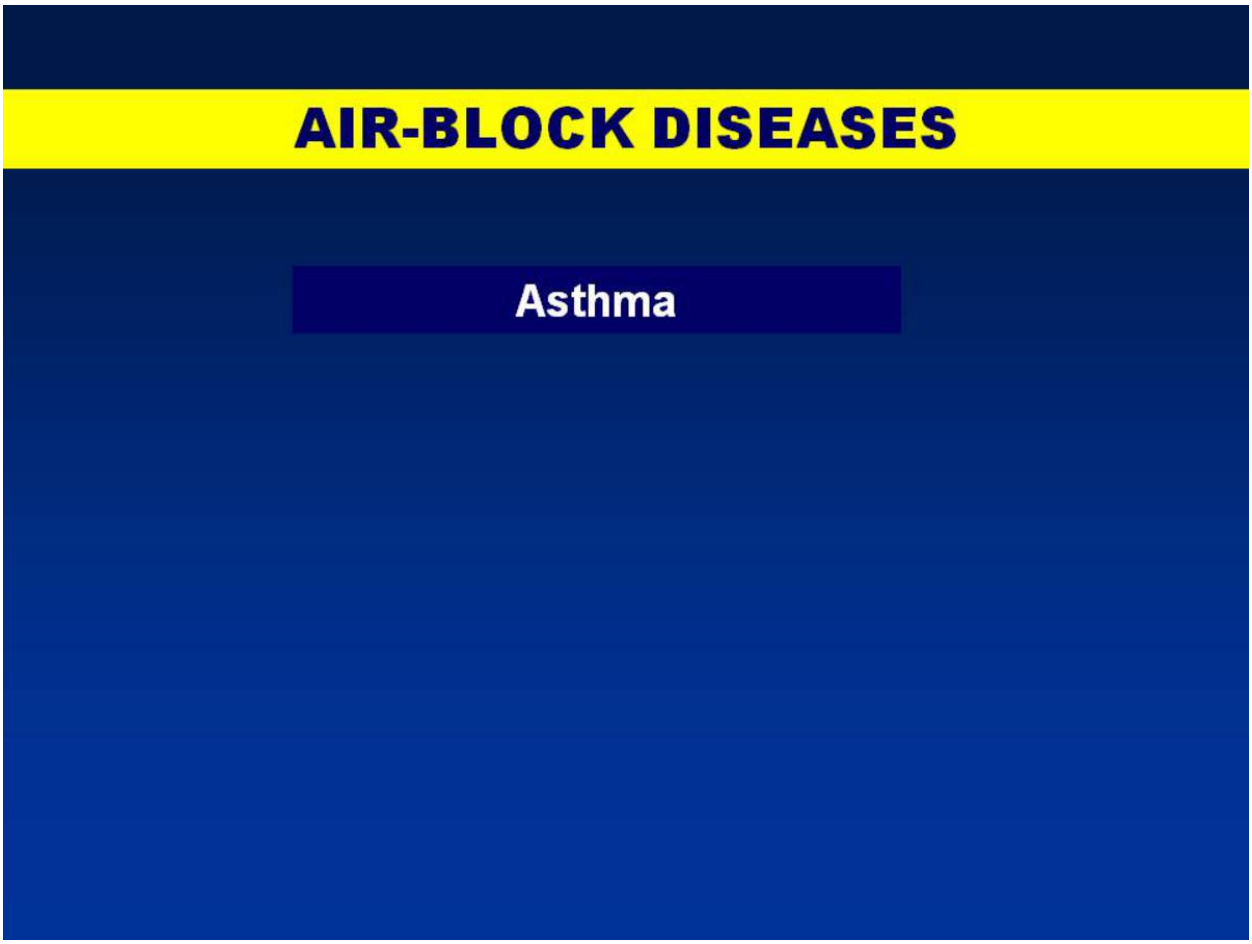

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

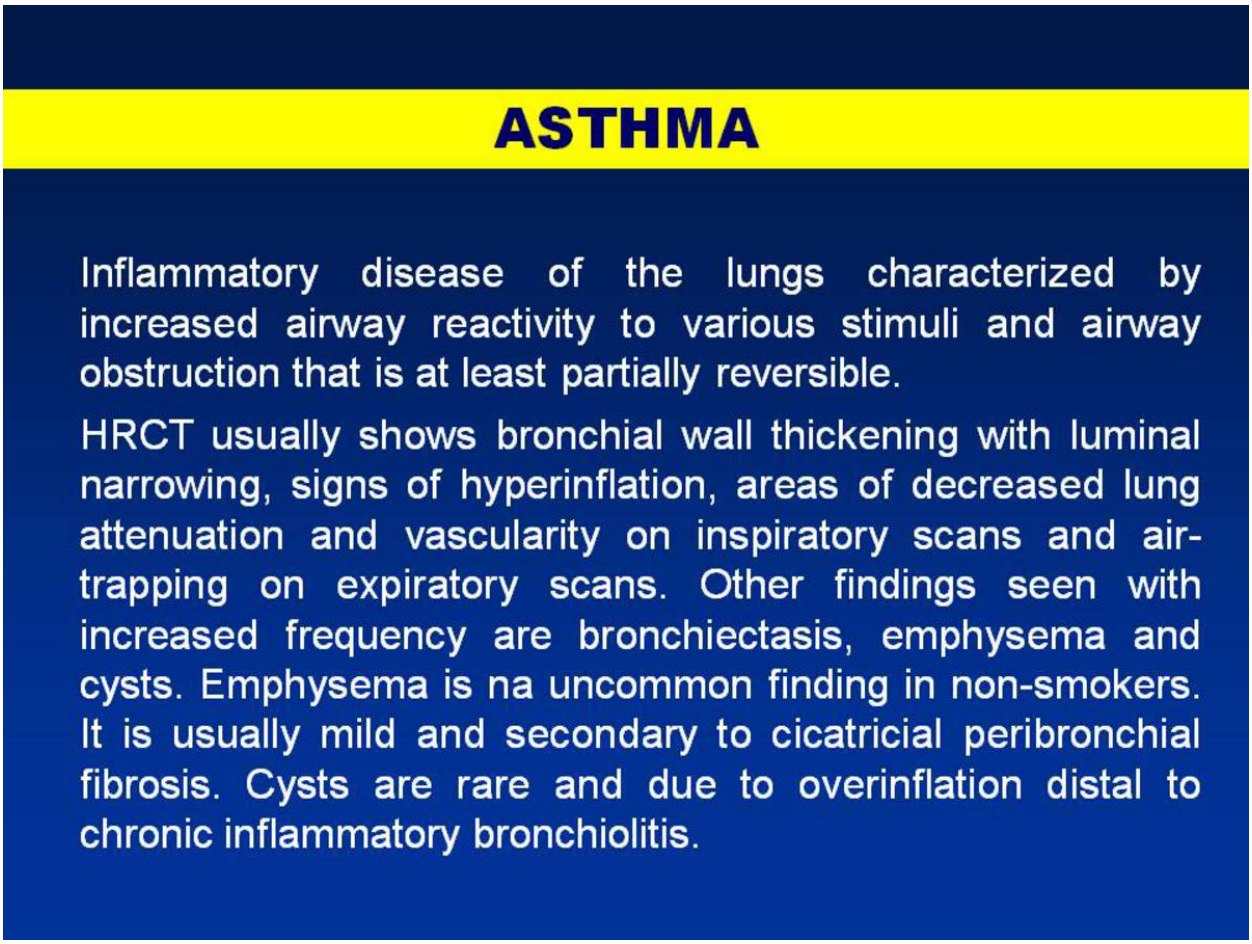

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

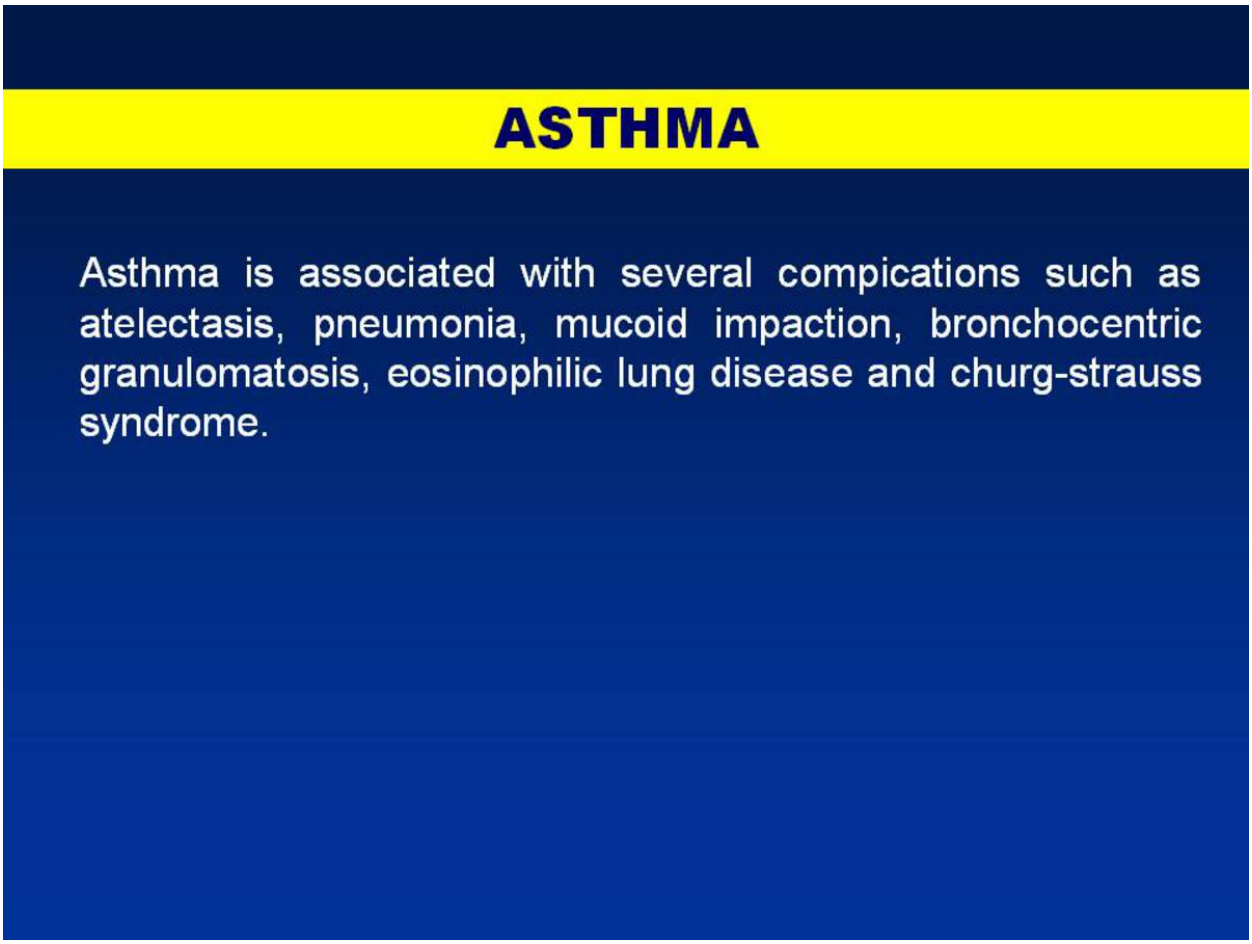

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

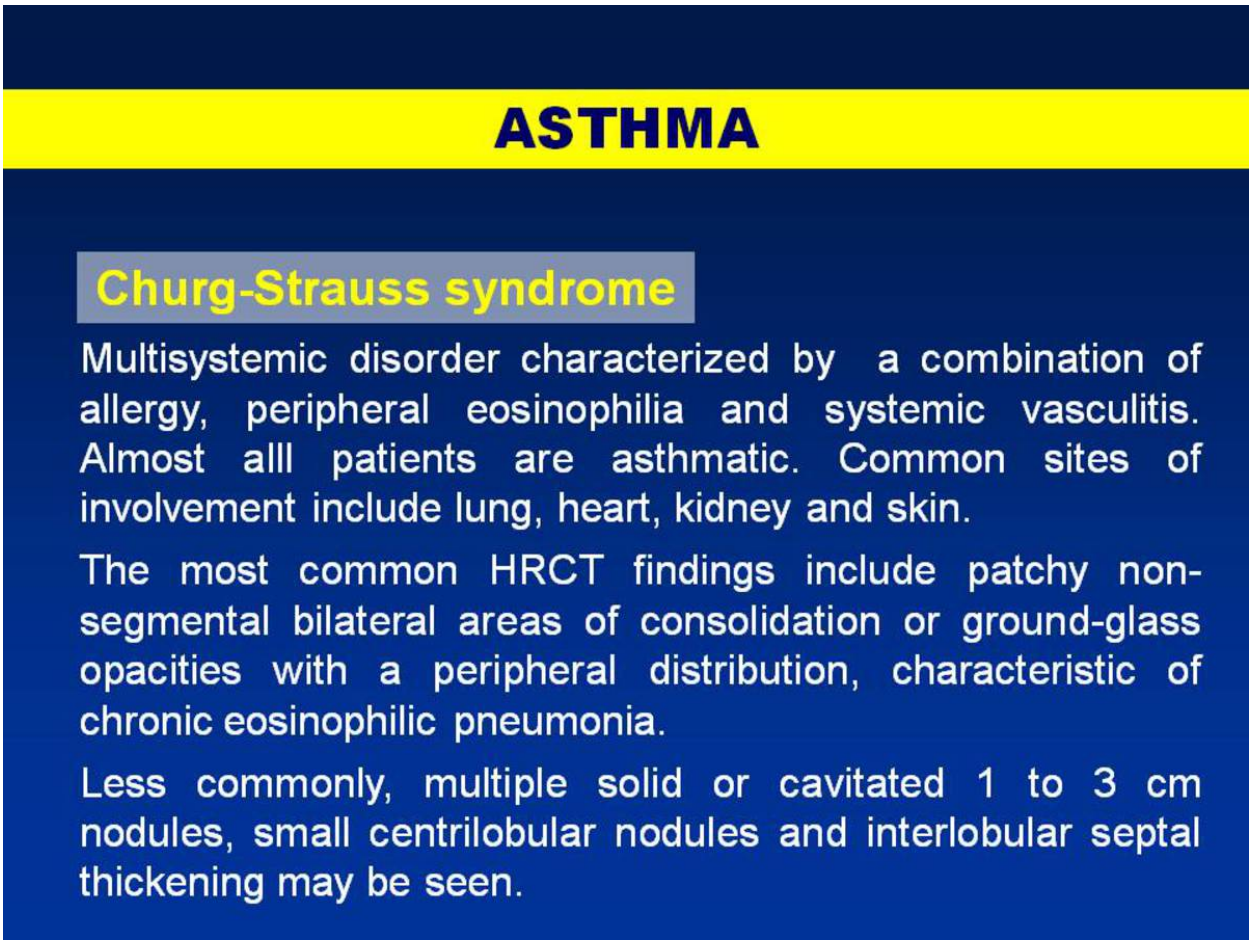

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

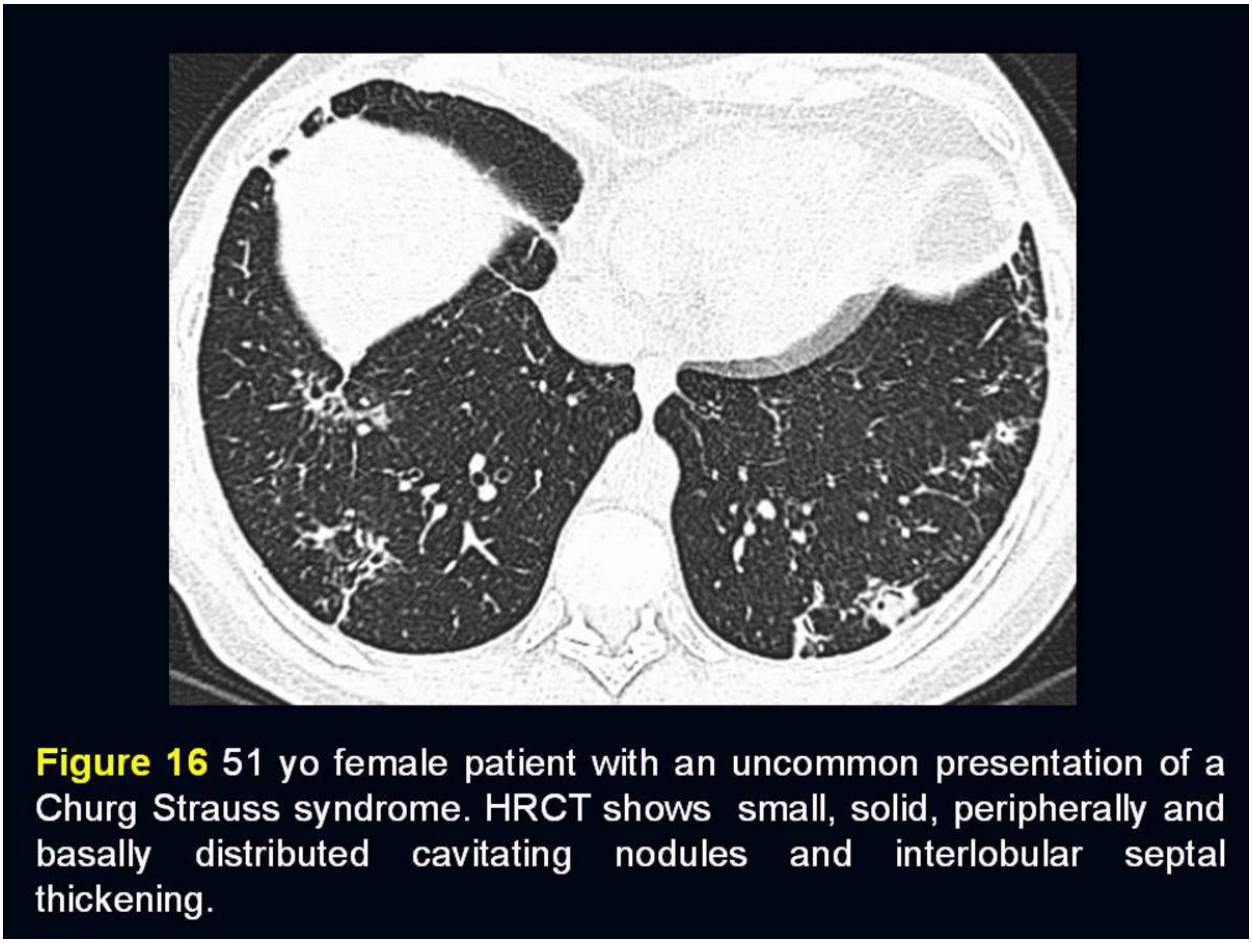

Figure 16 51 yo female patient with an uncommon presentation of a Churg Strauss syndrome. HRCT shows small, solid, peripherally and basally distributed cavitating nodules and interlobular septal thickening.

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

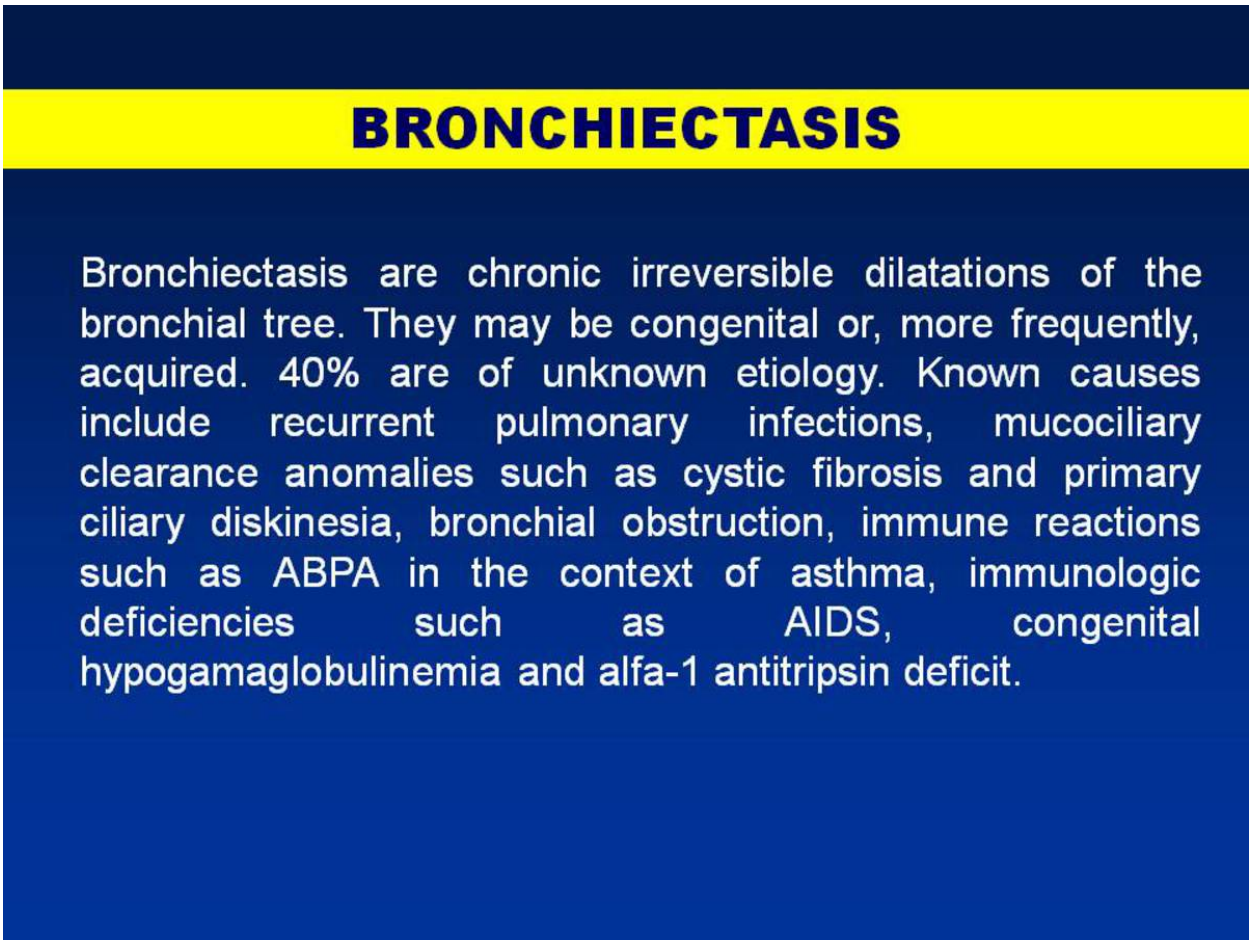

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

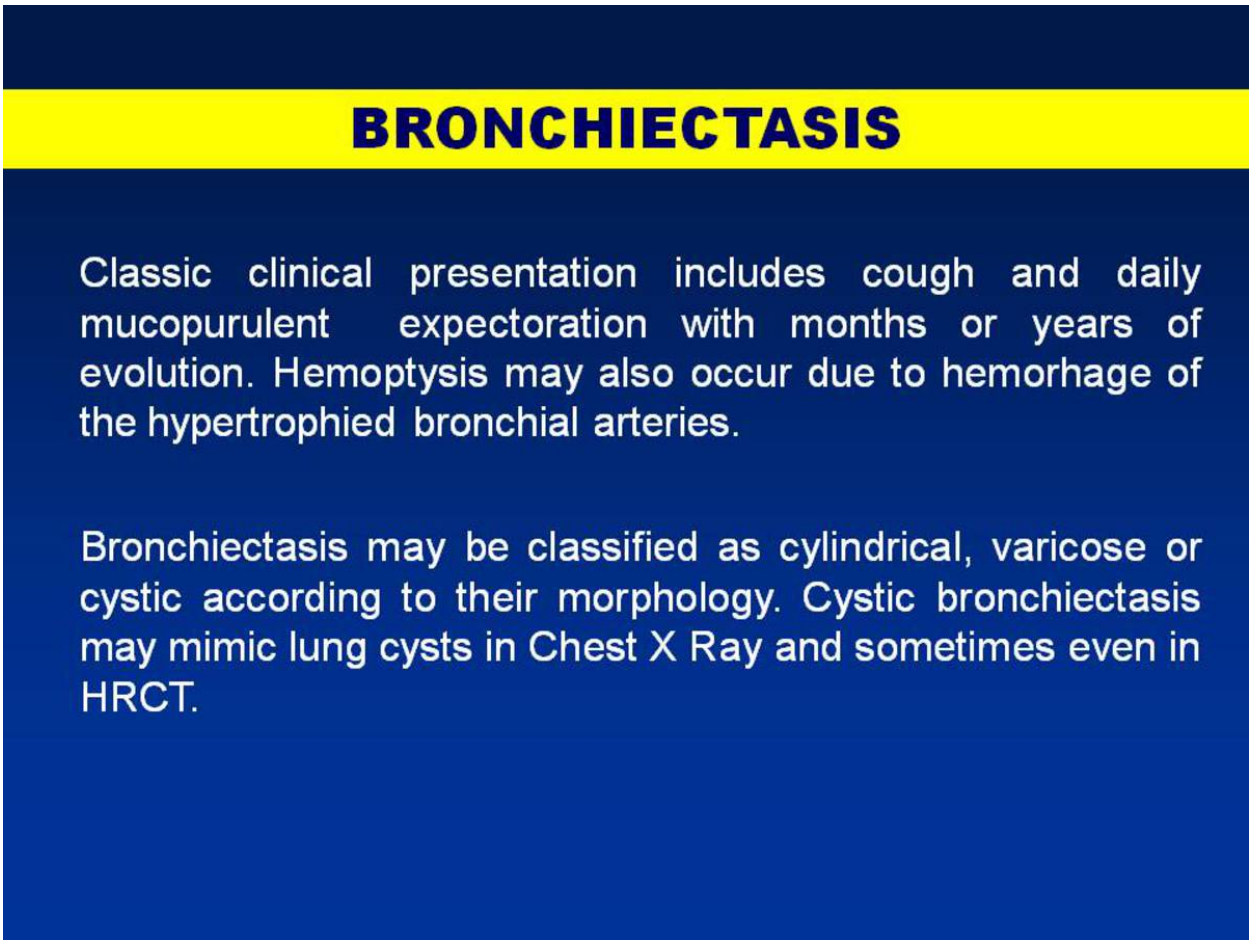

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

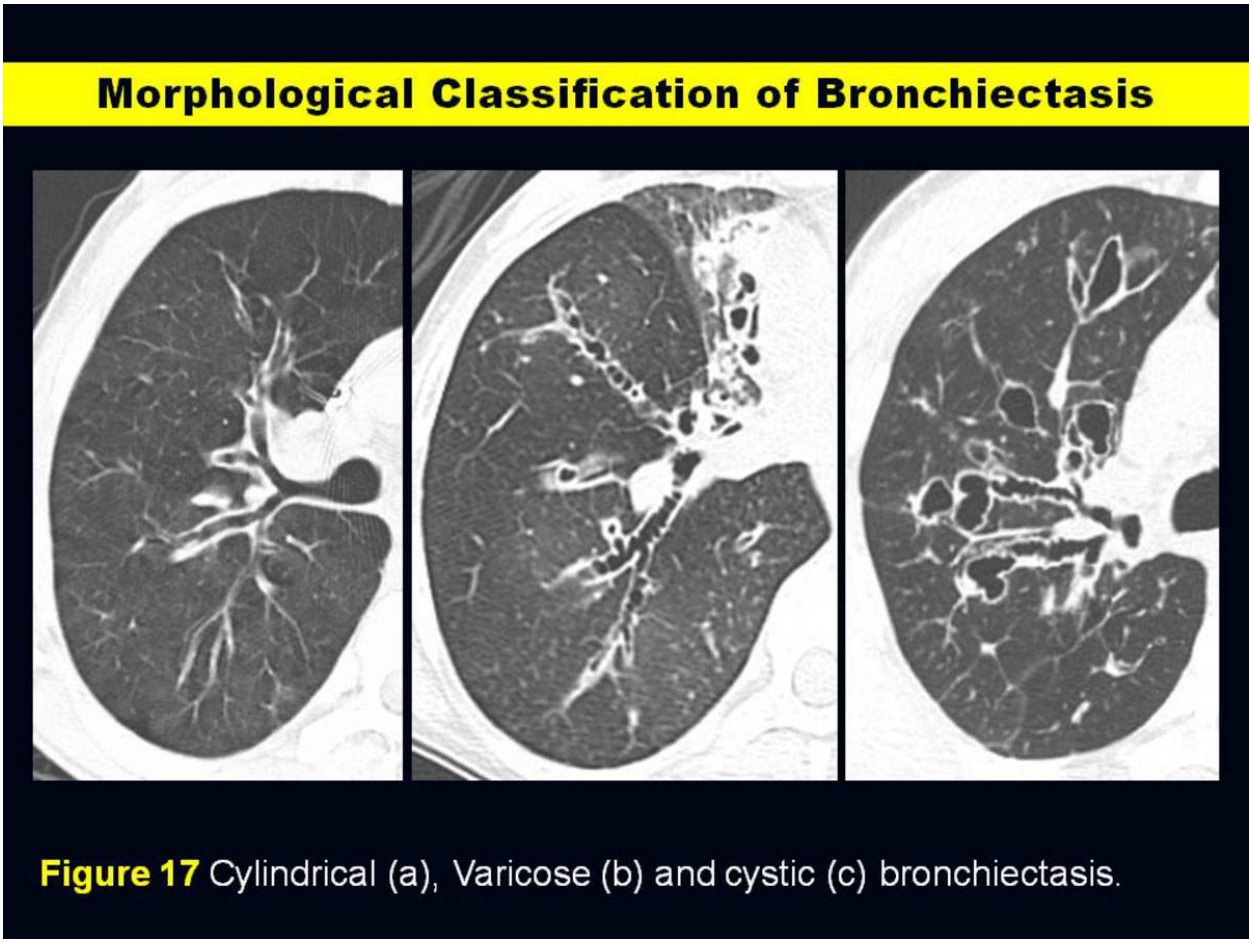

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

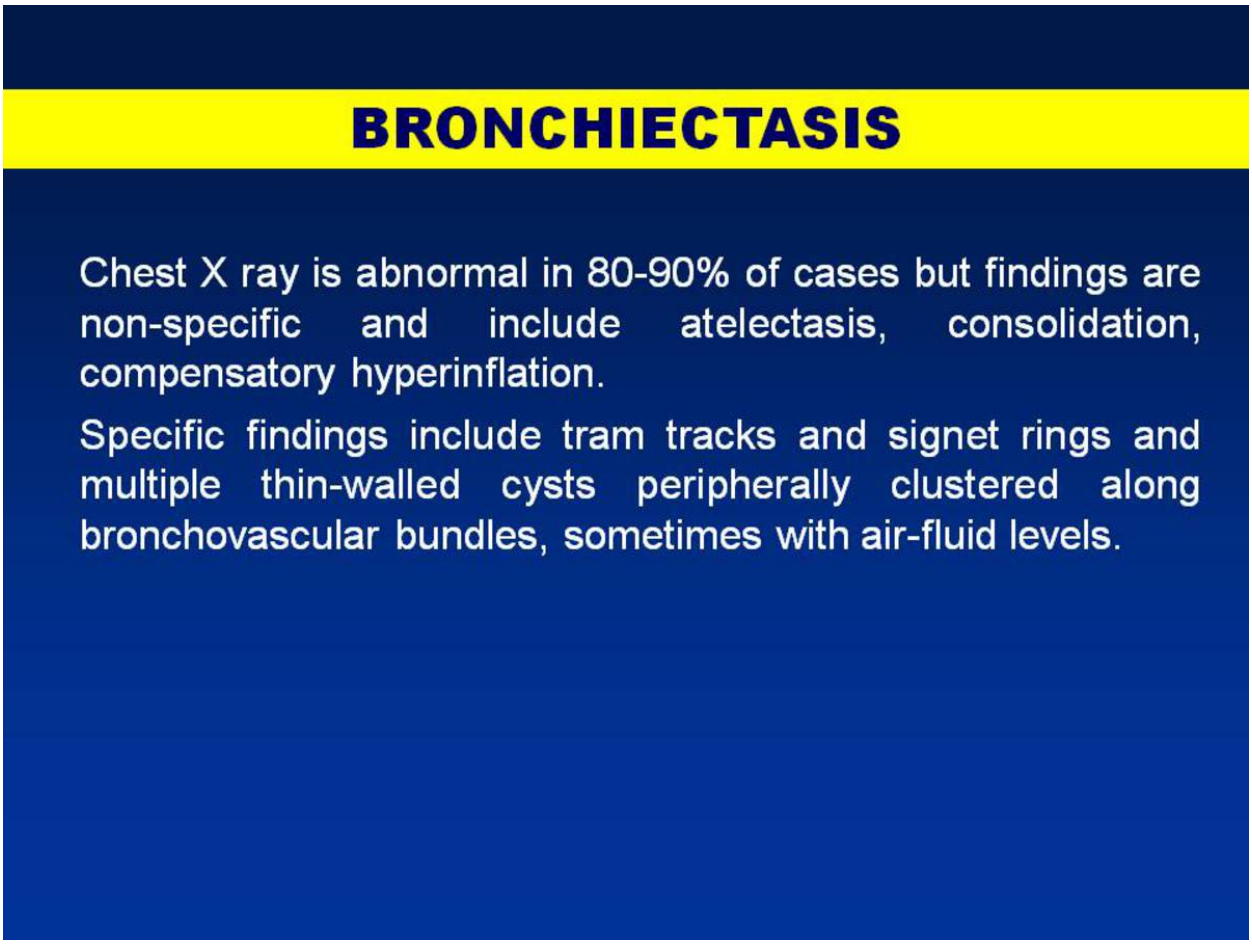

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

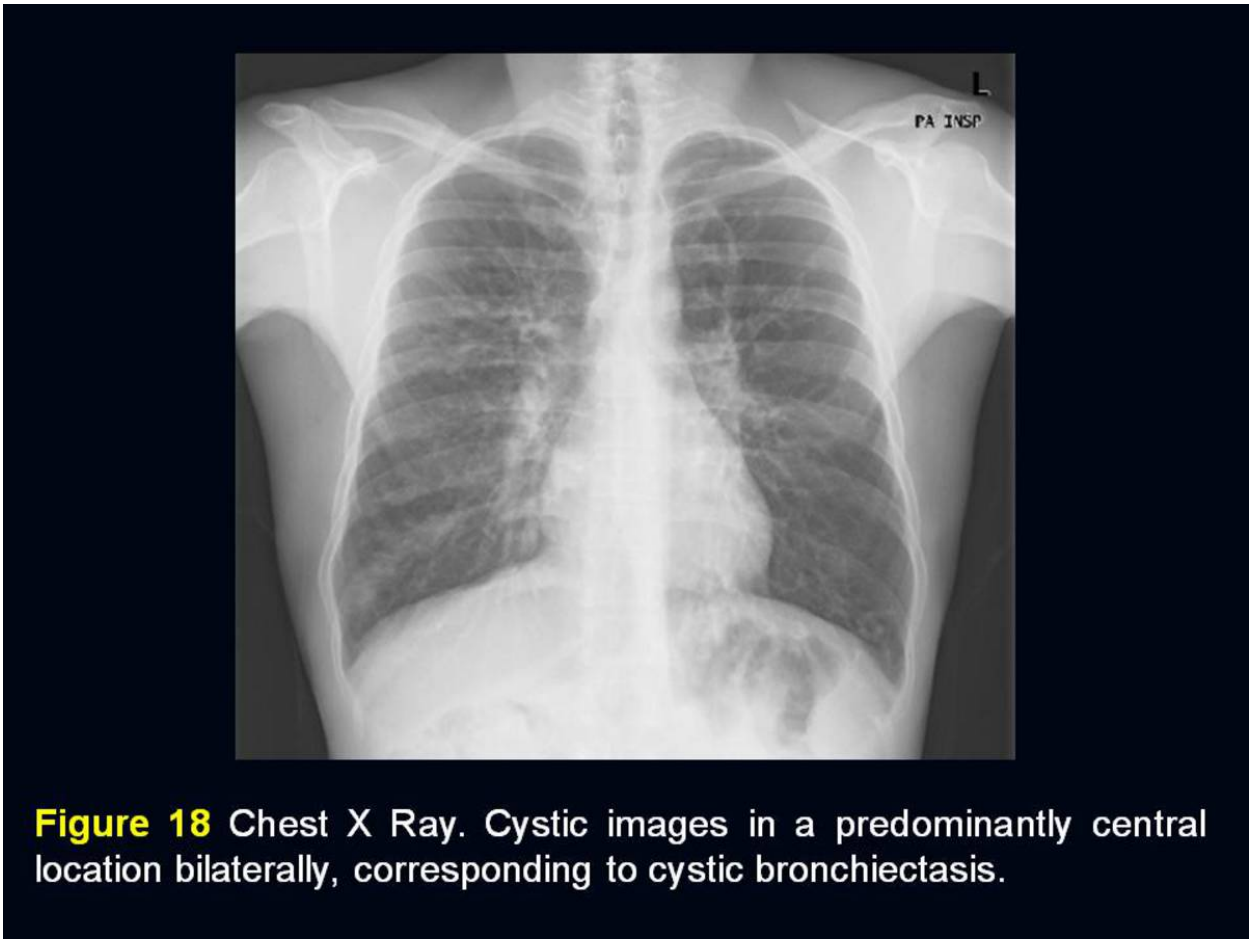

Figure 18 Chest X Ray. Cystic images in a predominantly central location bilaterally, corresponding to cystic bronchiectasis.

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

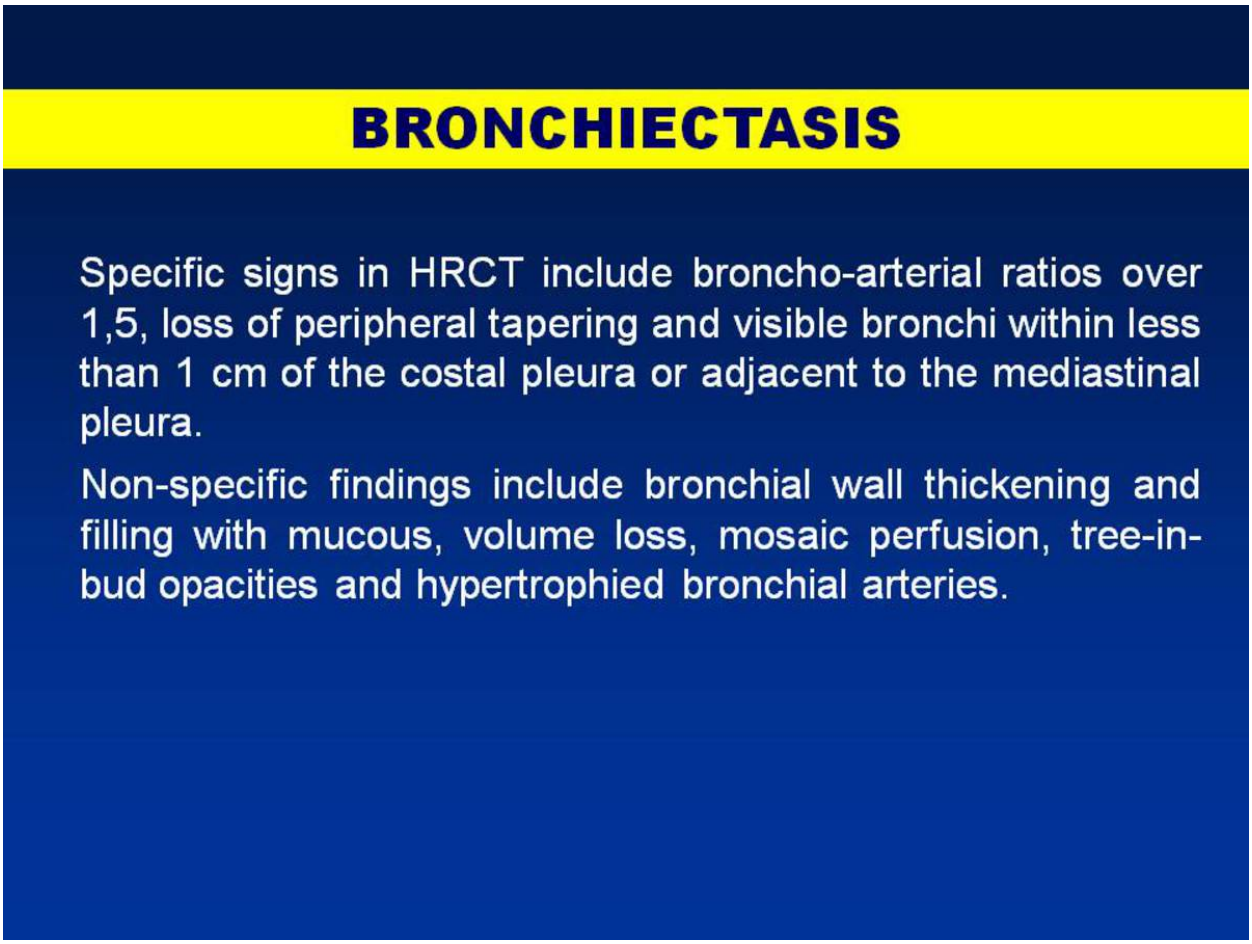

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

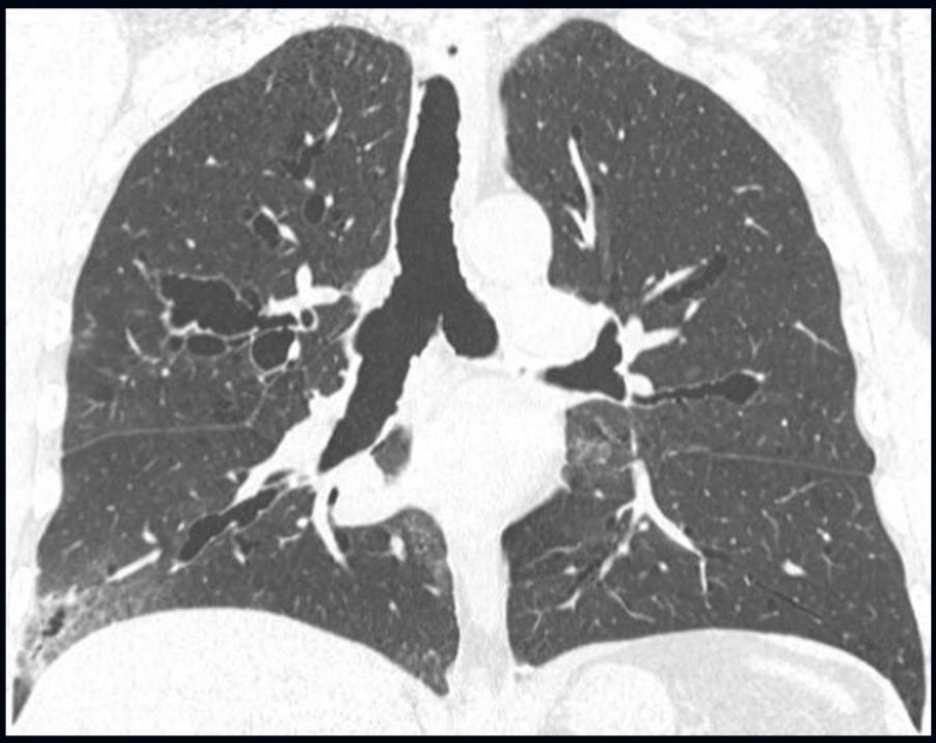

Figure 19 Central cystic bronchiectasis with an upper lobe predominace in a patient with ABPA.

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

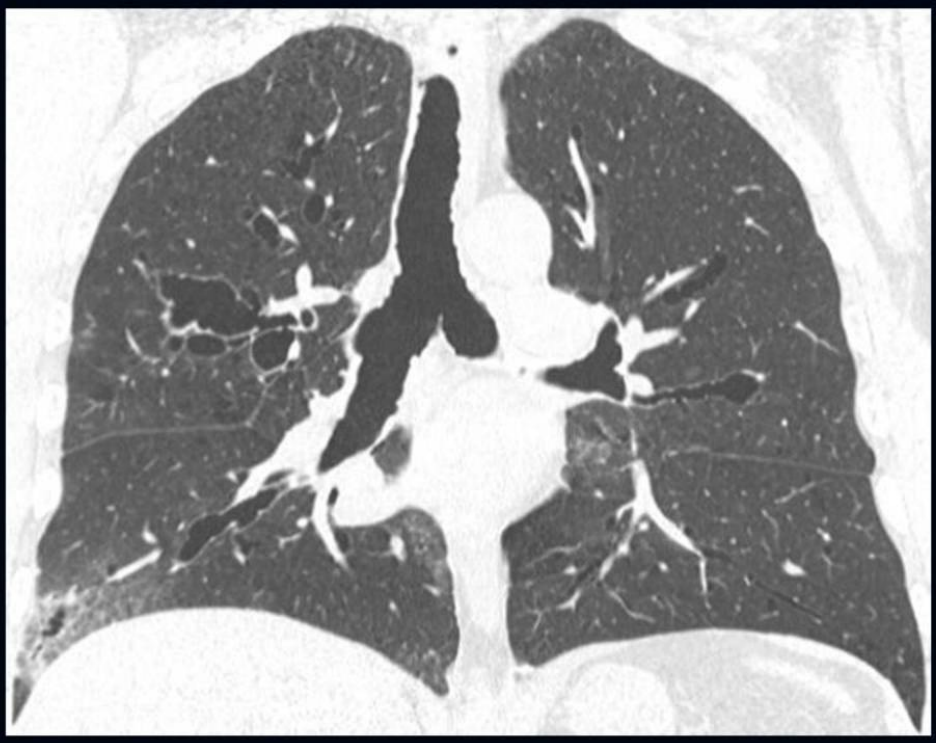

Figure 19 Central cystic bronchiectasis with an upper lobe predominace in a patient with ABPA.

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

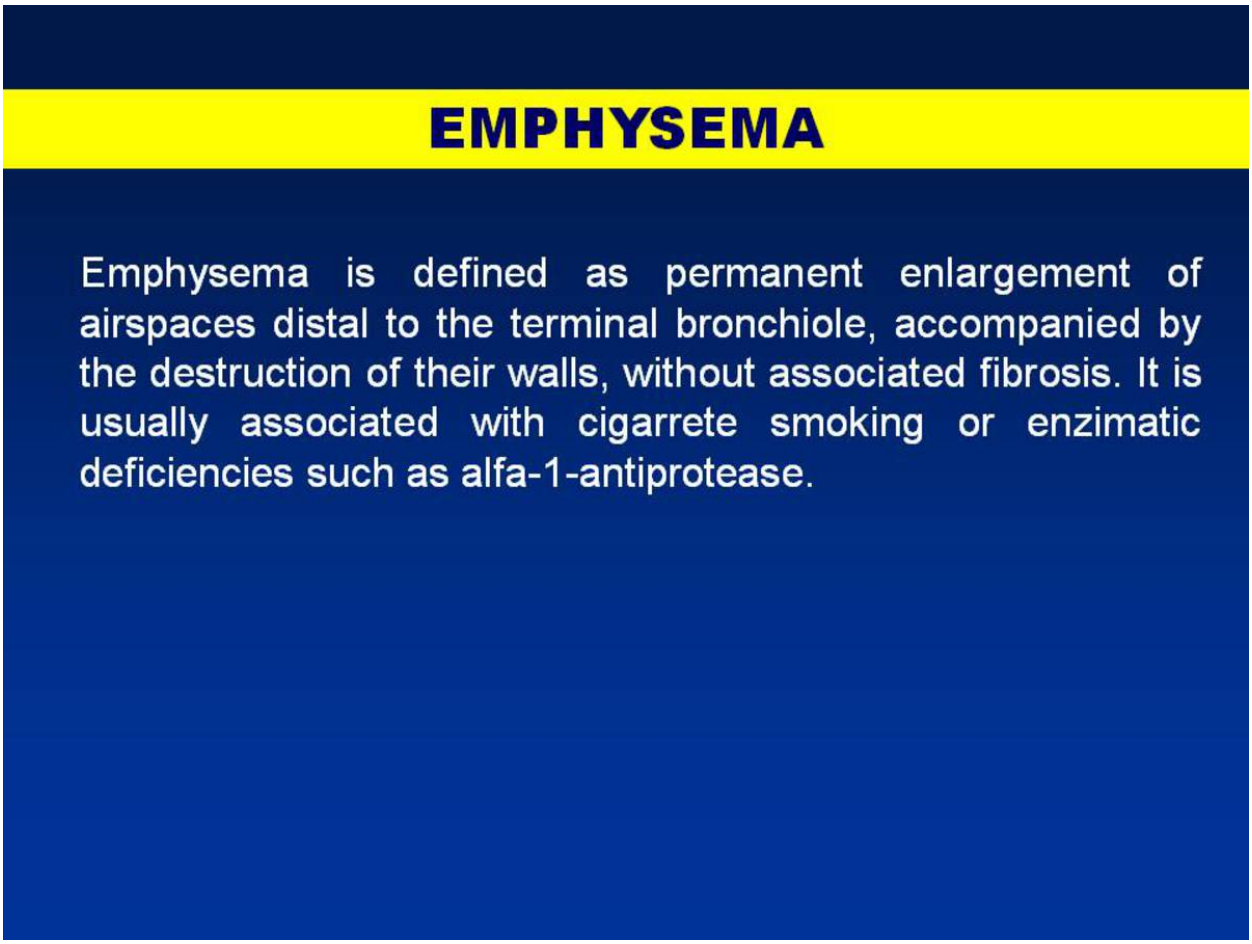

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

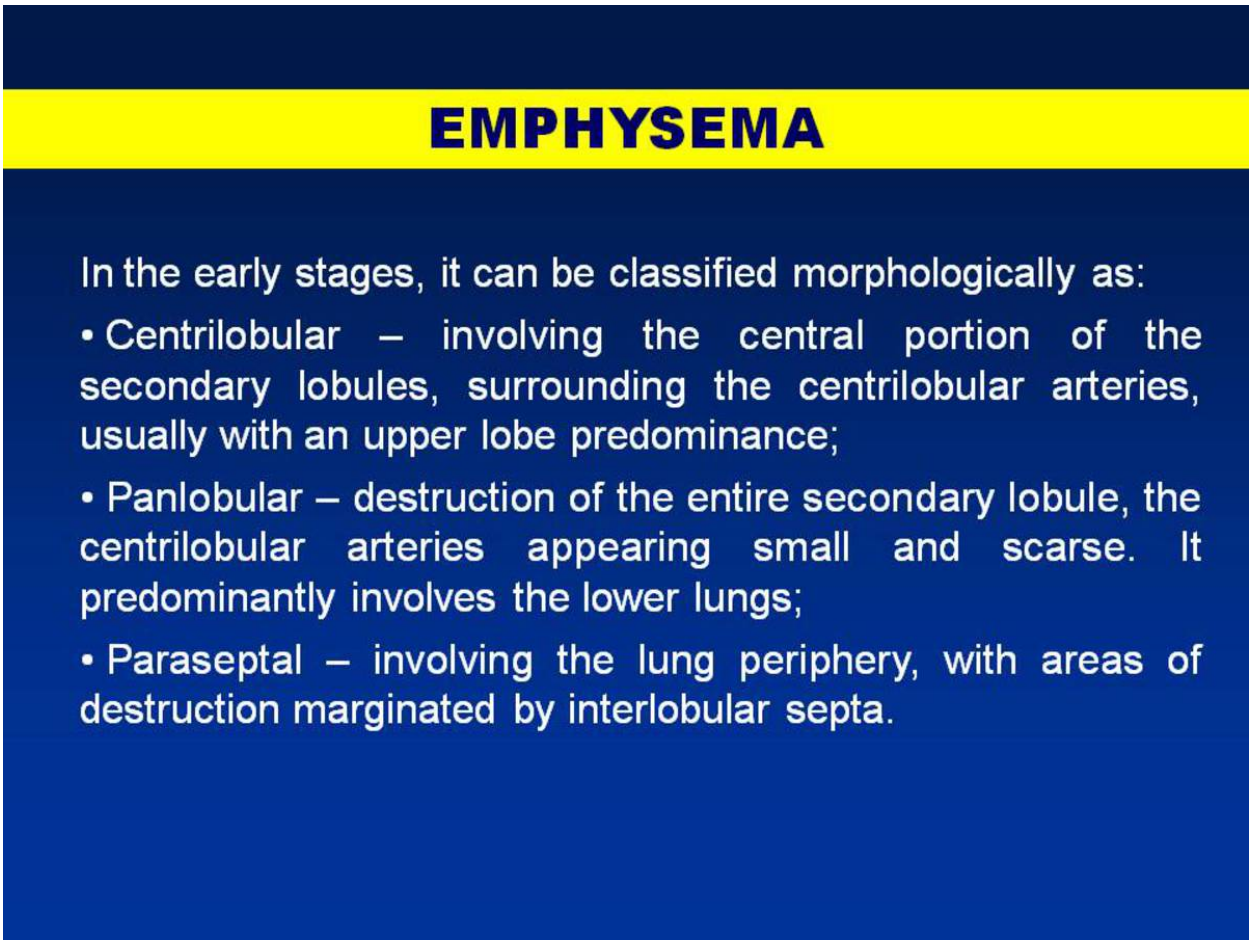

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

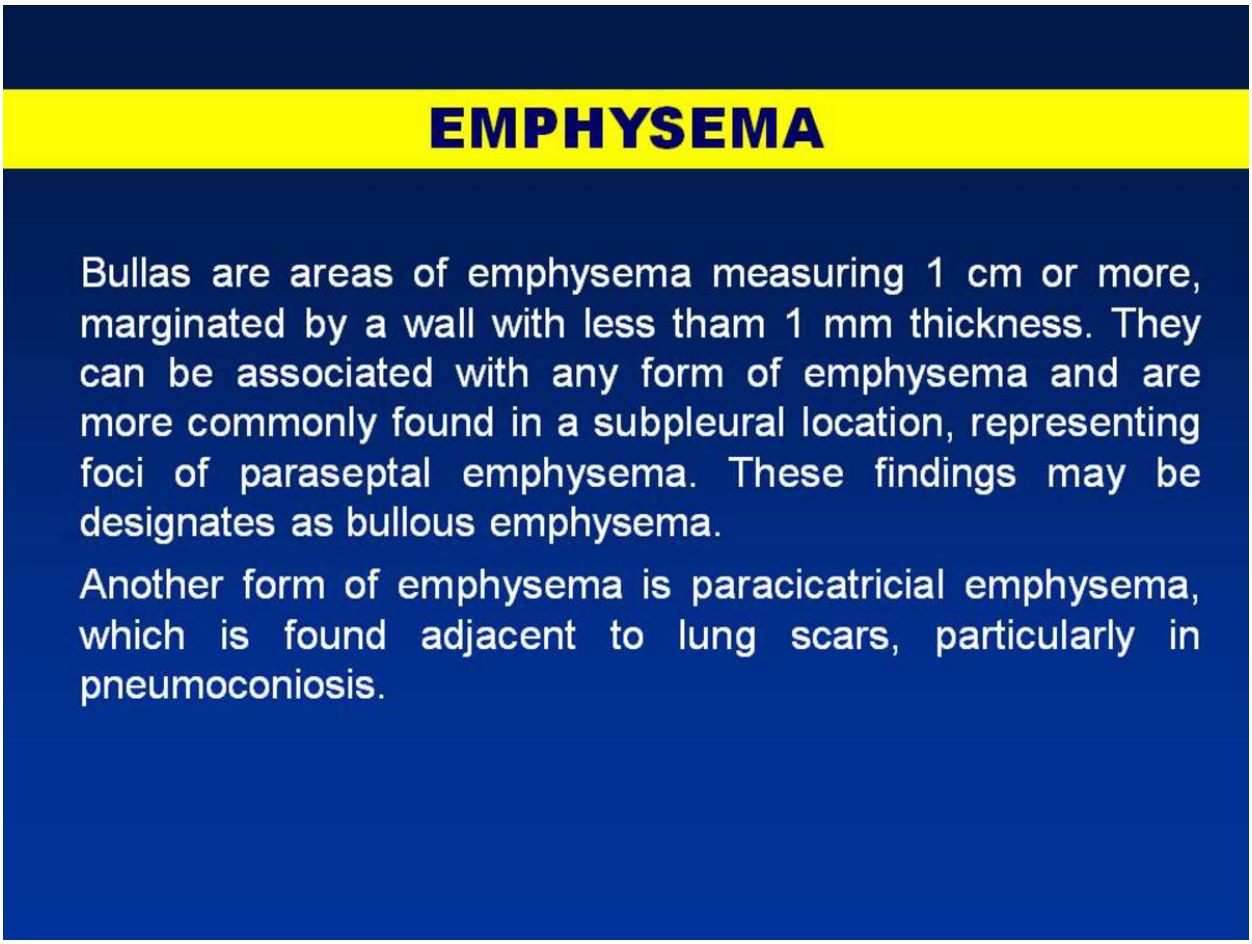

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

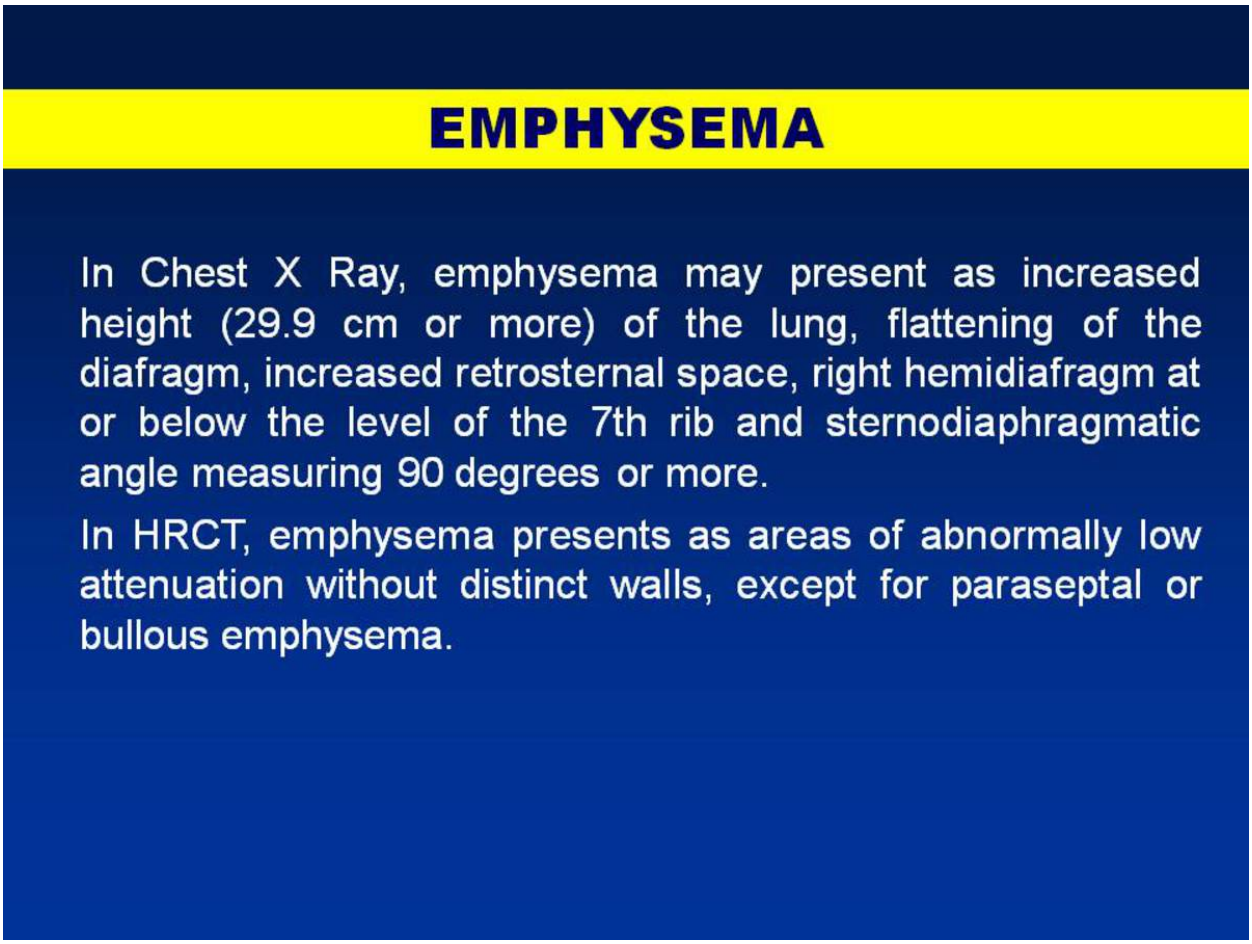

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

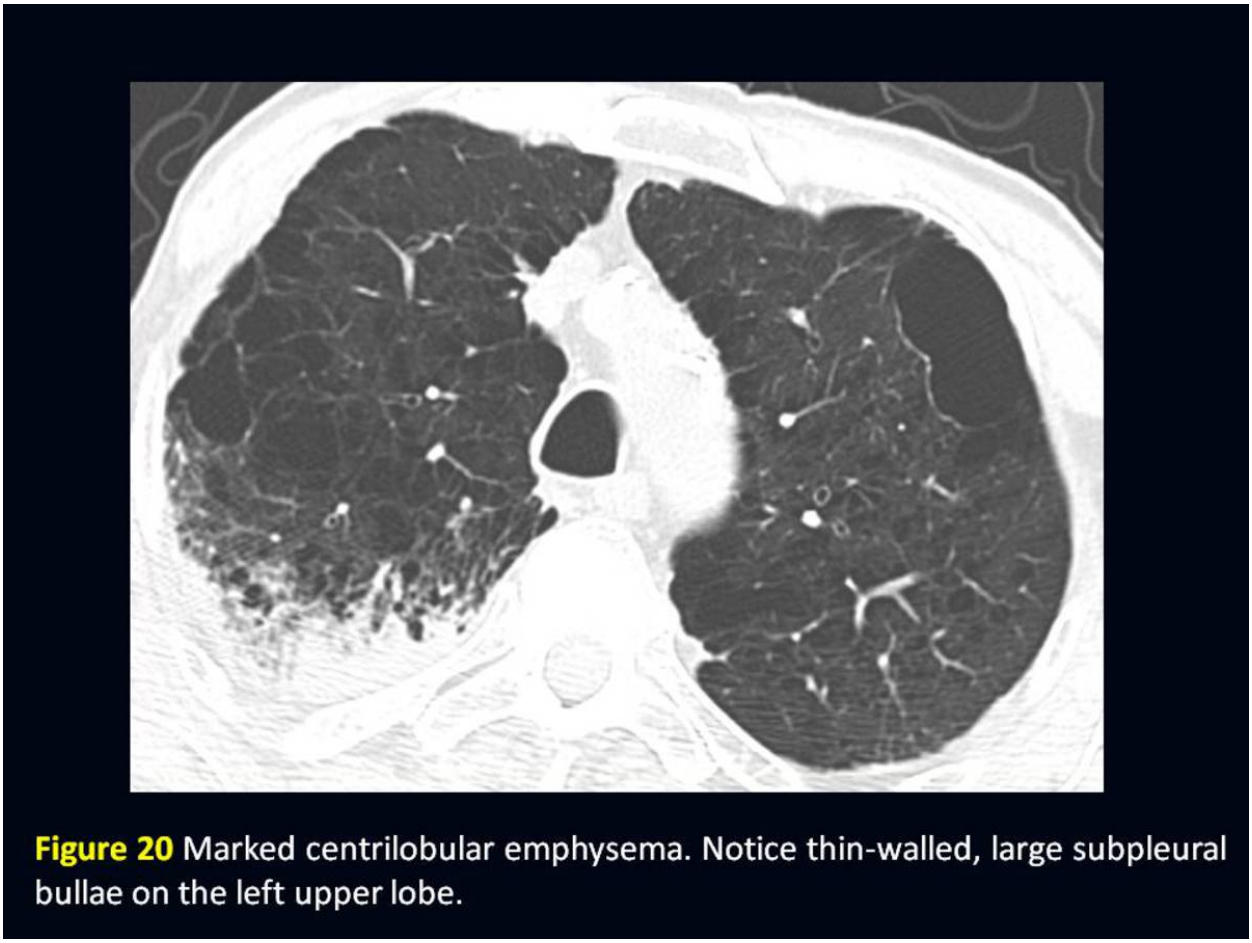

Figure 20 Marked centrilobular emphysema. Notice thin-walled, large subpleural bullae on the left upper lobe.

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

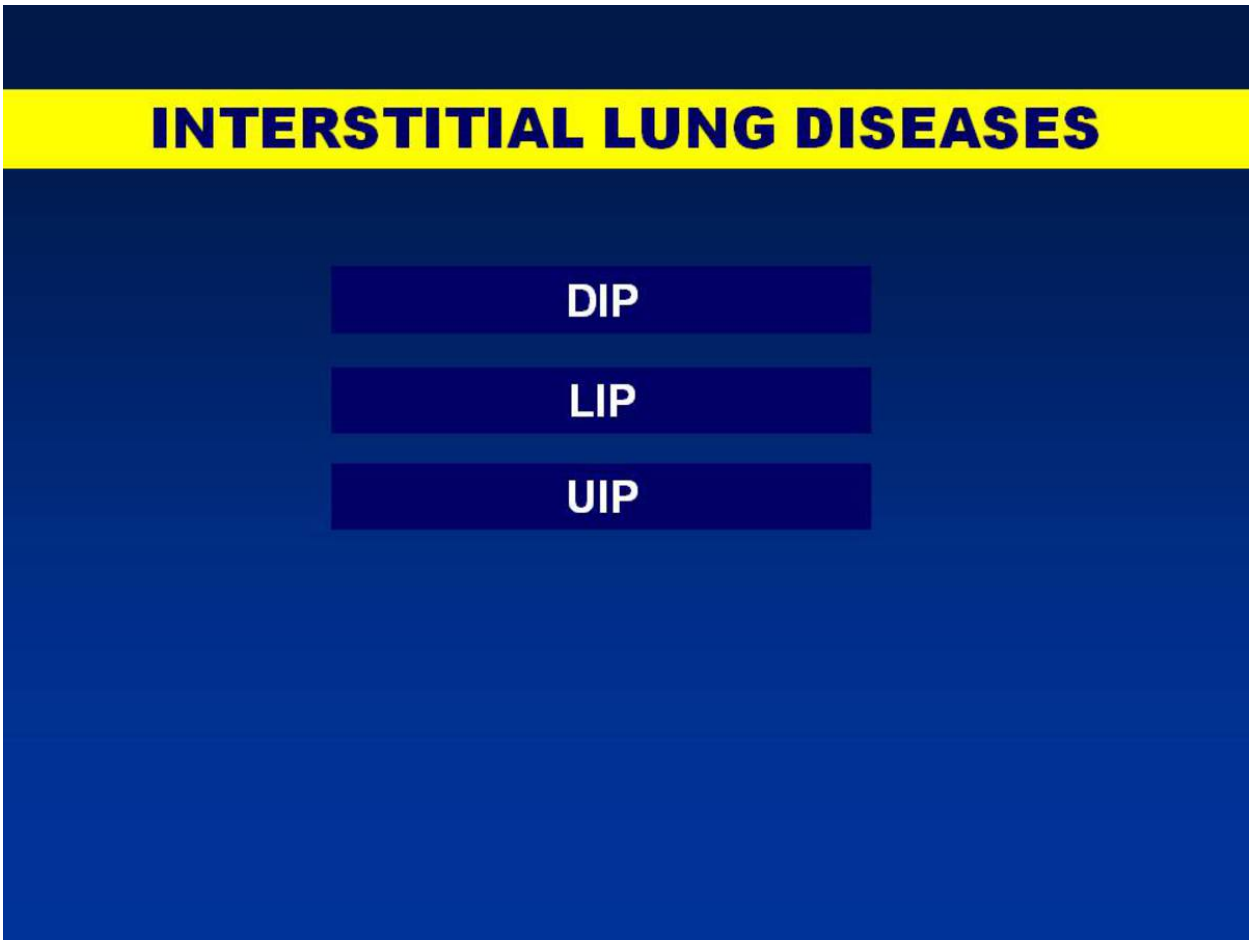

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

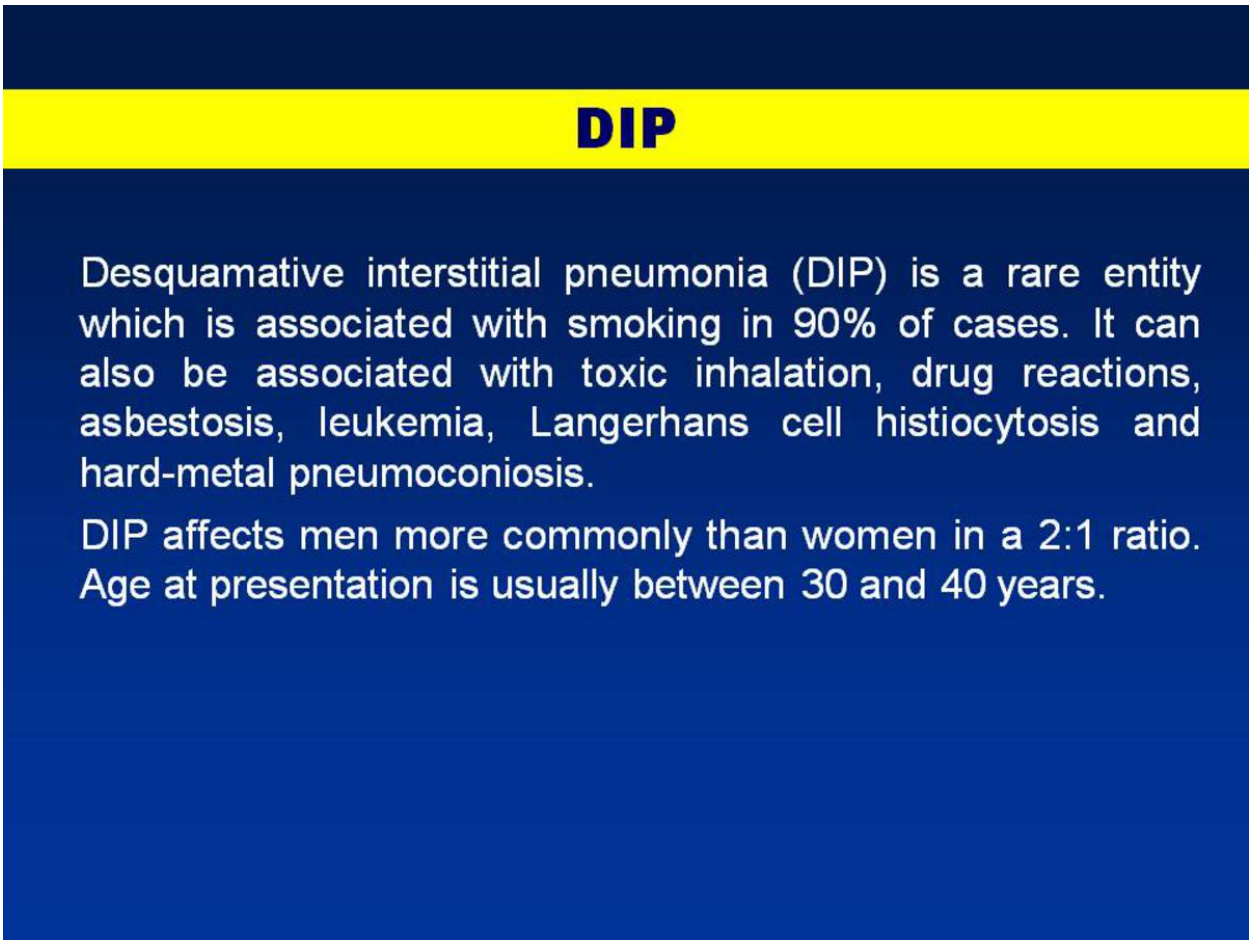

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

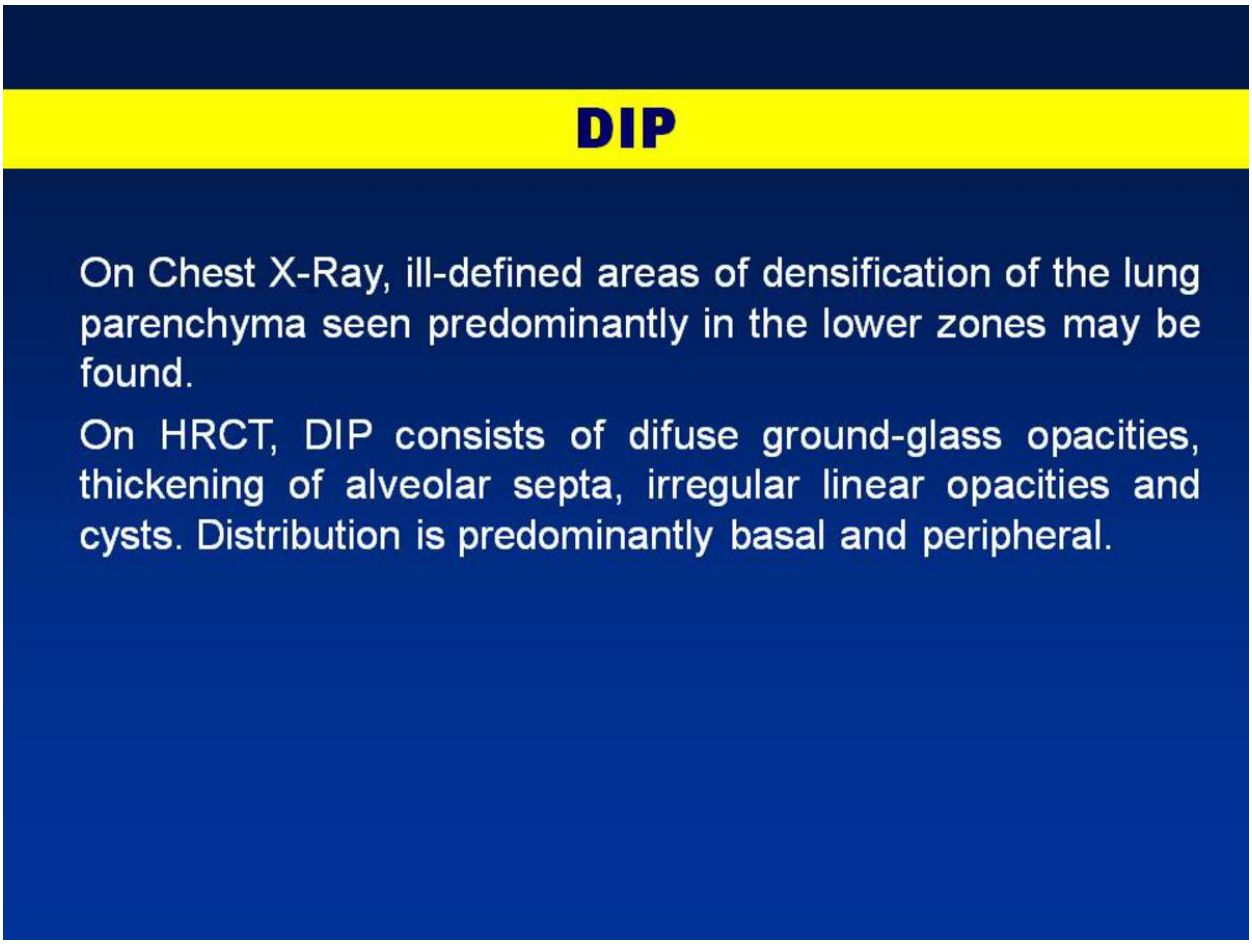

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

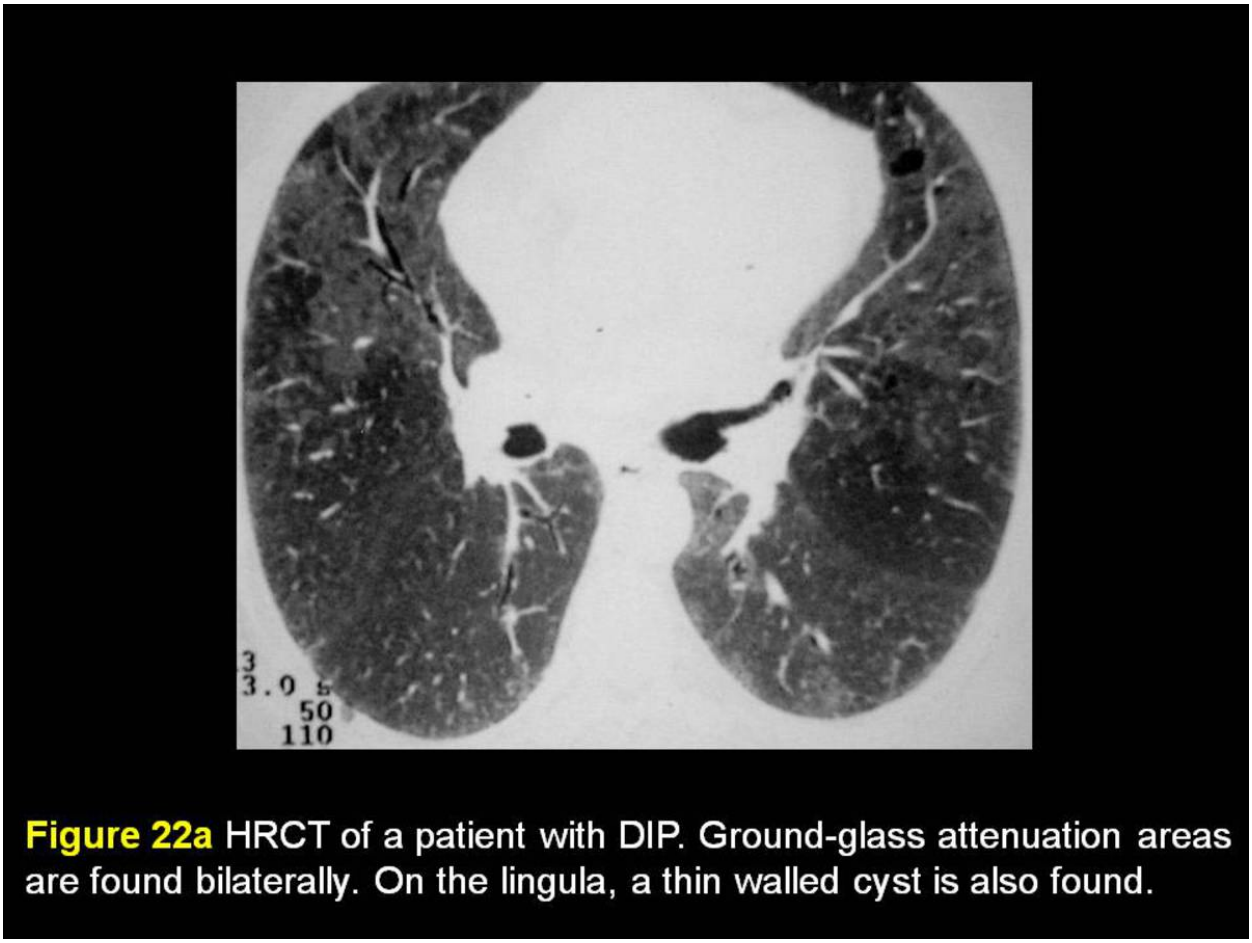

Figure 22a HRCT of a patient with DIP. Ground-glass attenuation areas are found bilaterally. On the lingula, a thin walled cyst is also found.

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

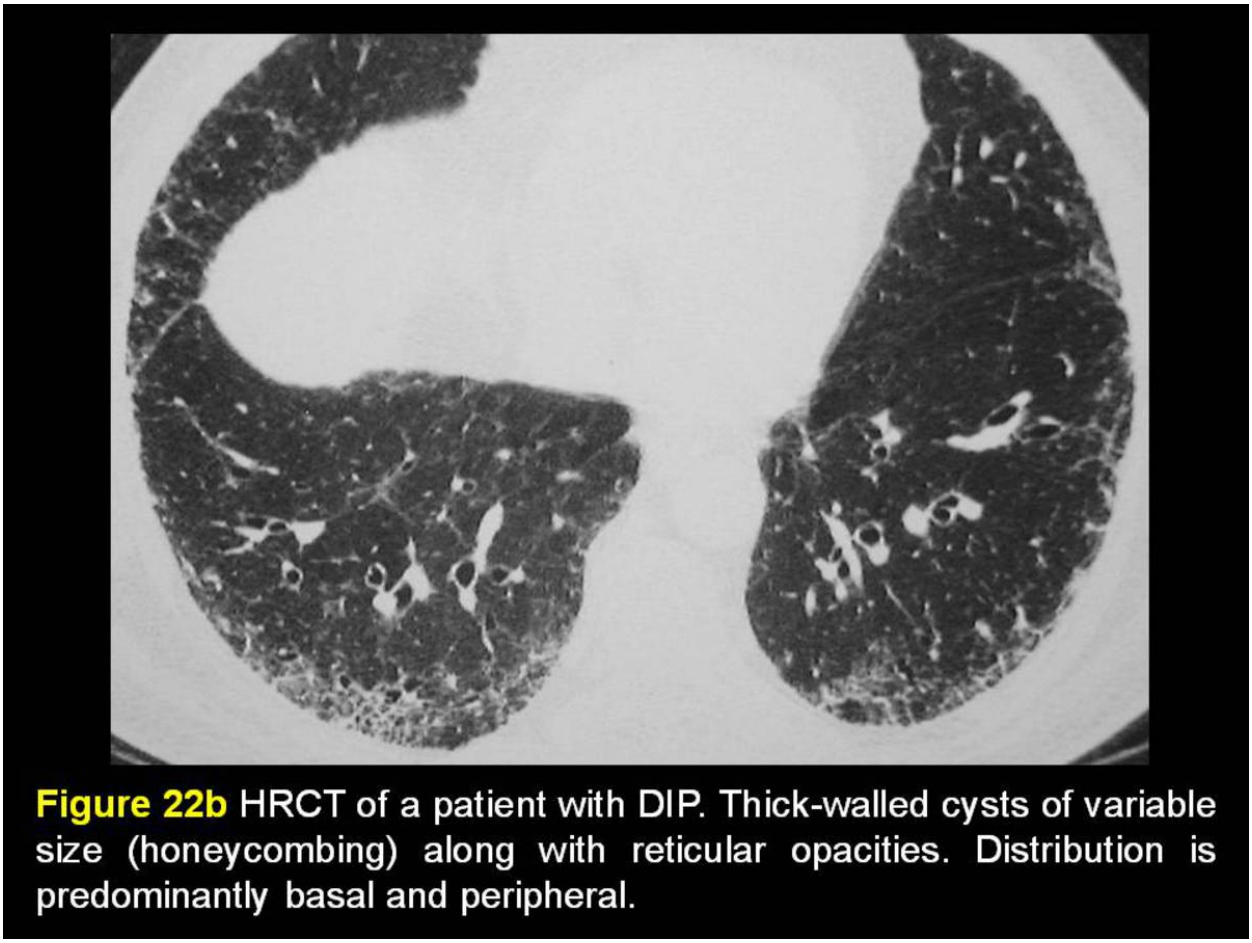

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

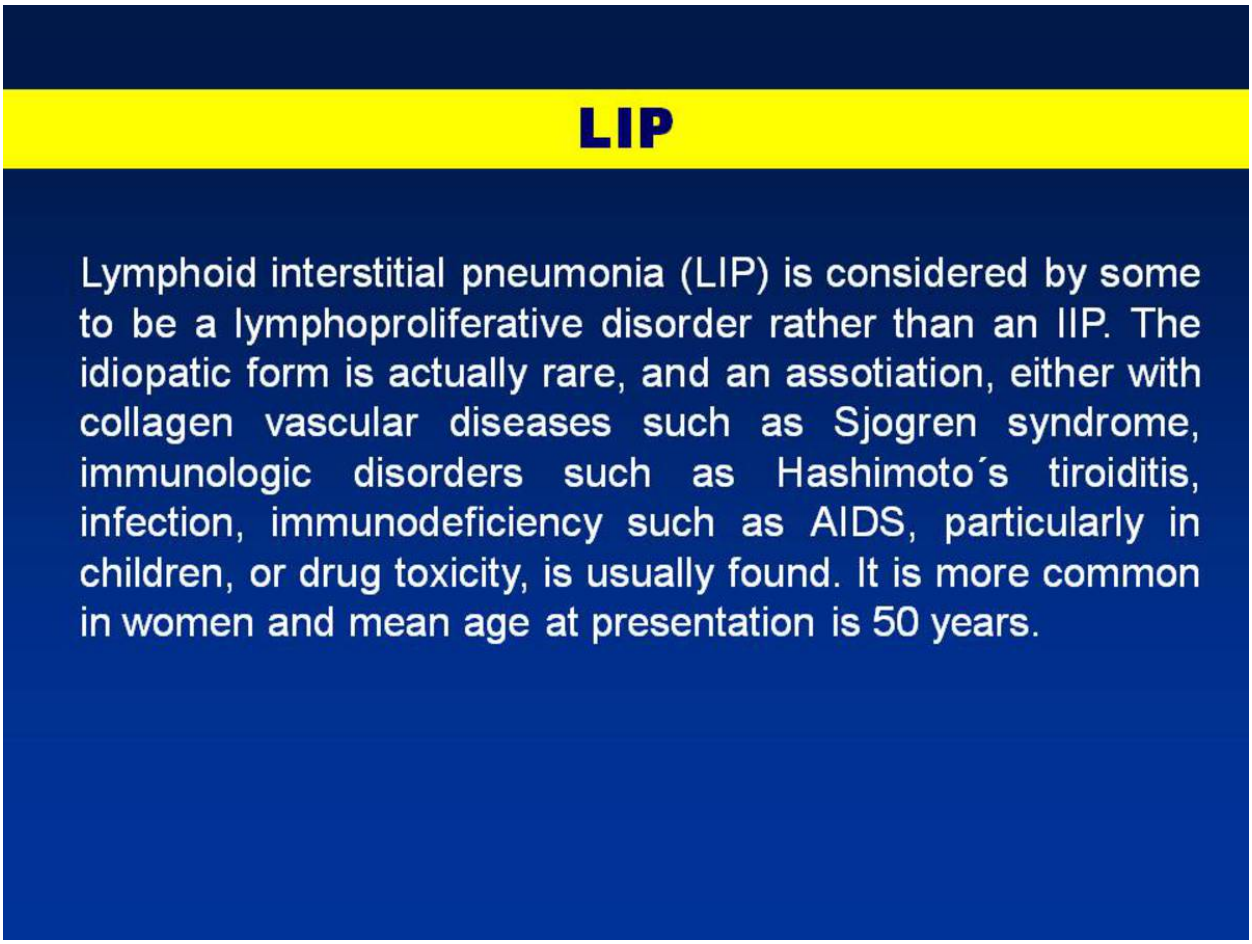

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

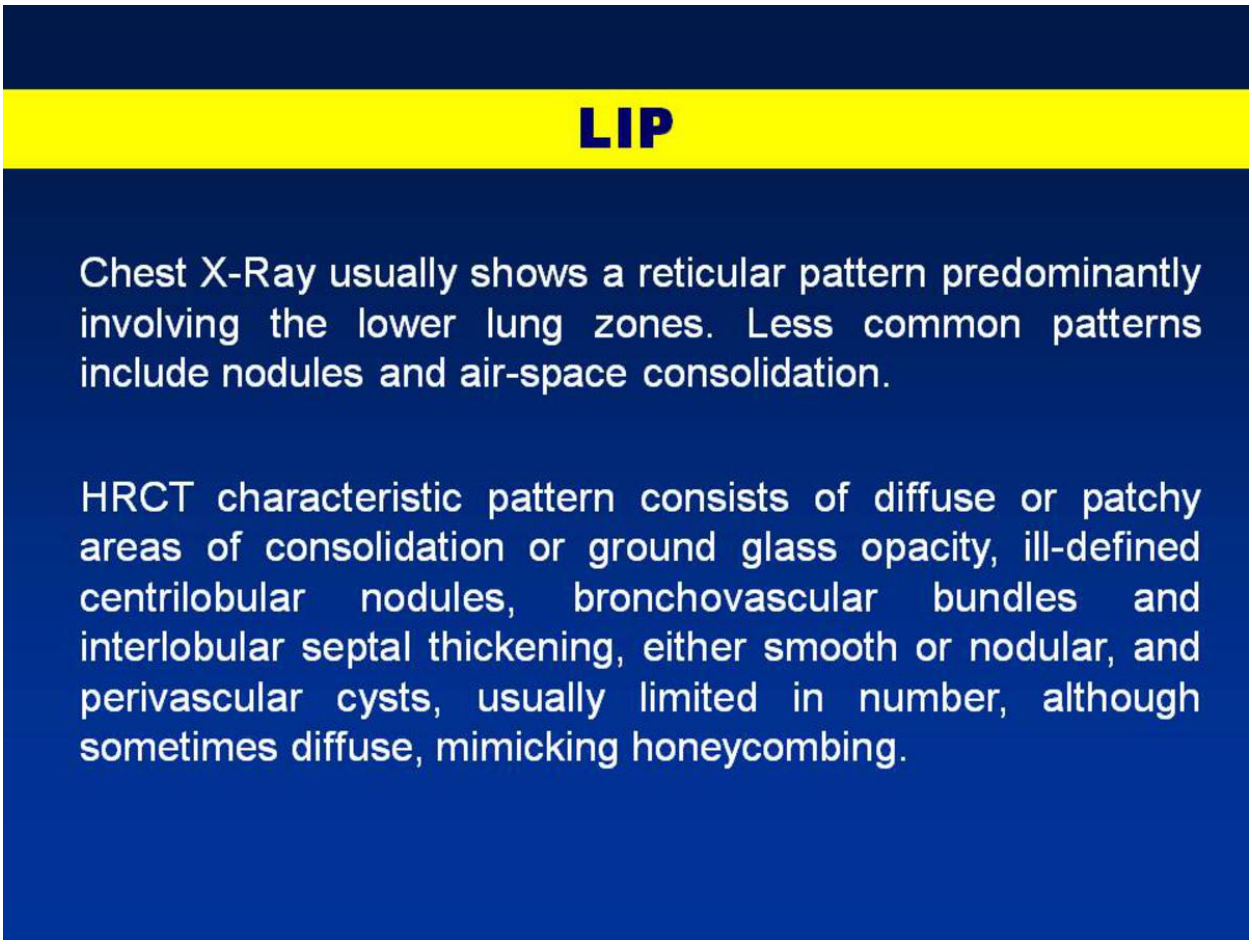

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

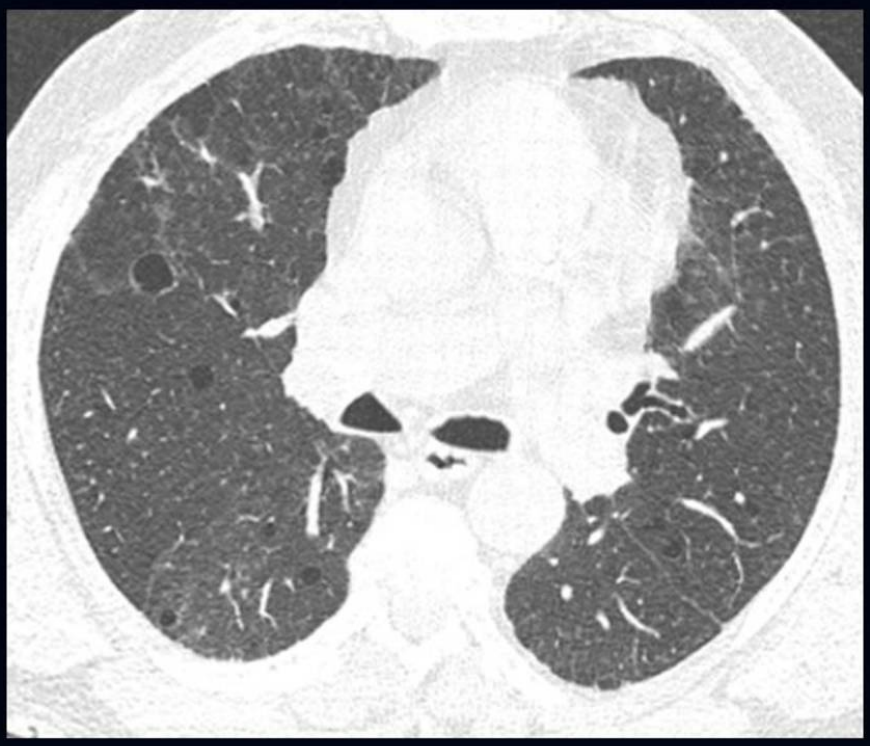

Figure 23a HRCT of a patient with LIP. Thin-walled cysts, ground-glass opacification areas and interlobular septal thickening are found.

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

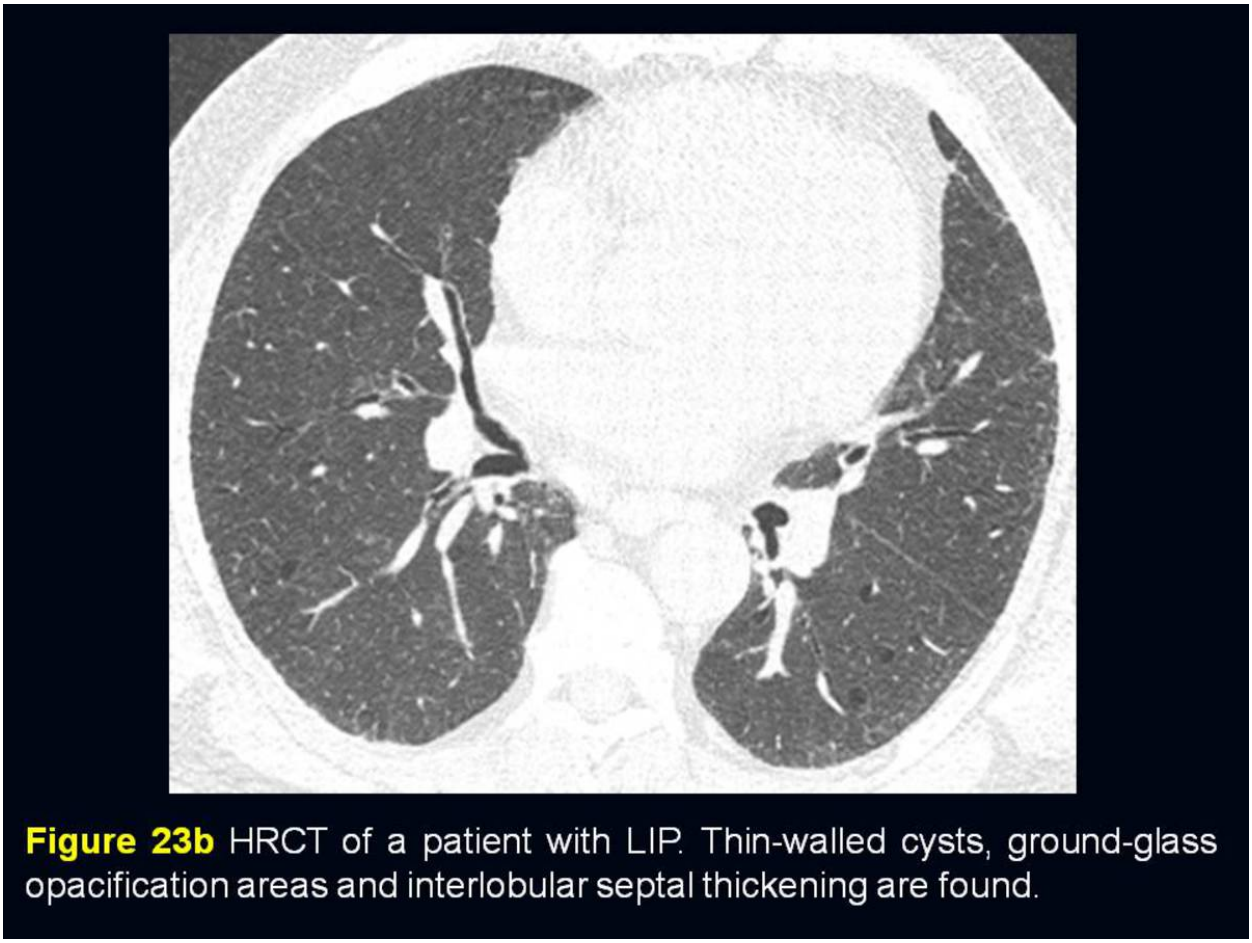

Figure 23b HRCT of a patient with LIP. Thin-walled cysts, ground-glass opacification areas and interlobular septal thickening are found.

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

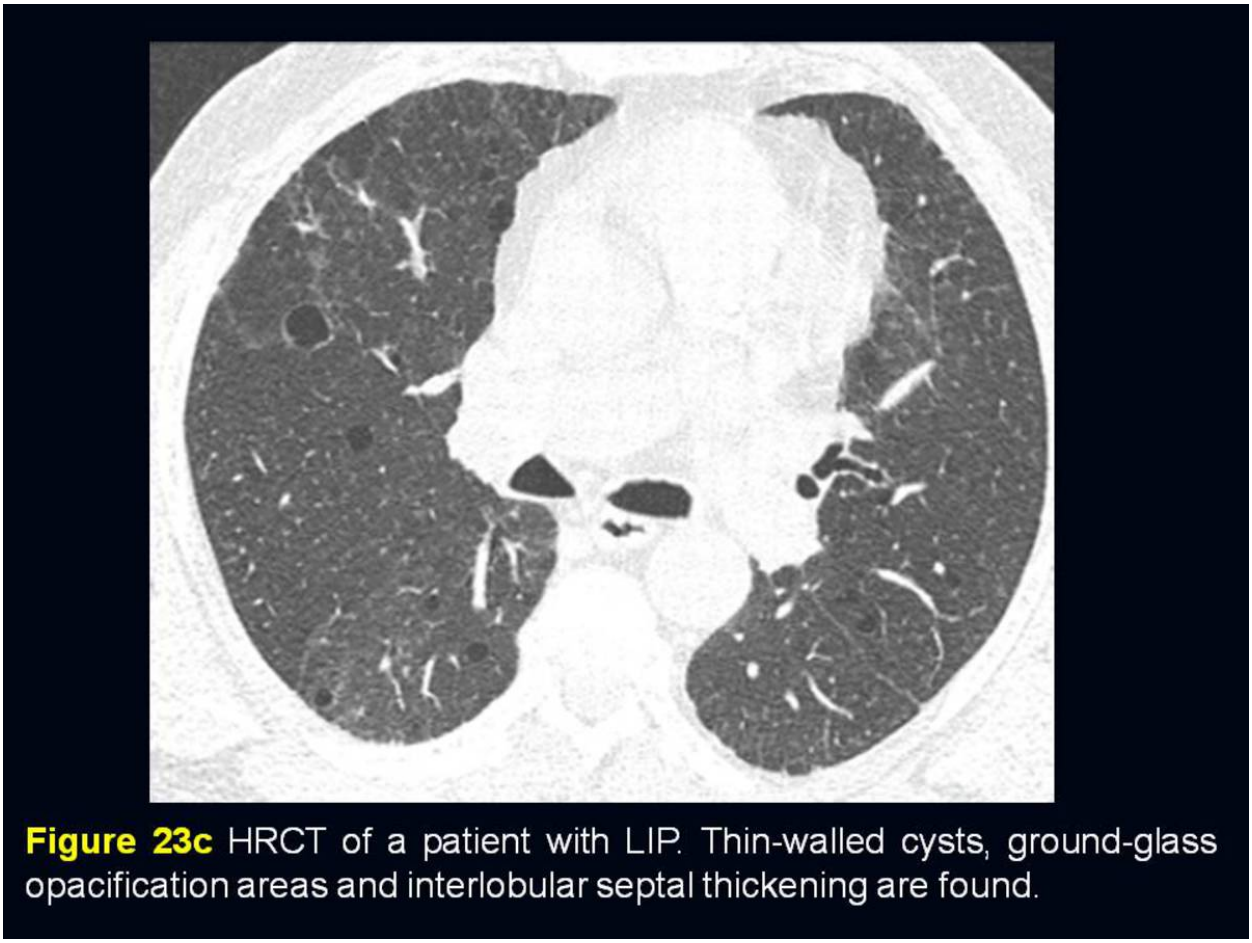

Figure 23c HRCT of a patient with LIP. Thin-walled cysts, ground-glass opacification areas and interlobular septal thickening are found.

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

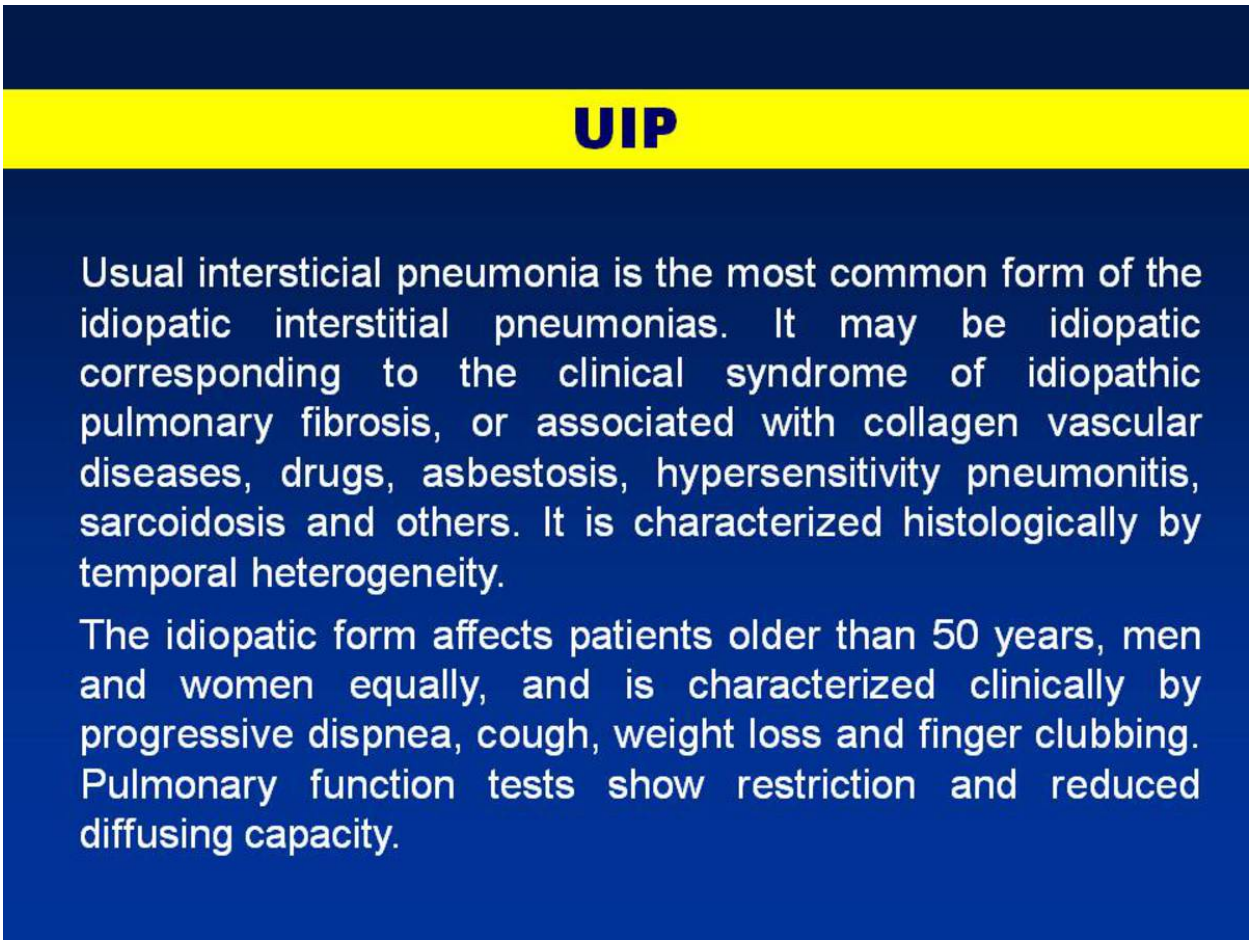

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

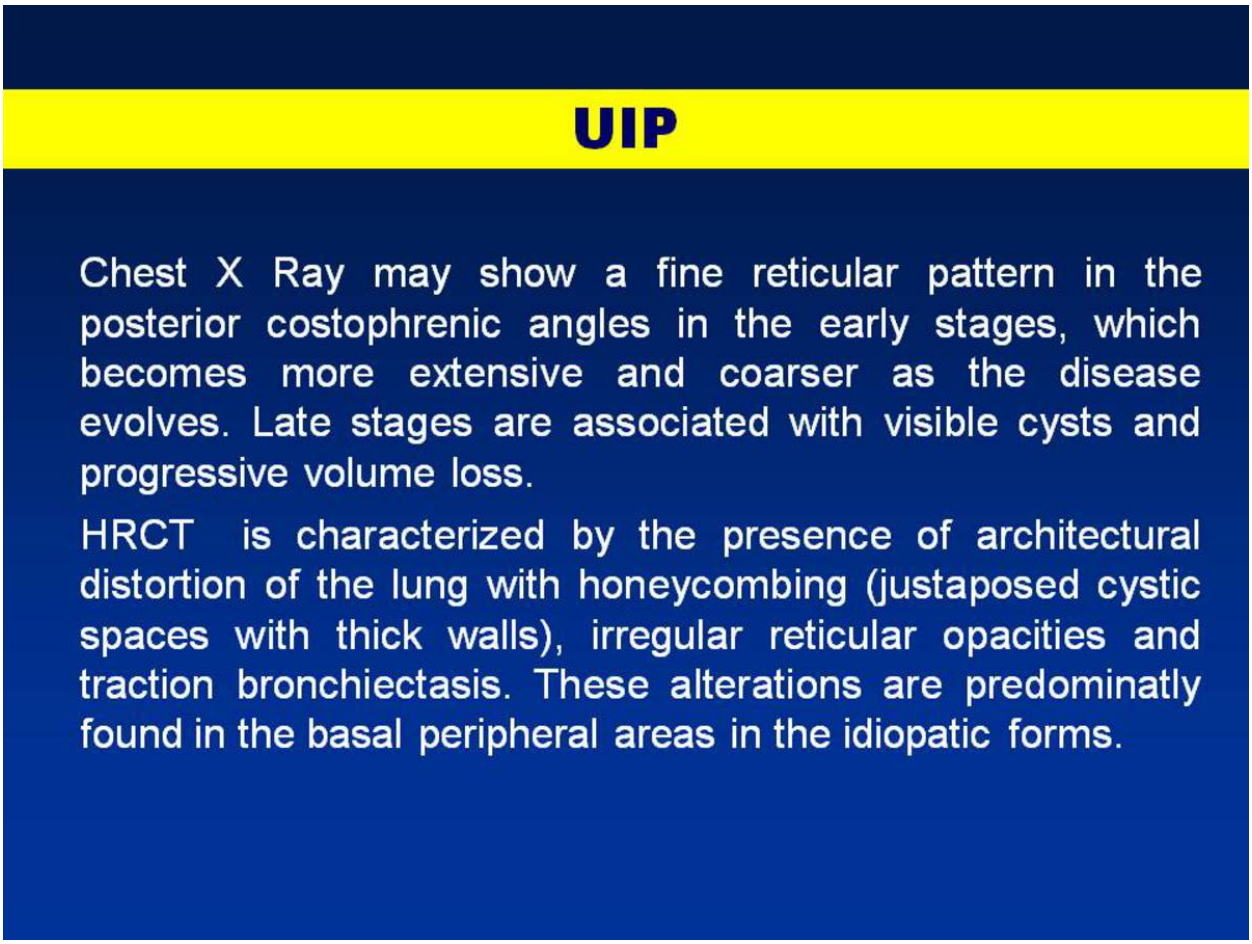

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

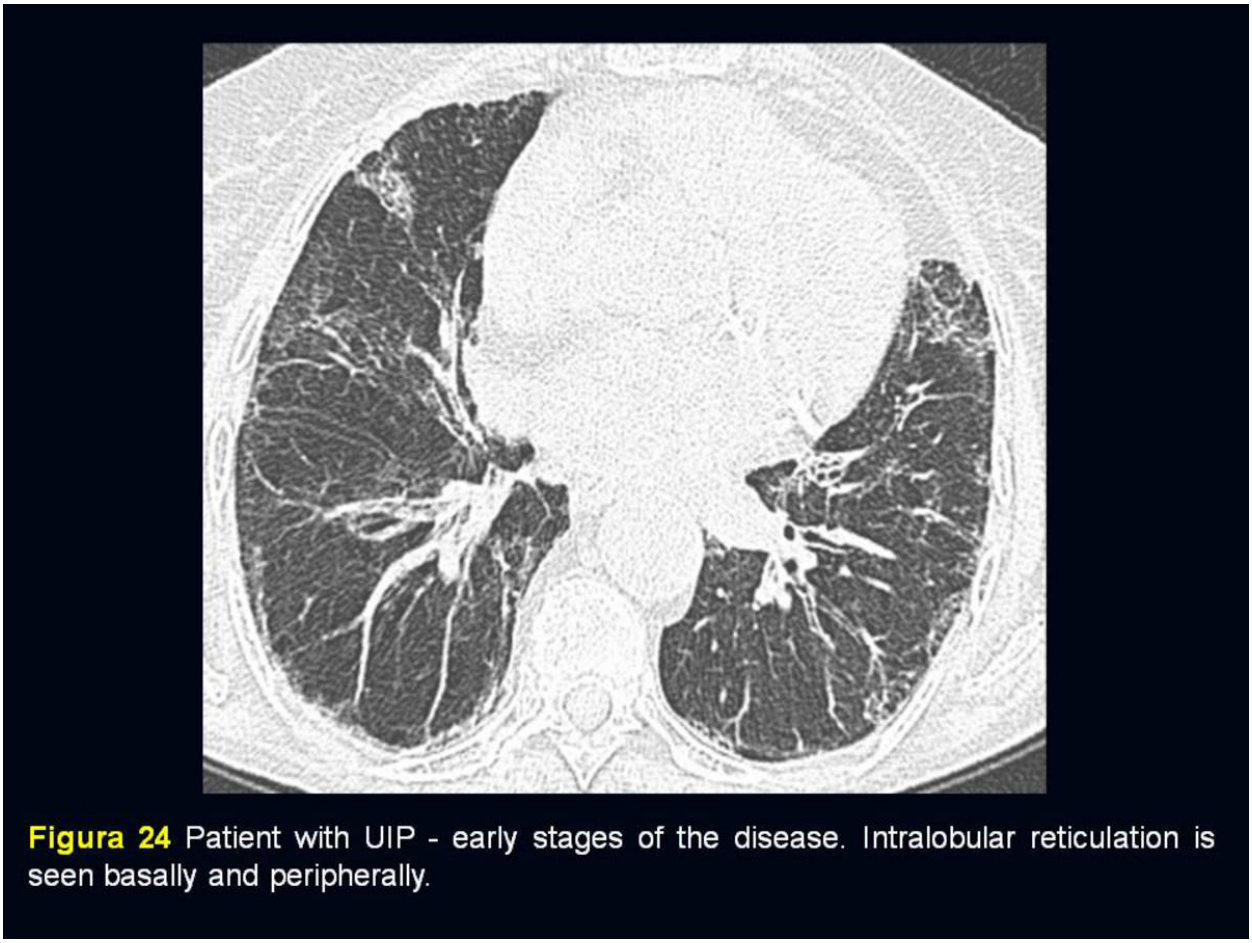

Figura 24 Patient with UIP - early stages of the disease. Intralobular reticulation is seen basally and peripherally.

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

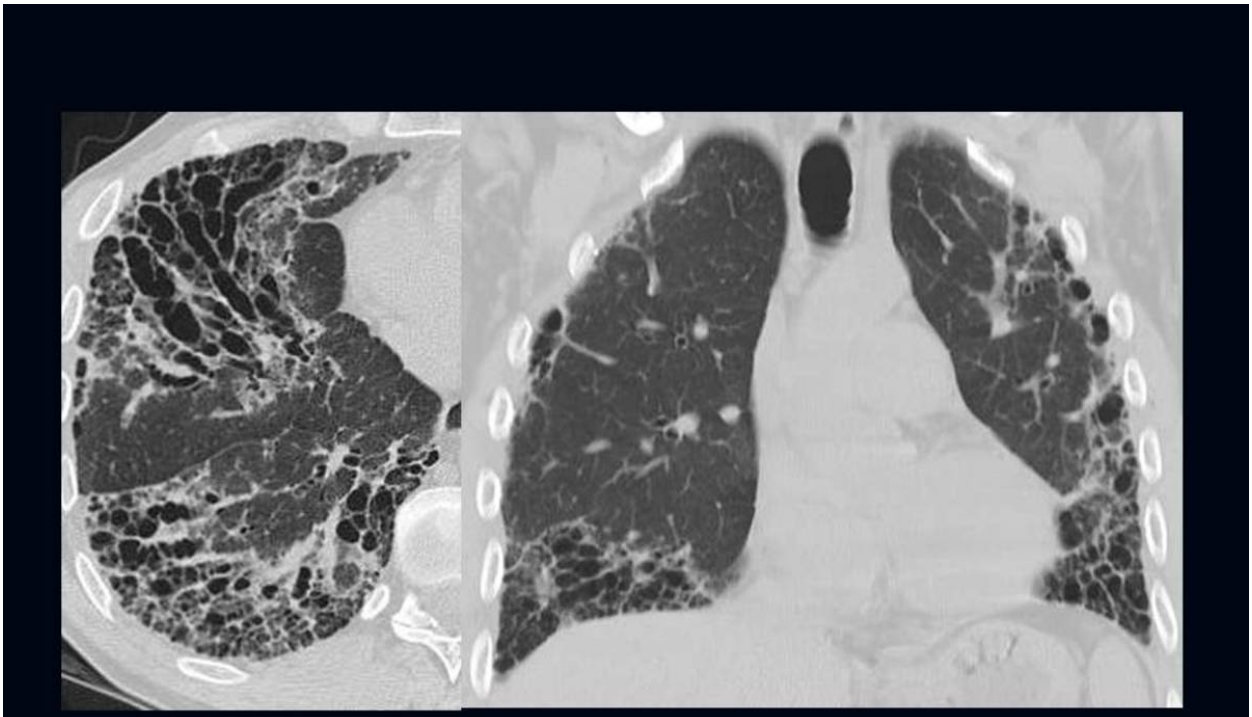

Figura 25 Patient with advanced UIP. Reticular opacities, traction bronchiectasis and thick-walled justaposed cysts of variable size (honeycombing) are seen in a predominantly basal and peripheral location. Diffuse ground-glass opacification is also seen.

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

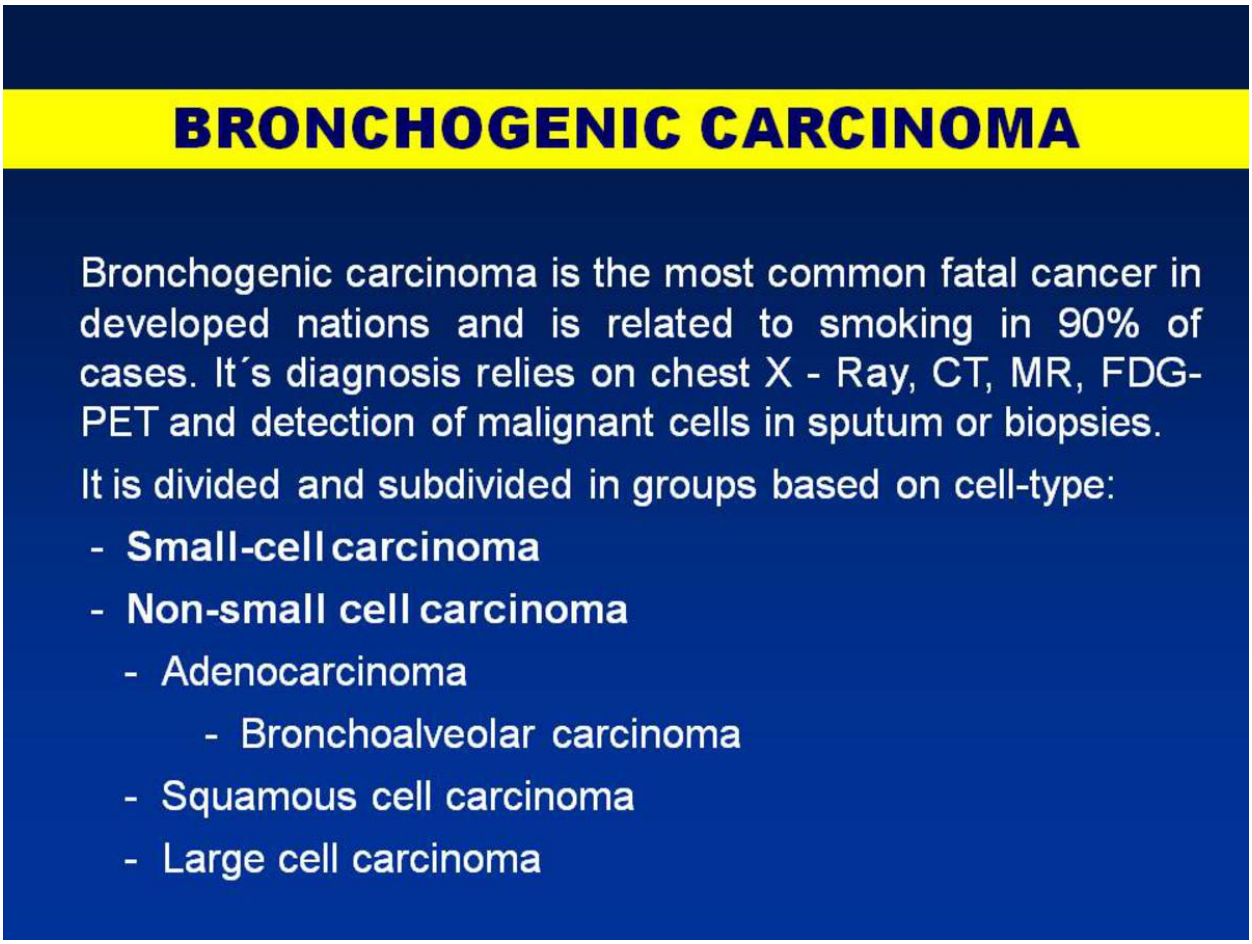

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

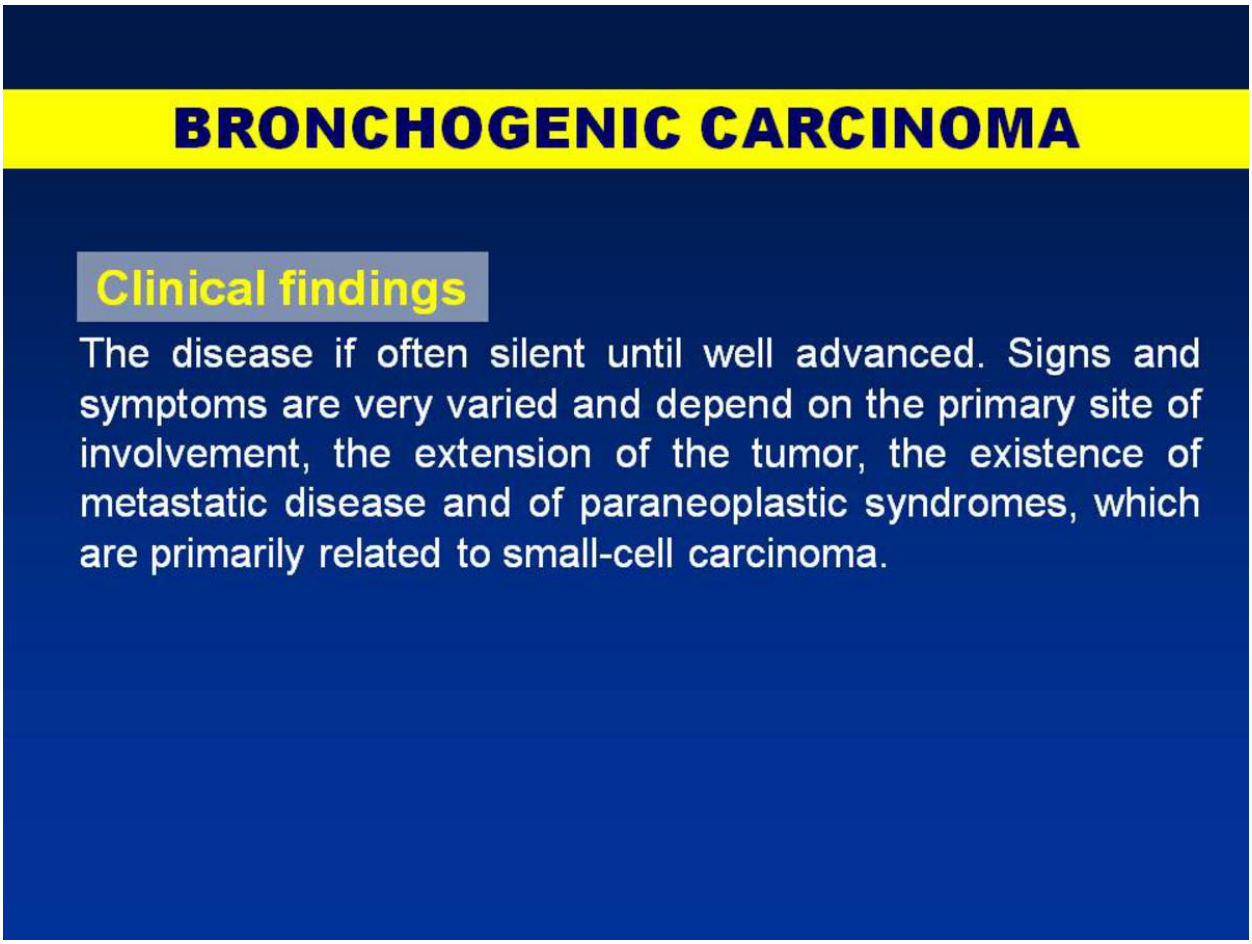

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

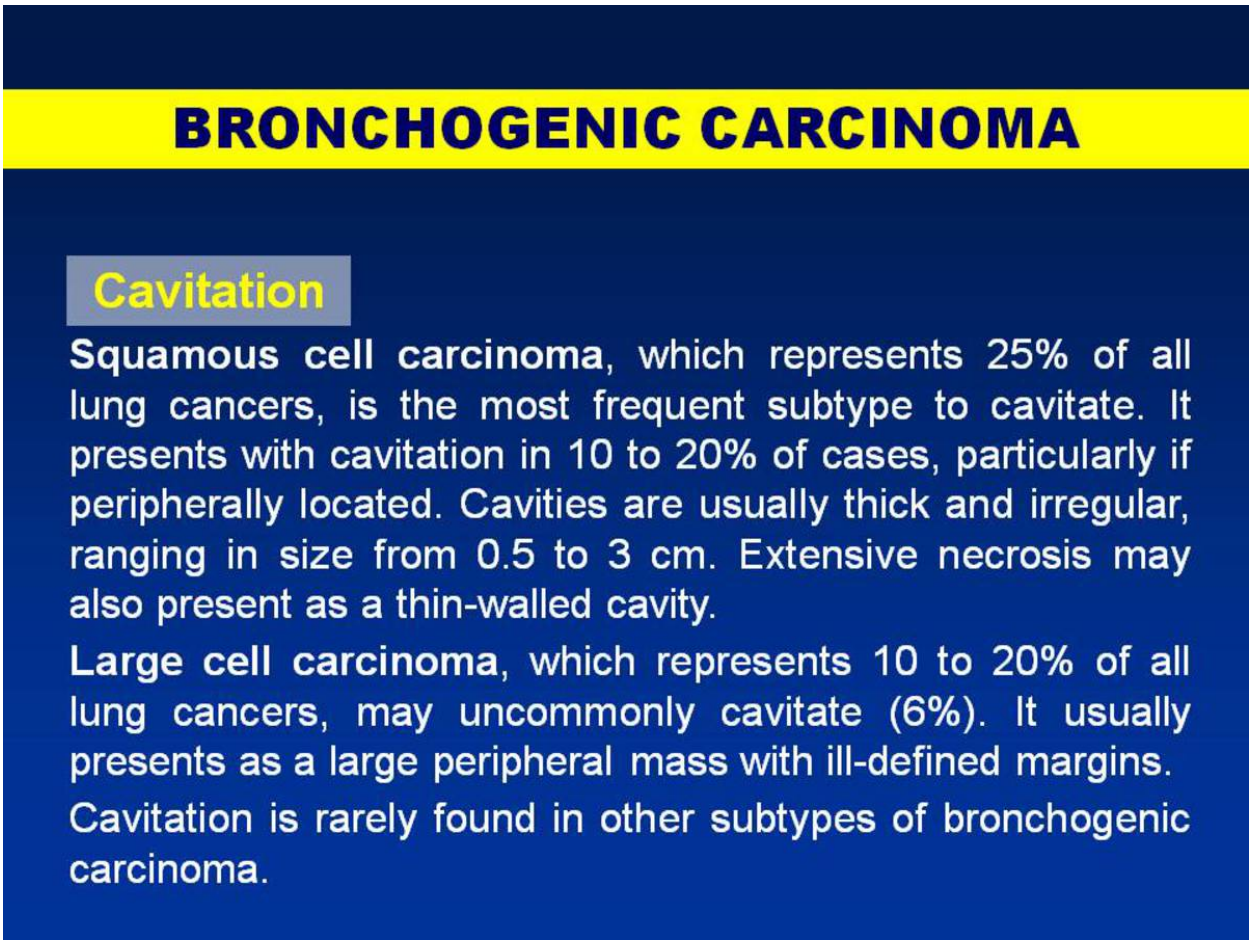

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

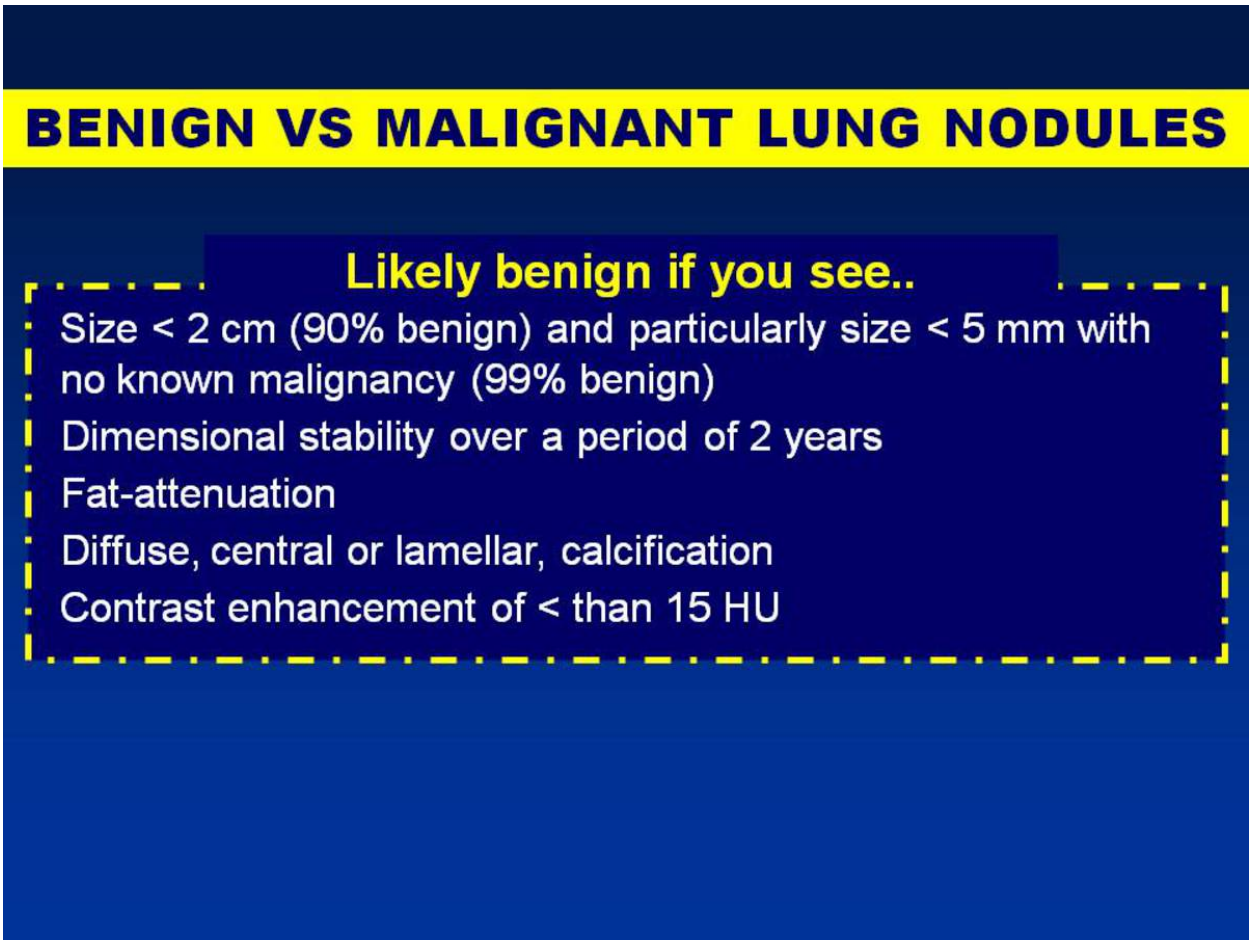

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

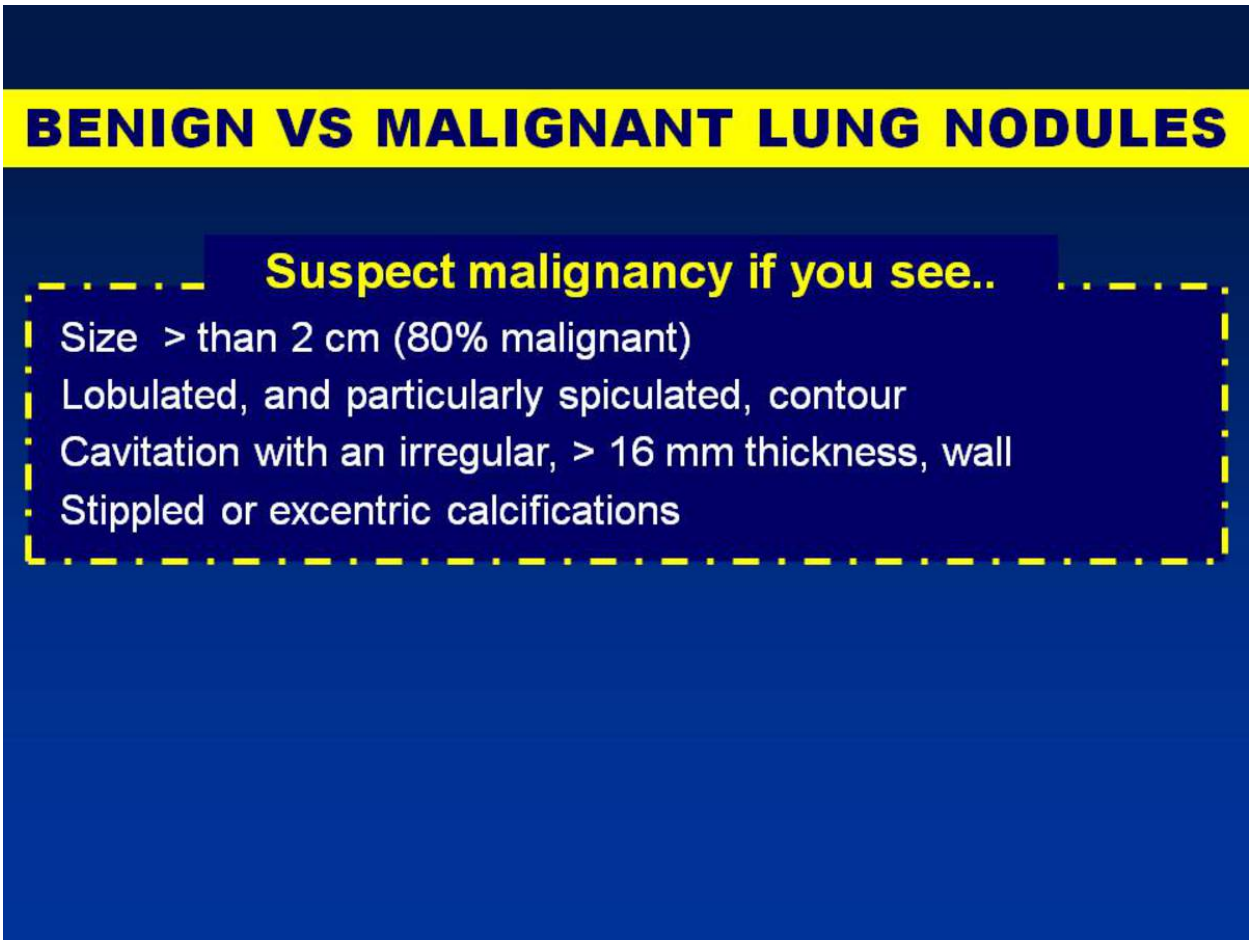

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

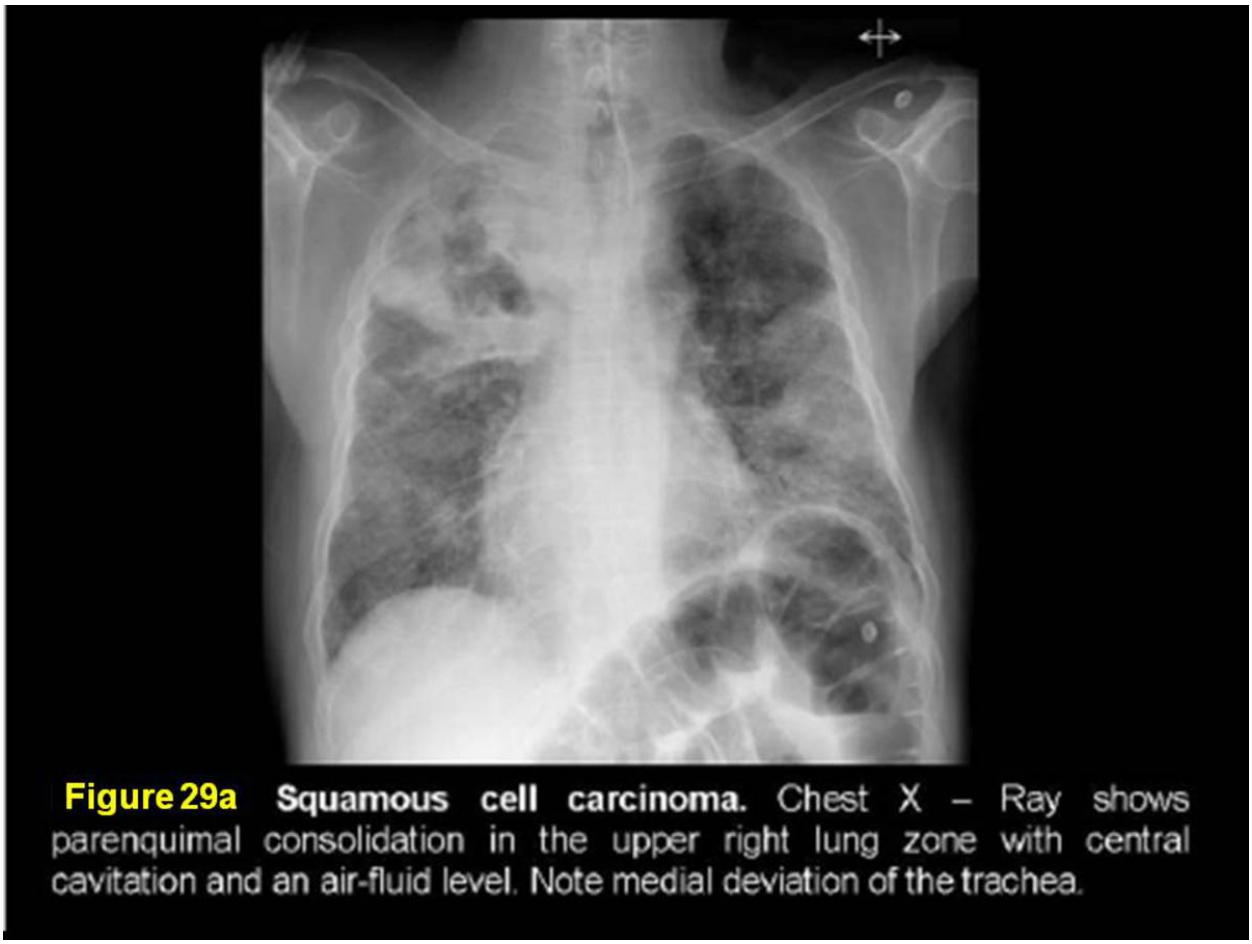

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

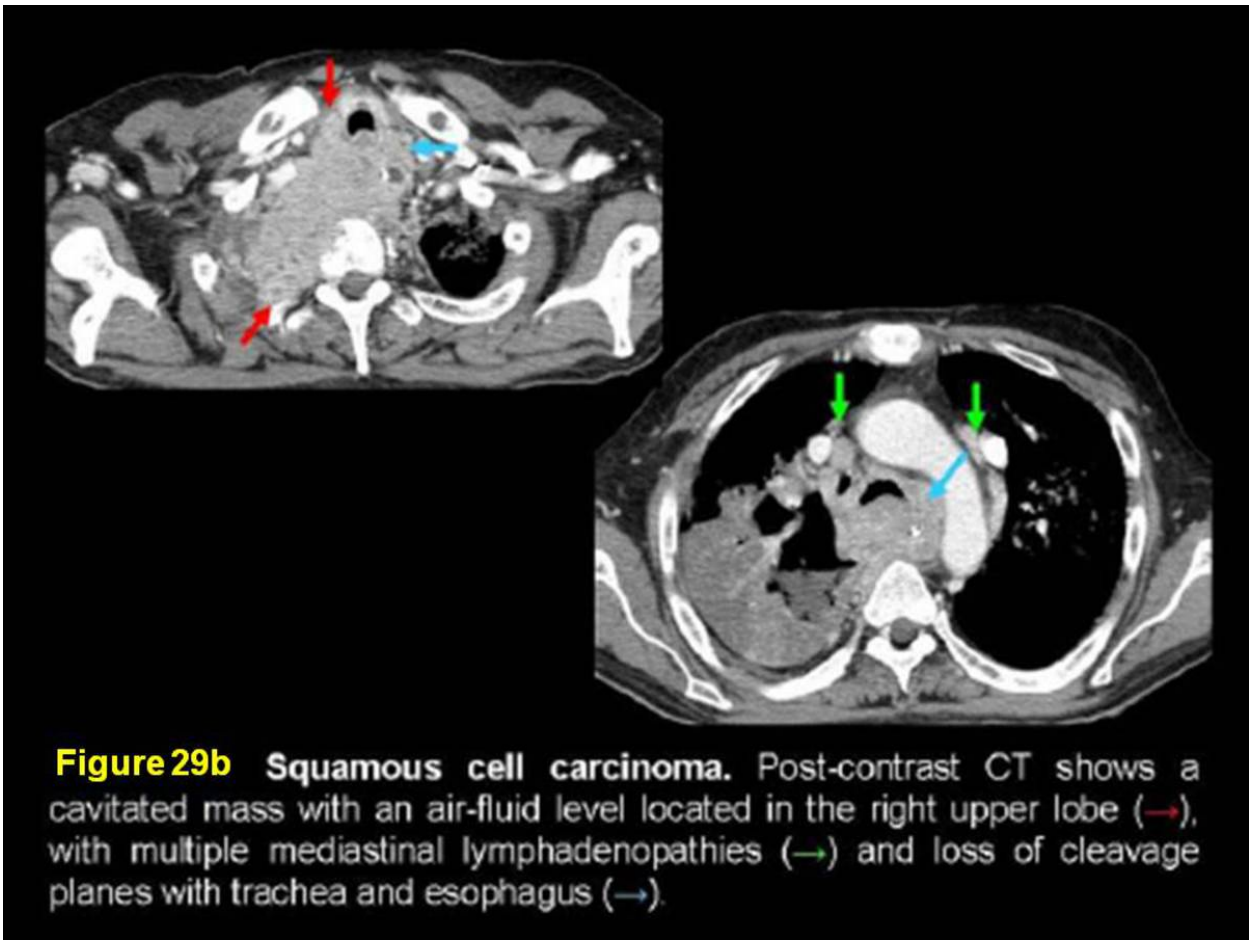

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

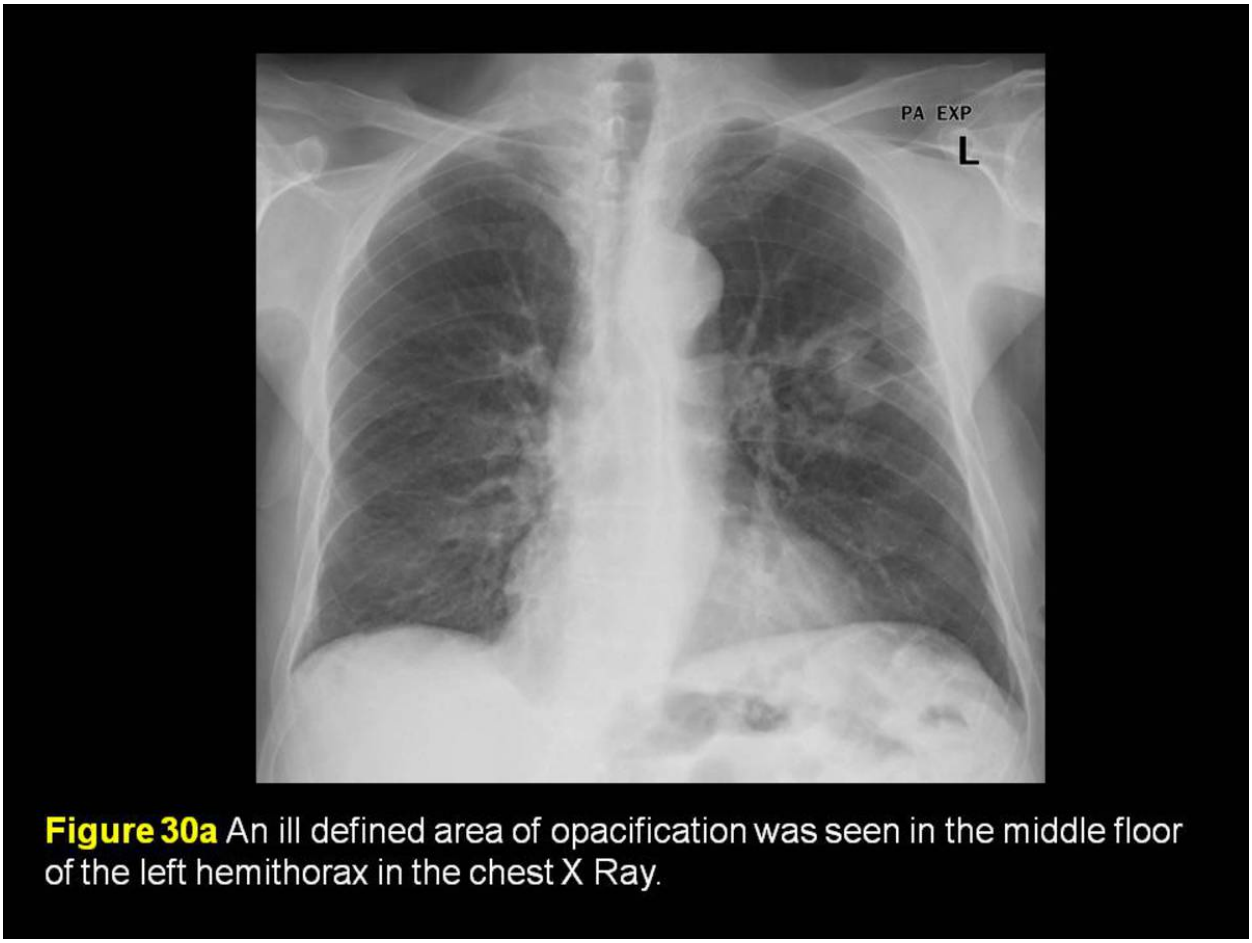

Figure 30a An ill defined area of opacification was seen in the middle floor of the left hemithorax in the chest X Ray.

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

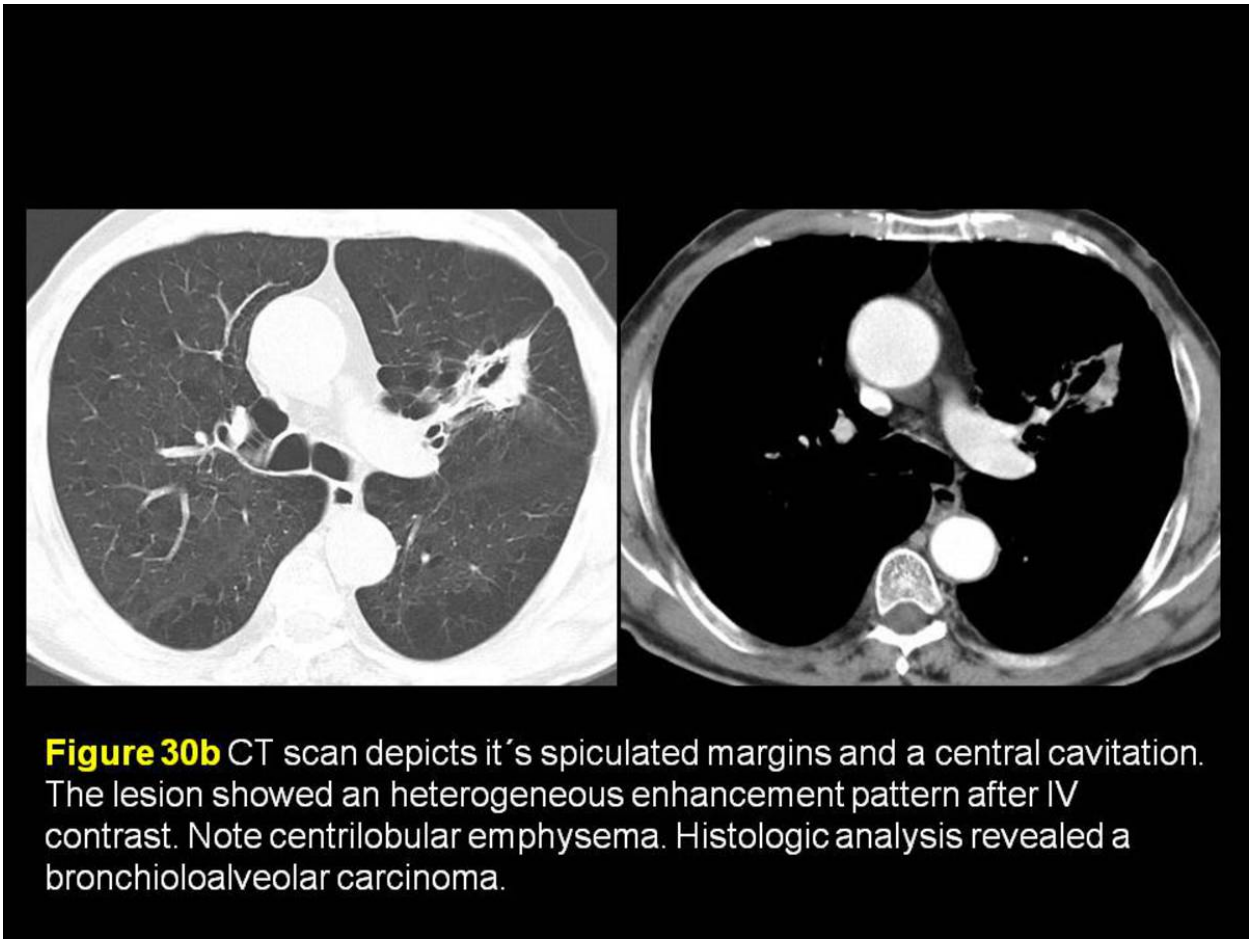

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

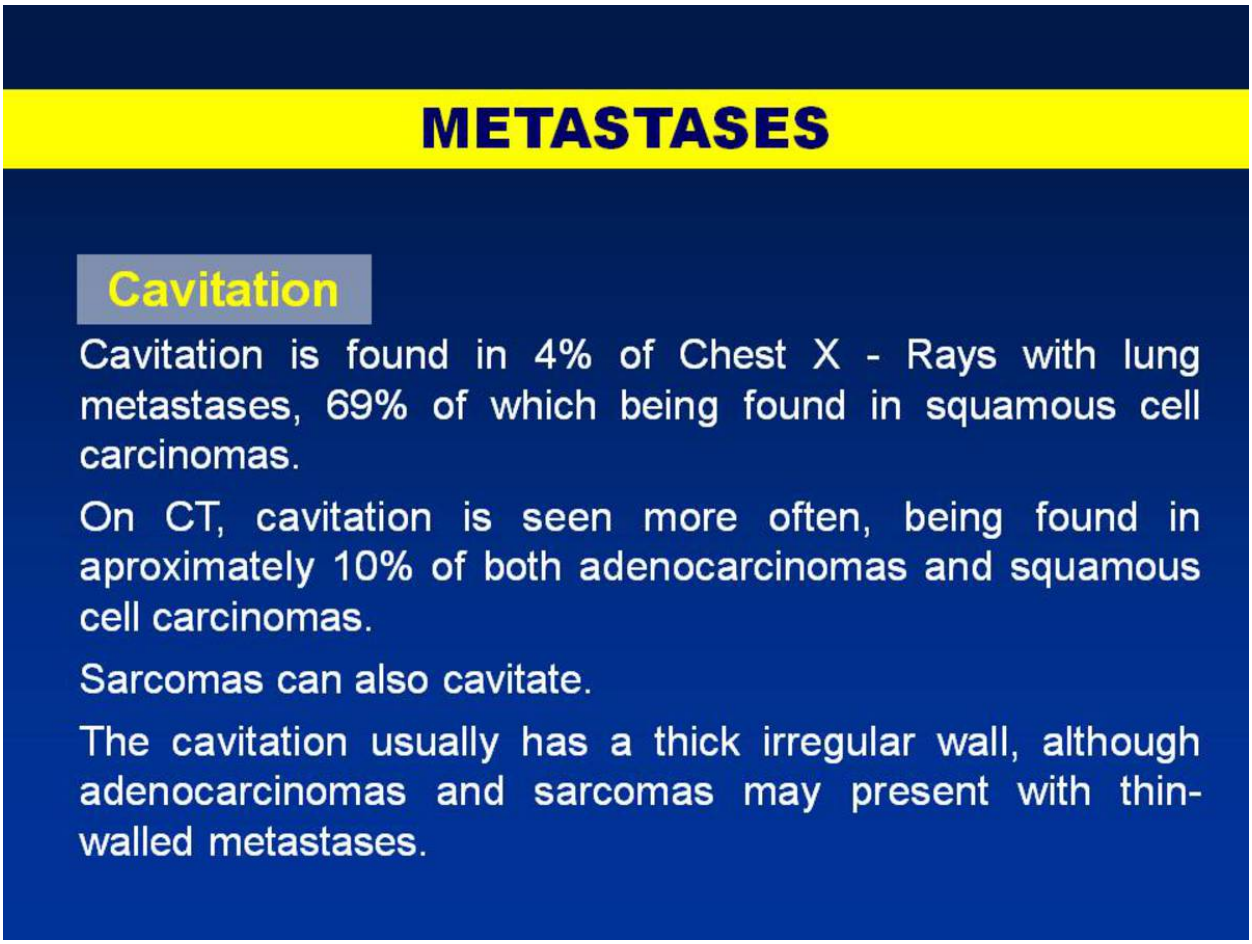

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

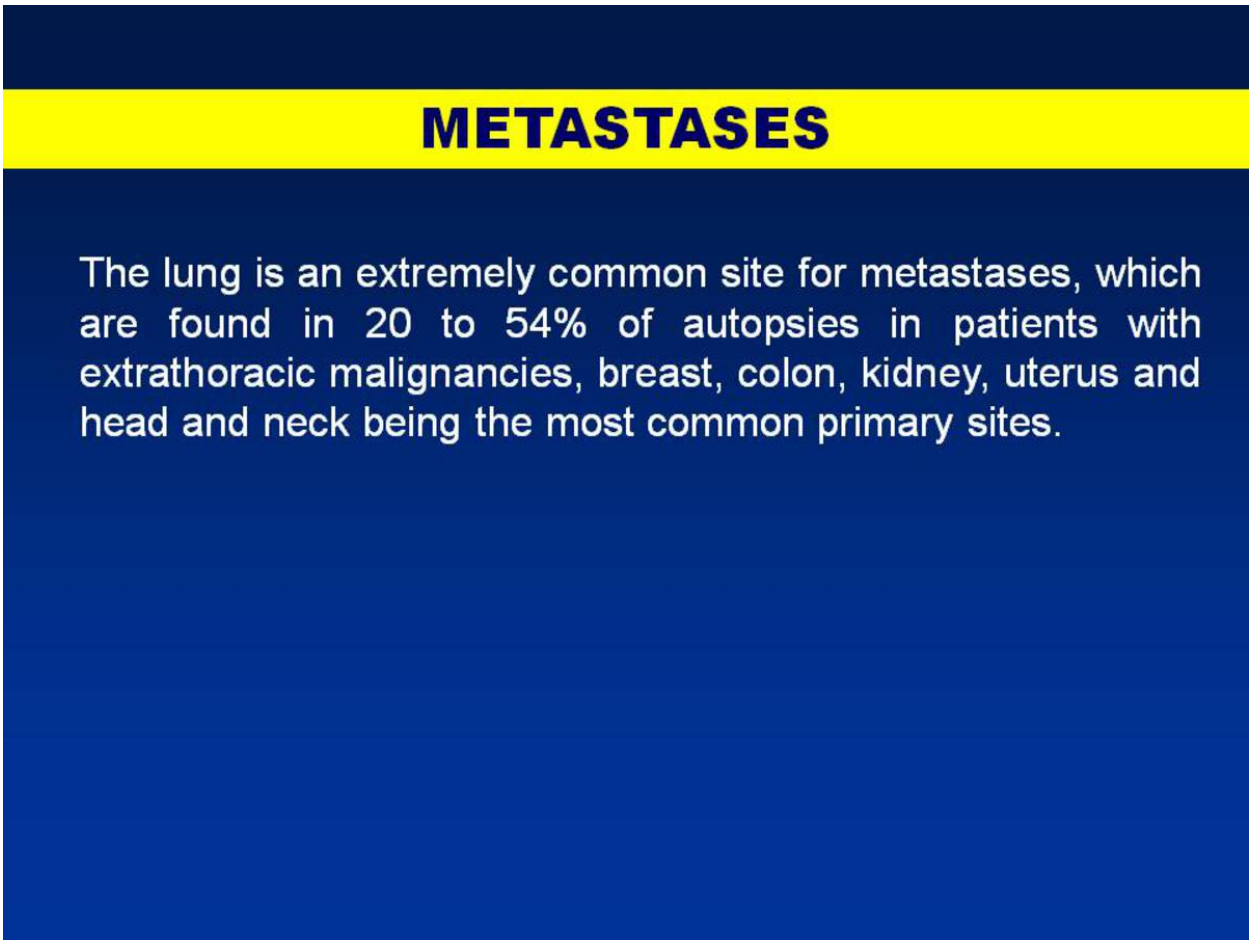

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

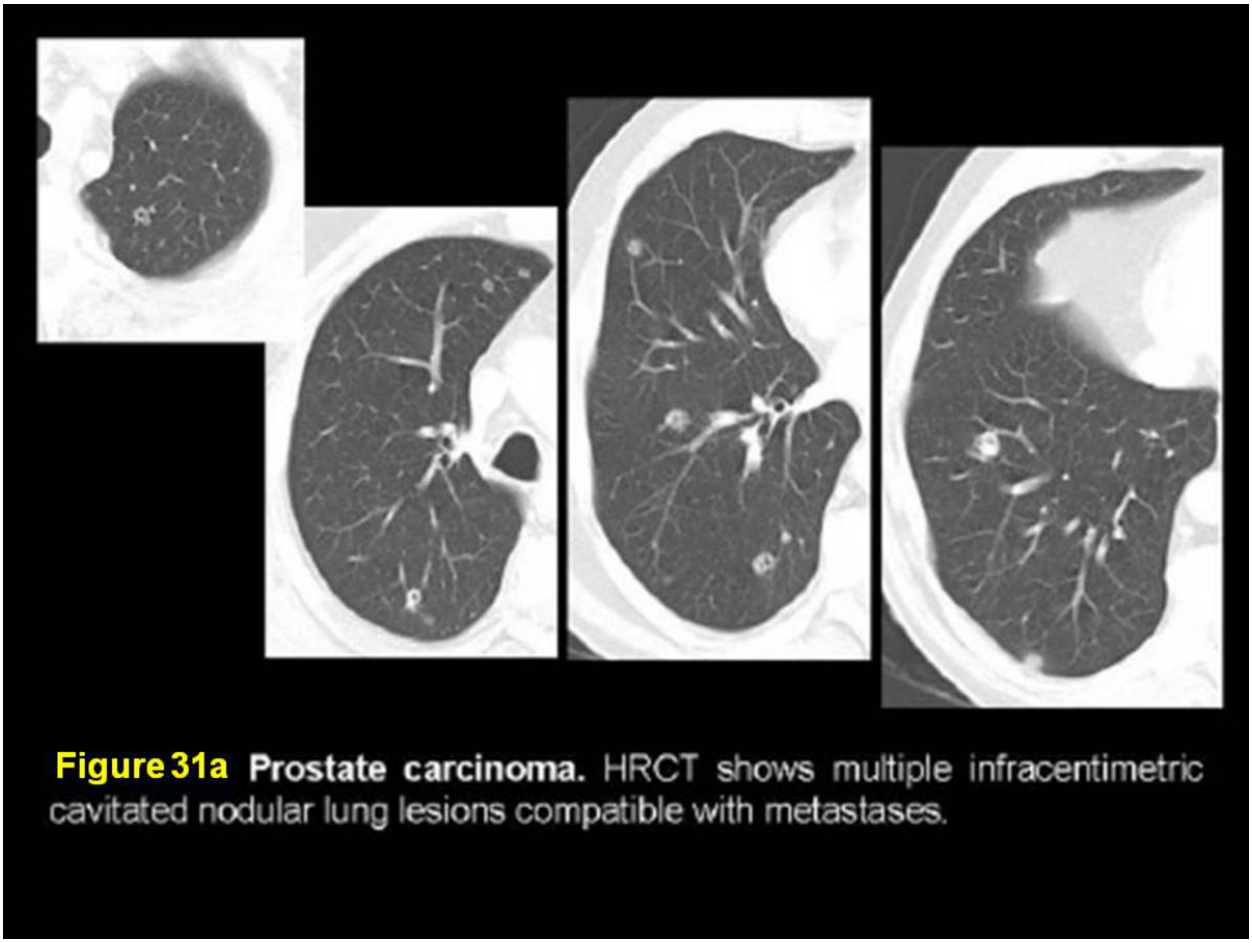

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

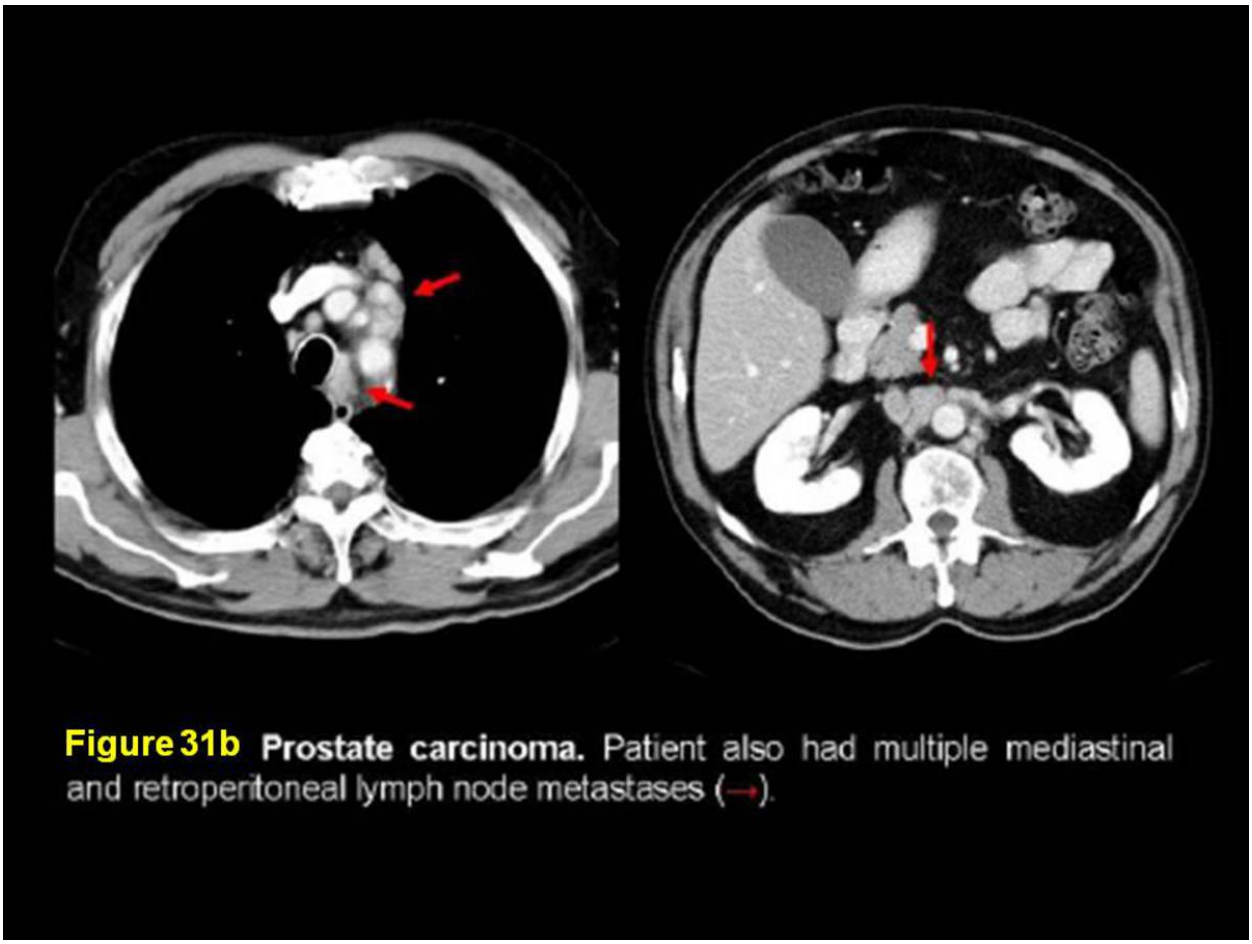

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

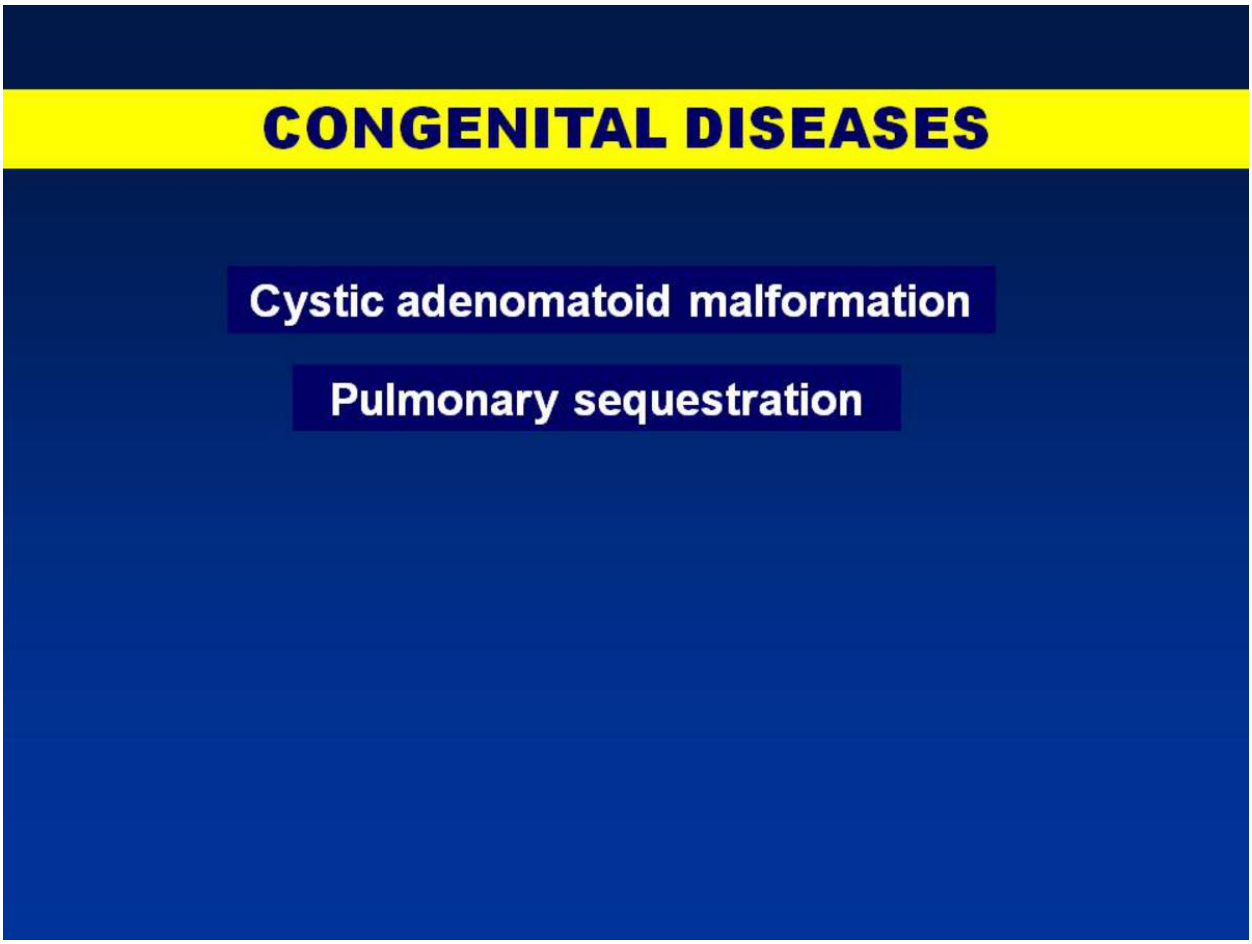

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

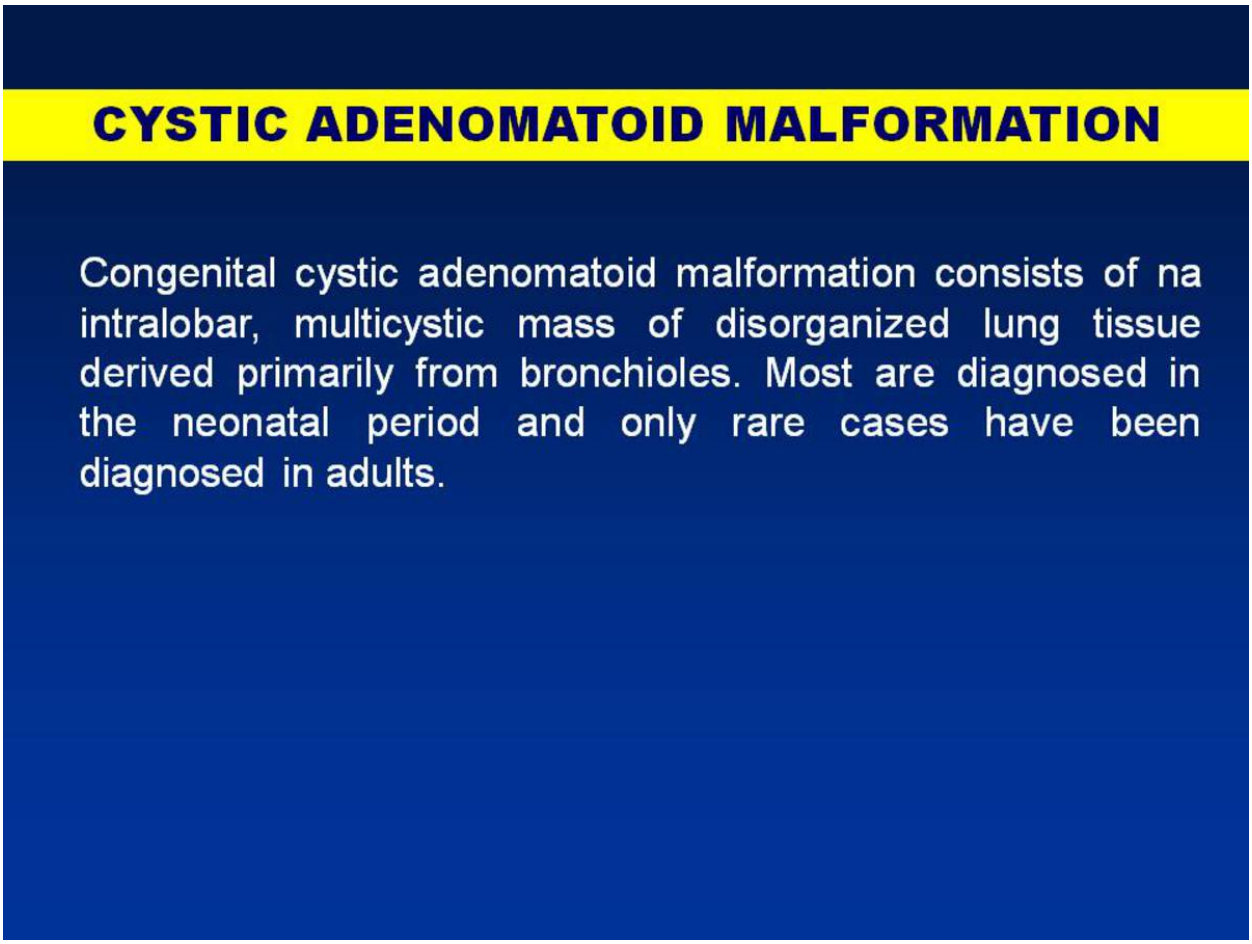

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

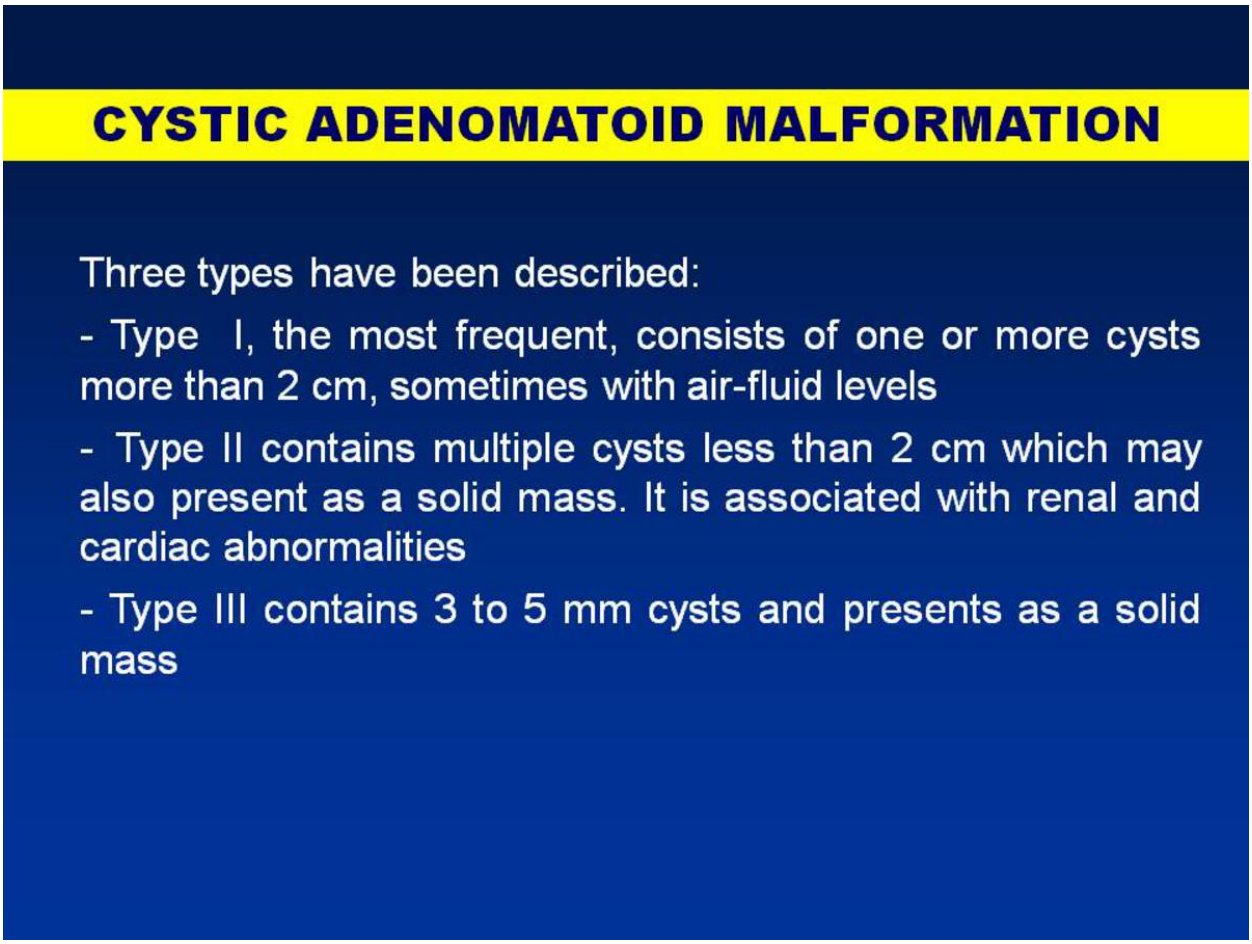

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

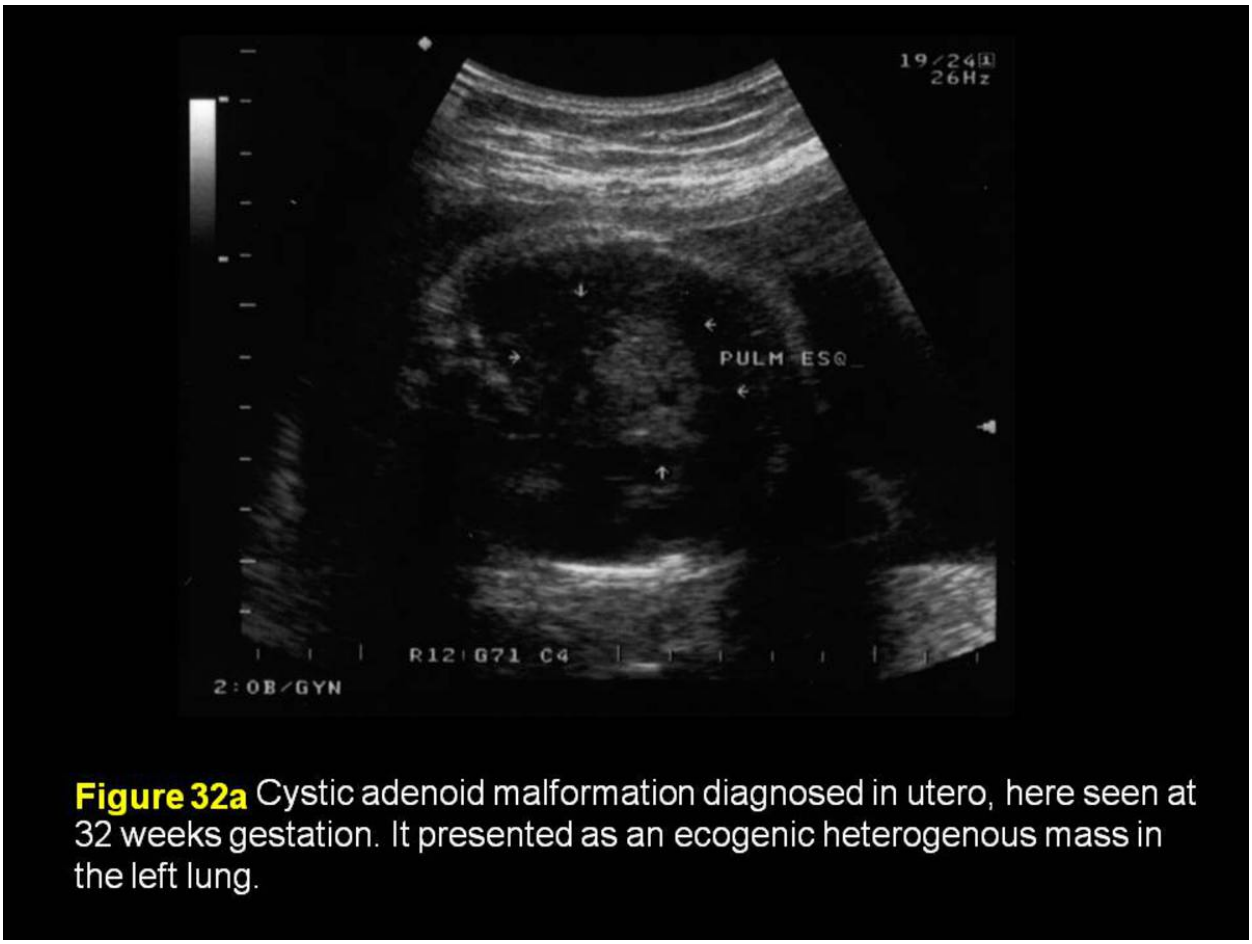

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

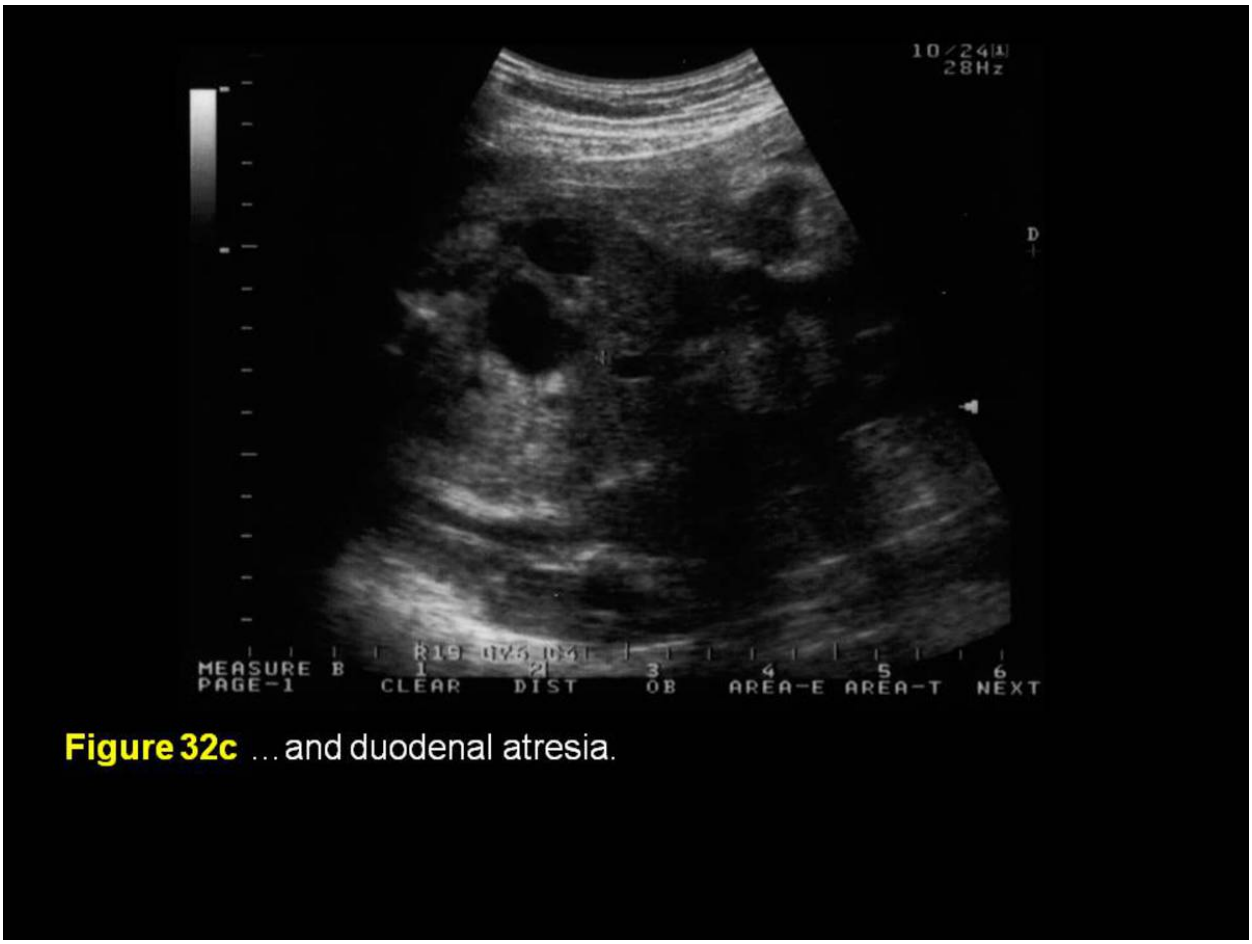

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

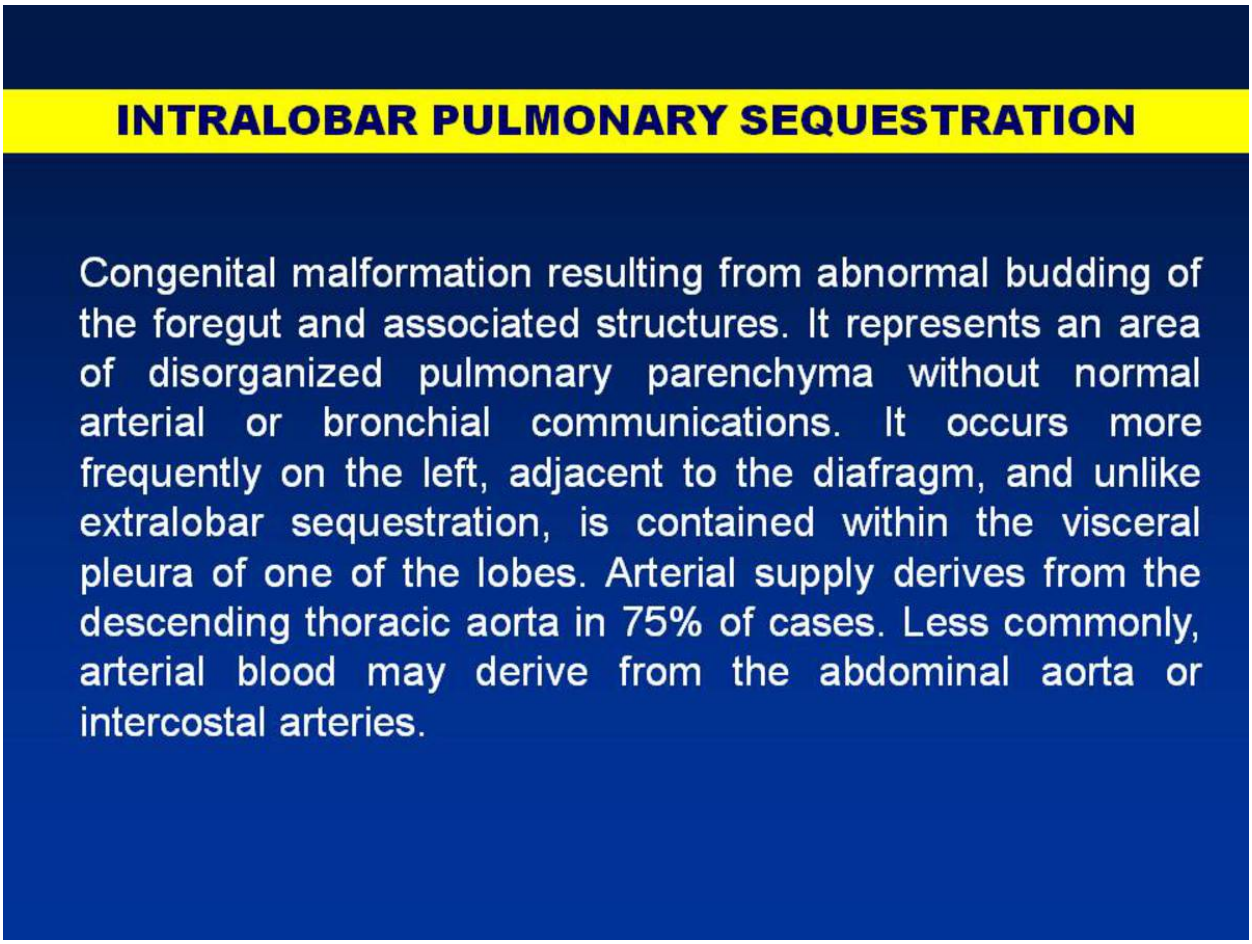

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

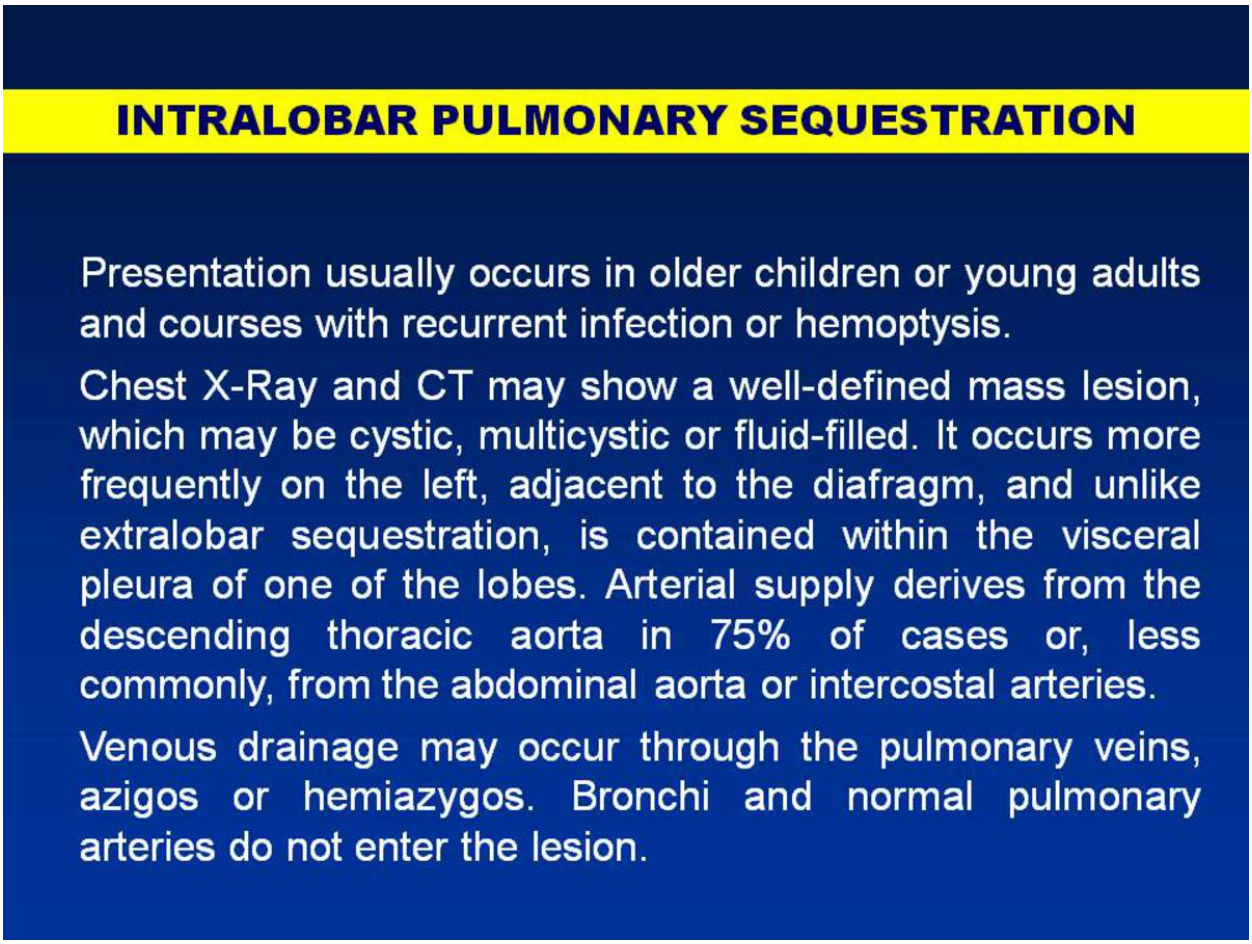

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

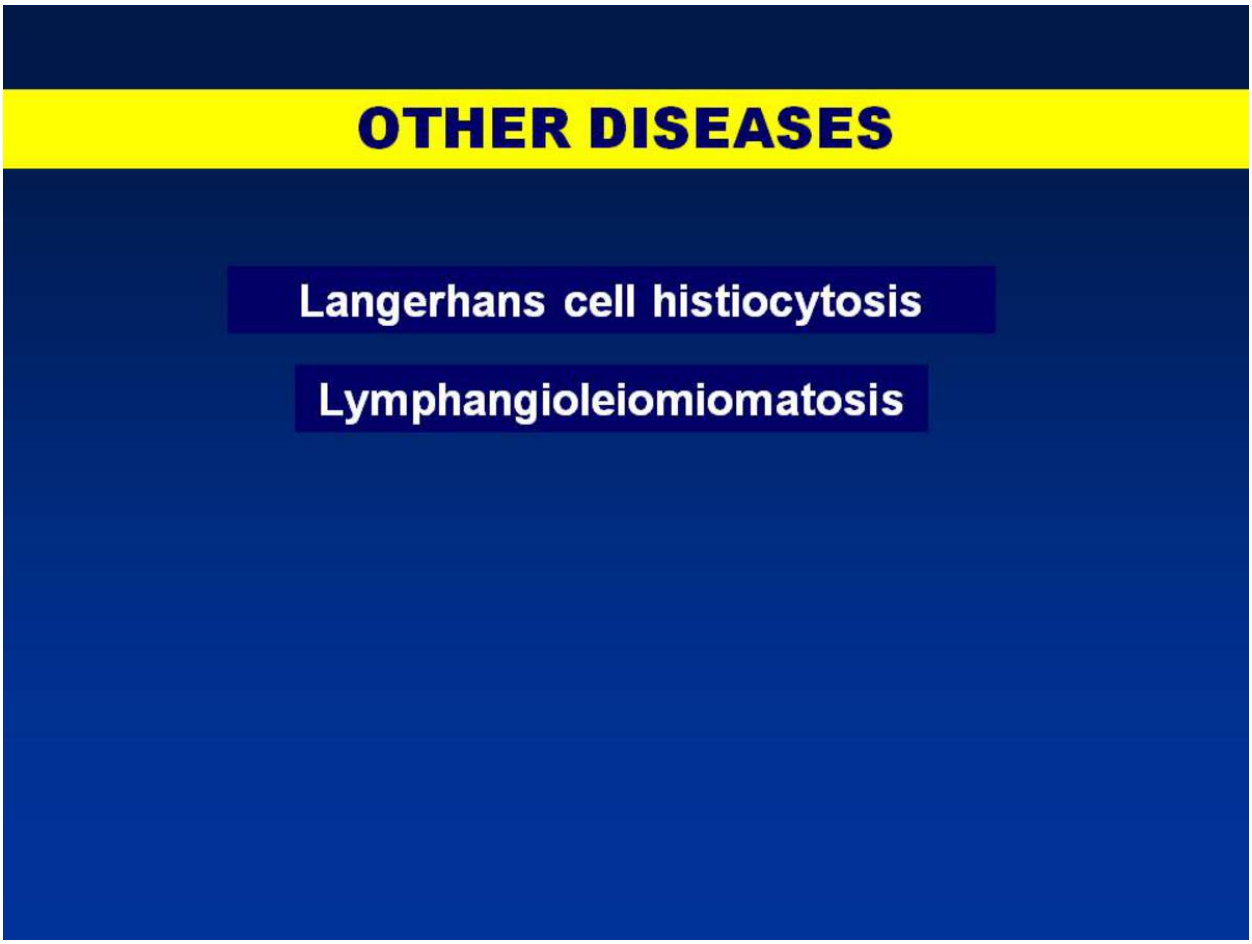

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

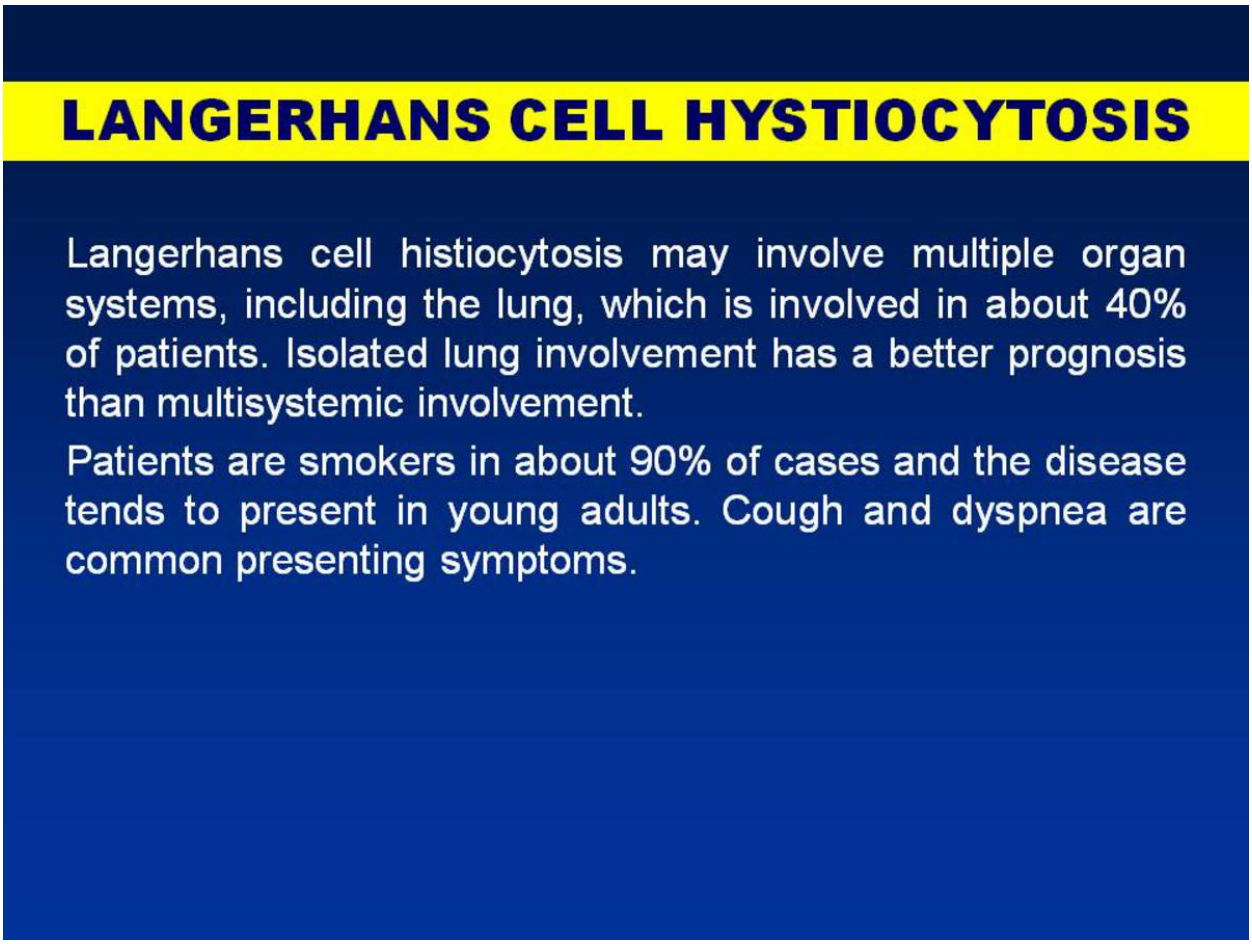

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

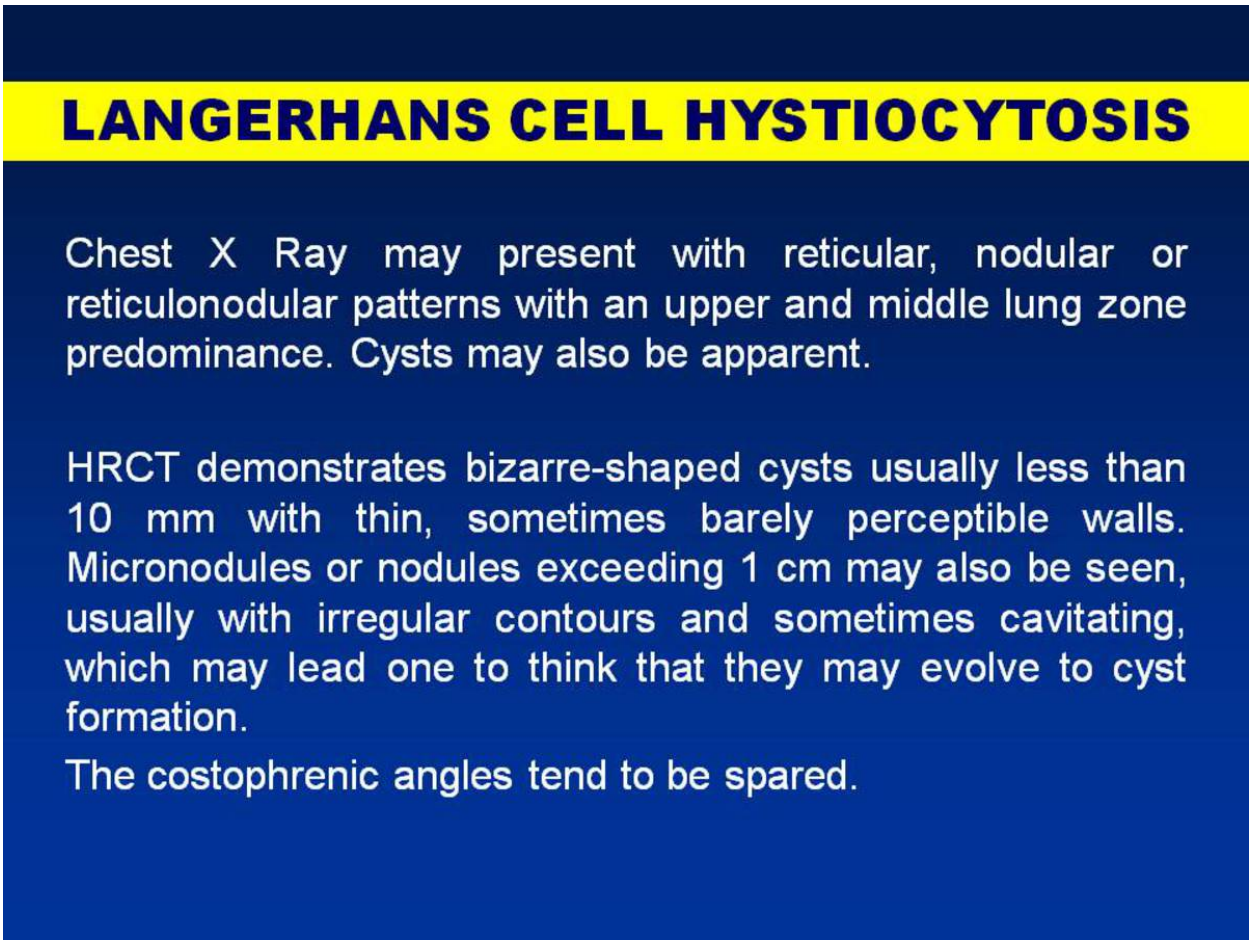

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

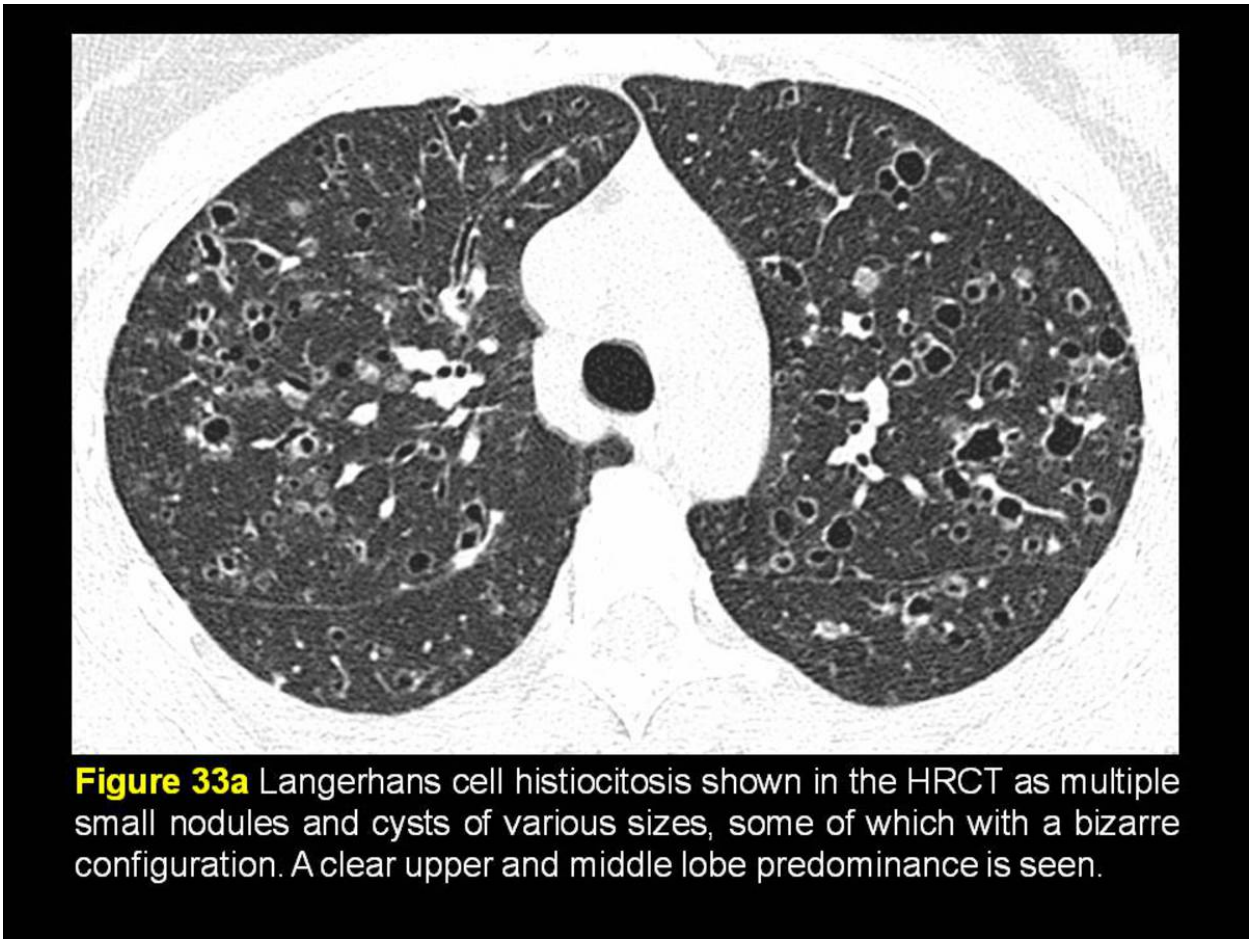

Figure 33a Langerhans cell histiocitosis shown in the HRCT as multiple small nodules and cysts of various sizes, some of which with a bizarre configuration. A clear upper and middle lobe predominance is seen.

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

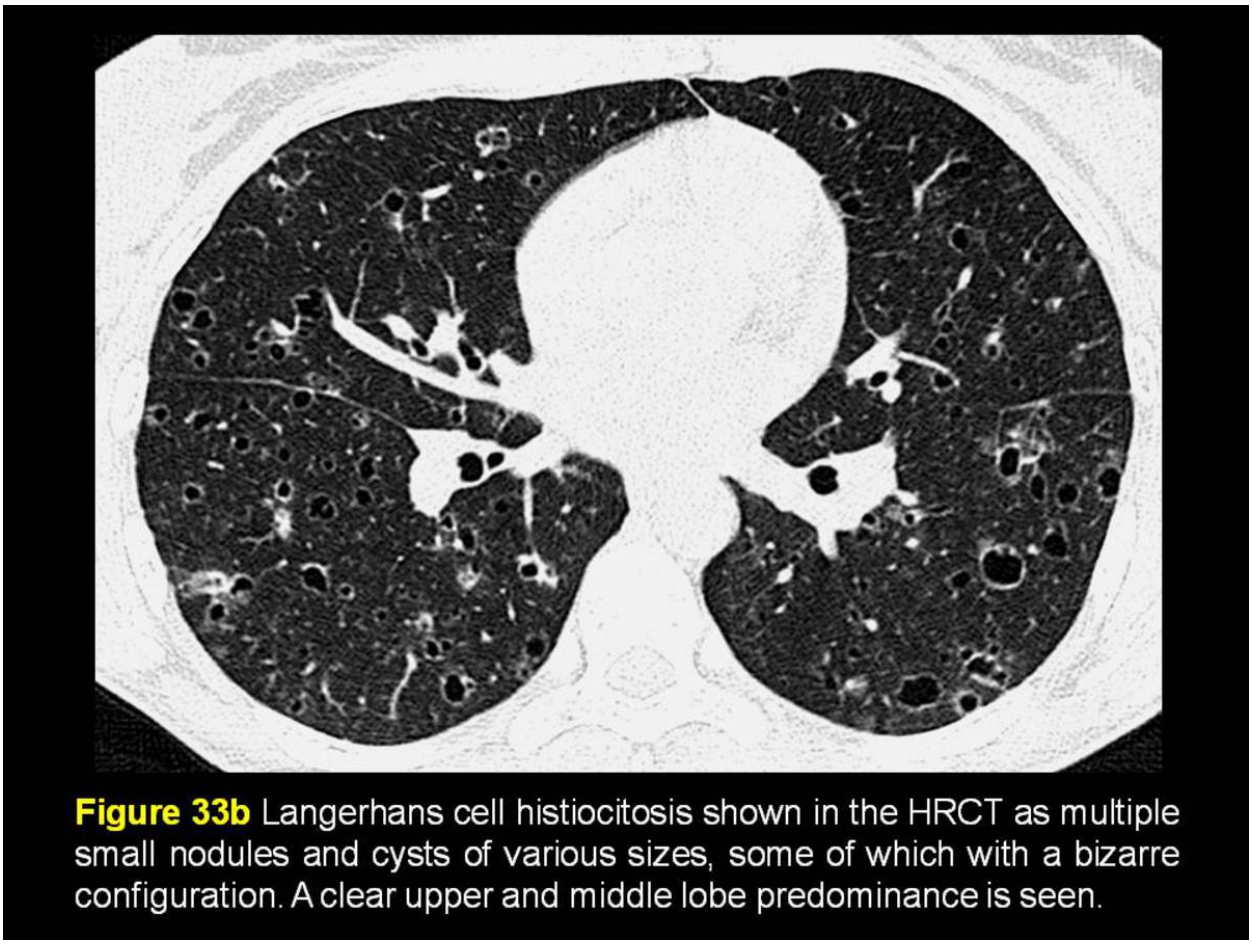

Figure 33b Langerhans cell histiocitosis shown in the HRCT as multiple small nodules and cysts of various sizes, some of which with a bizarre configuration. A clear upper and middle lobe predominance is seen.

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

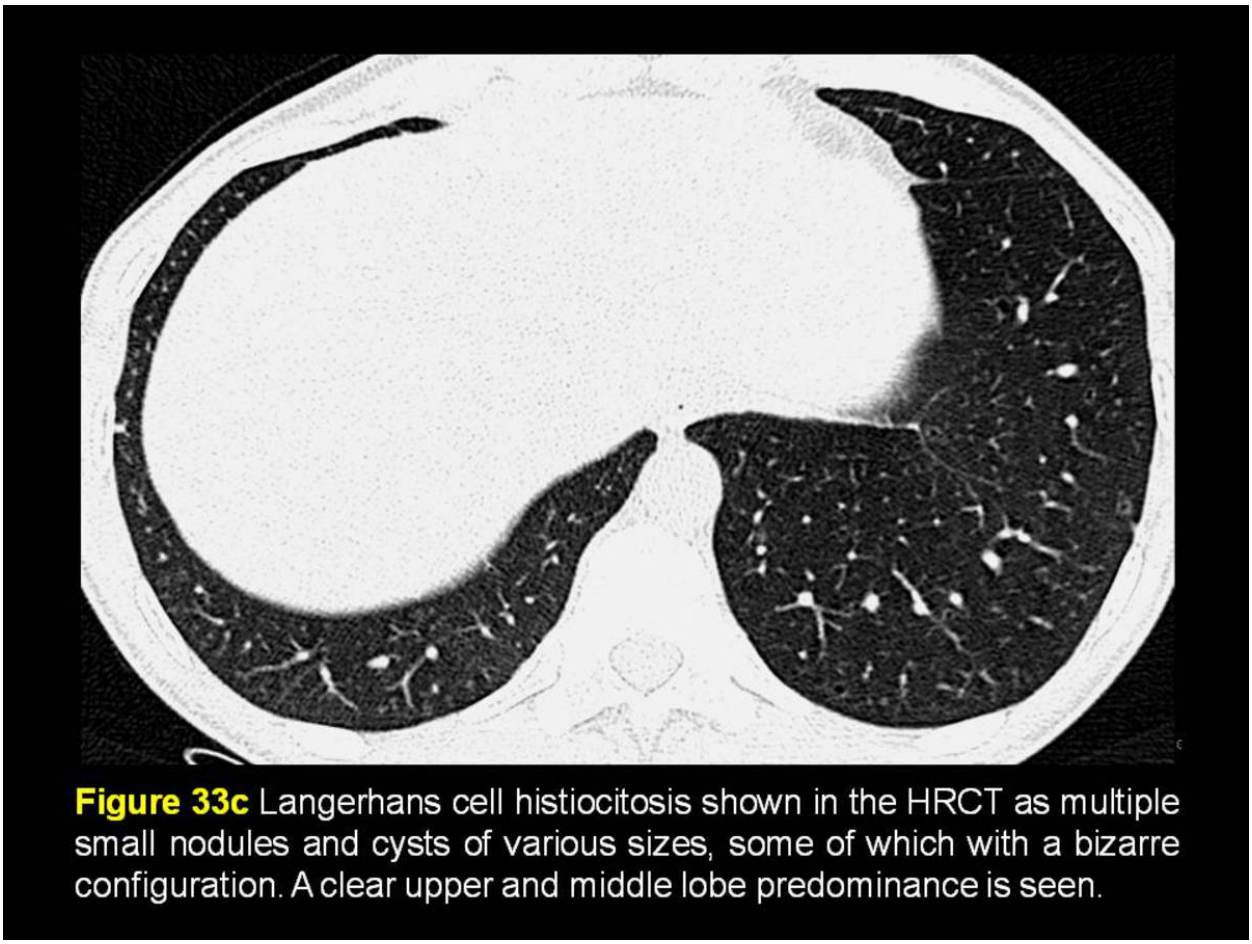

Figure 33c Langerhans cell histiocitosis shown in the HRCT as multiple small nodules and cysts of various sizes, some of which with a bizarre configuration. A clear upper and middle lobe predominance is seen.

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

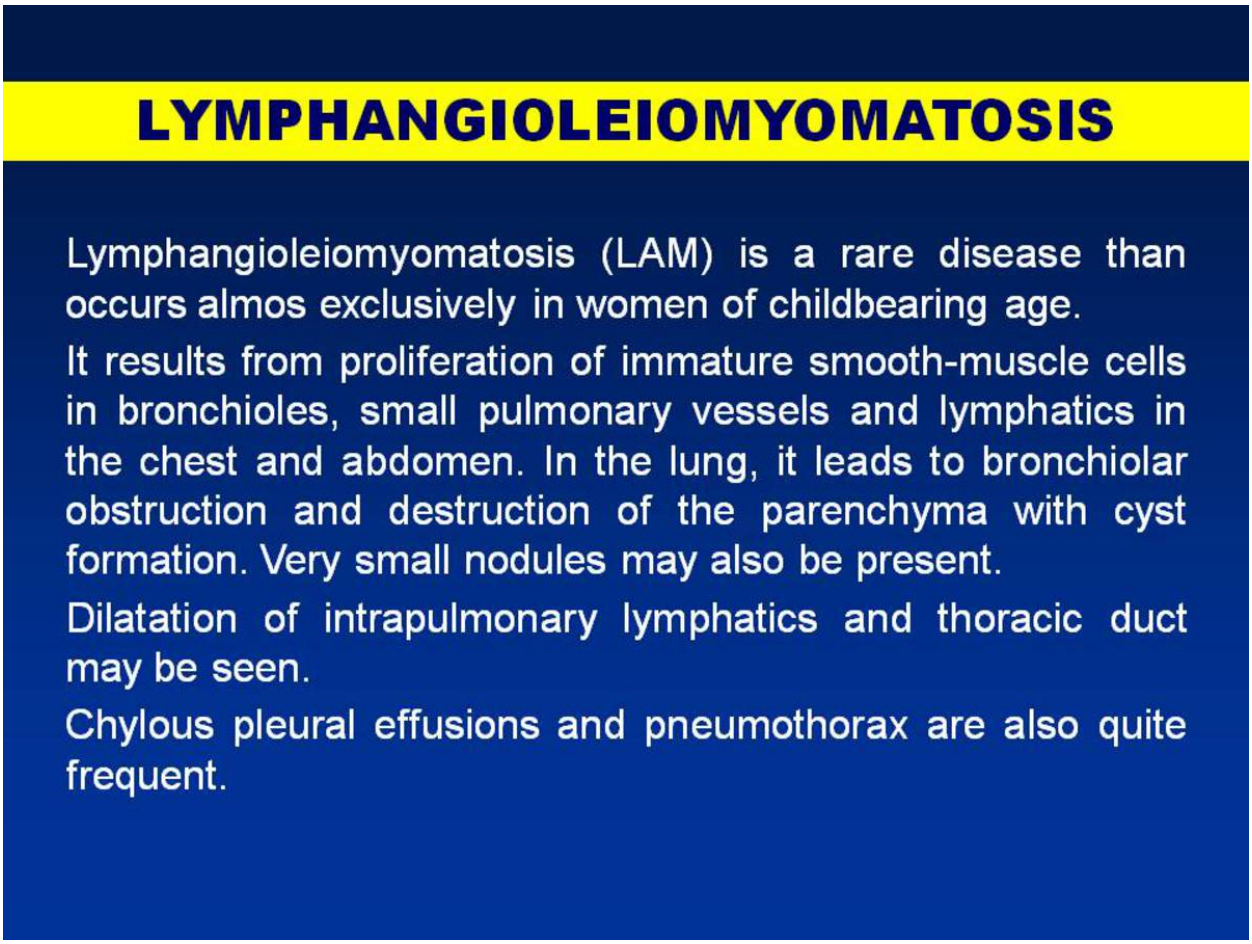

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

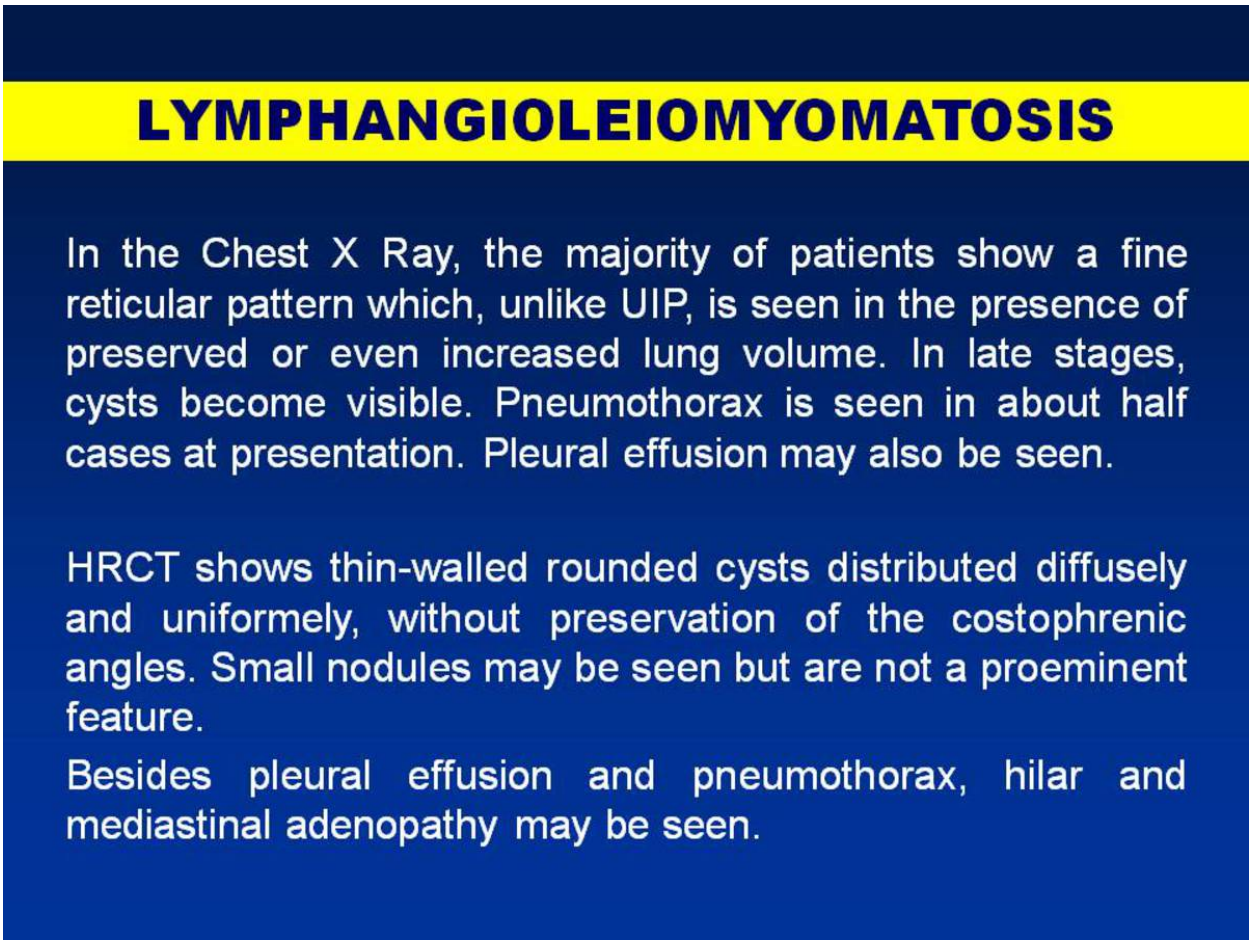

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

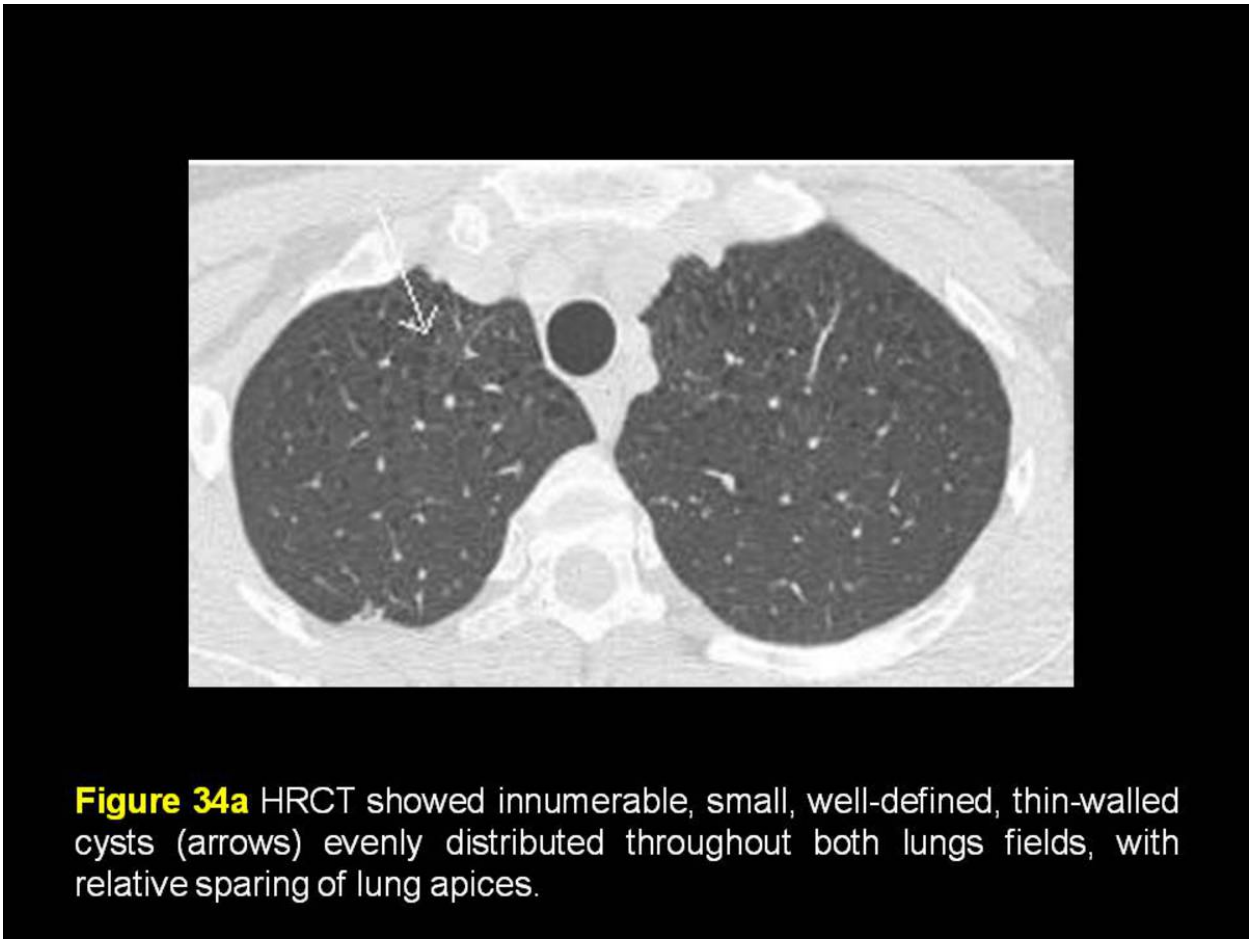

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

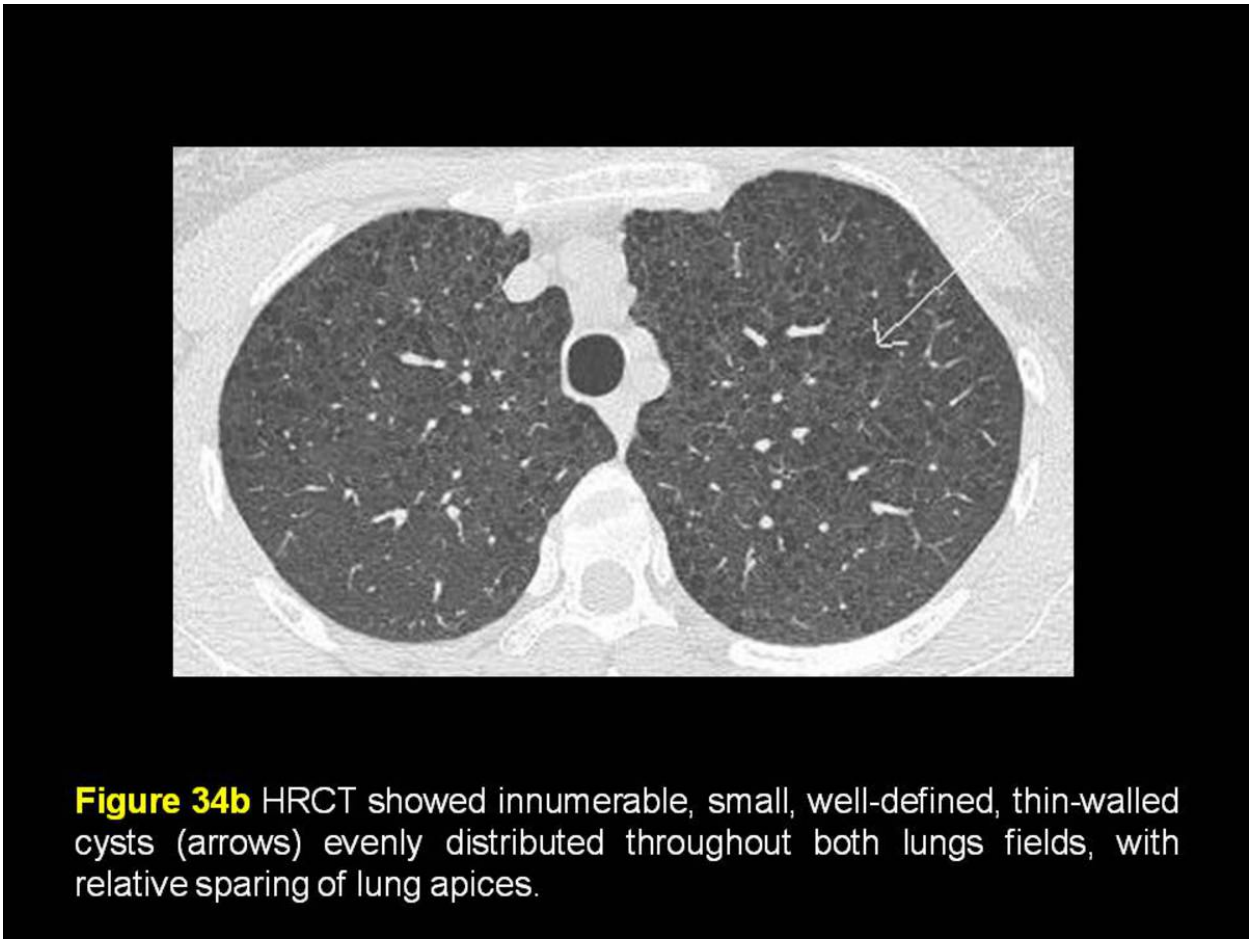

Figure 34b HRCT showed innumerable, small, well-defined, thin-walled cysts (arrows) evenly distributed throughout both lungs fields, with relative sparing of lung apices.

Fig.

References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

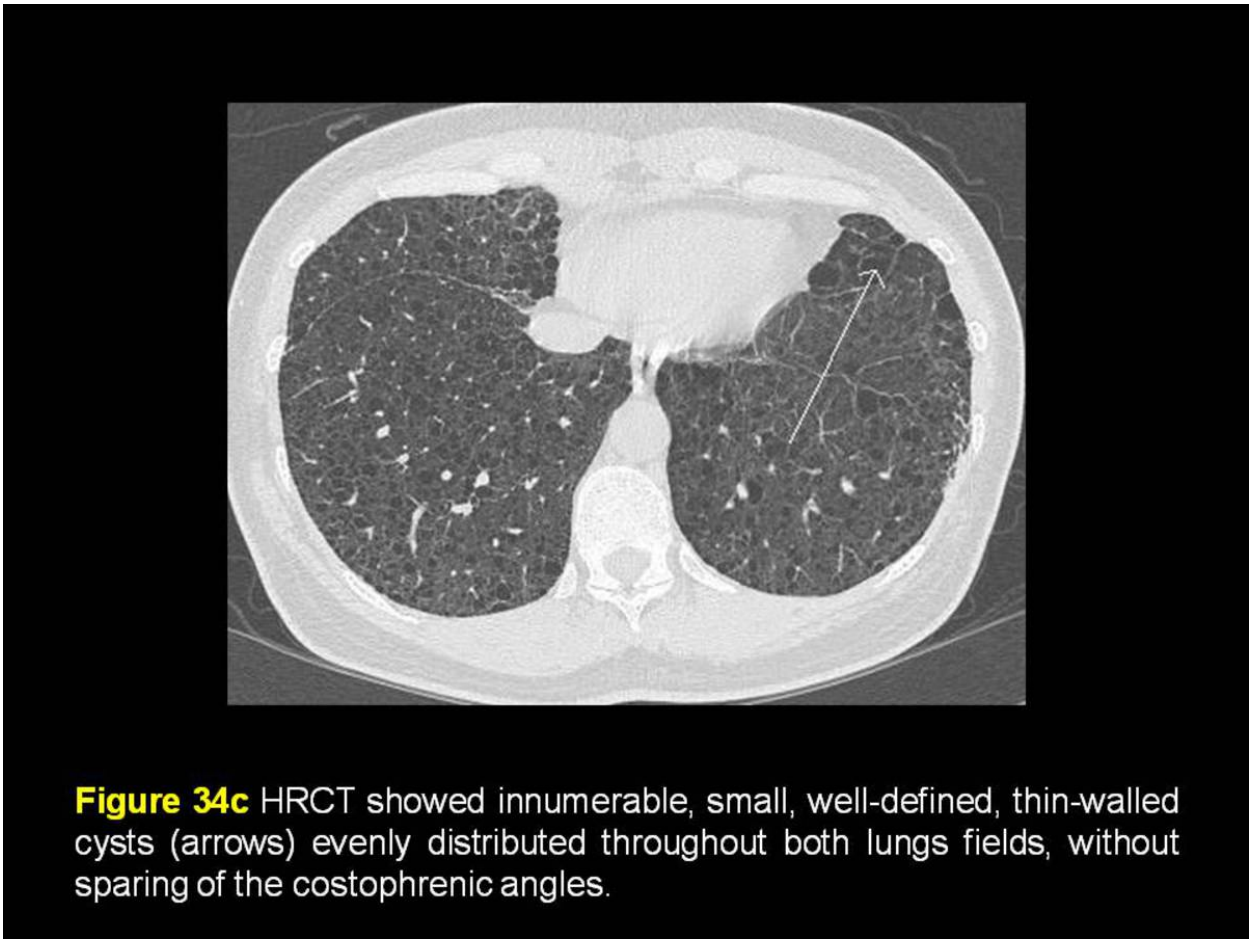

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

Conclusion

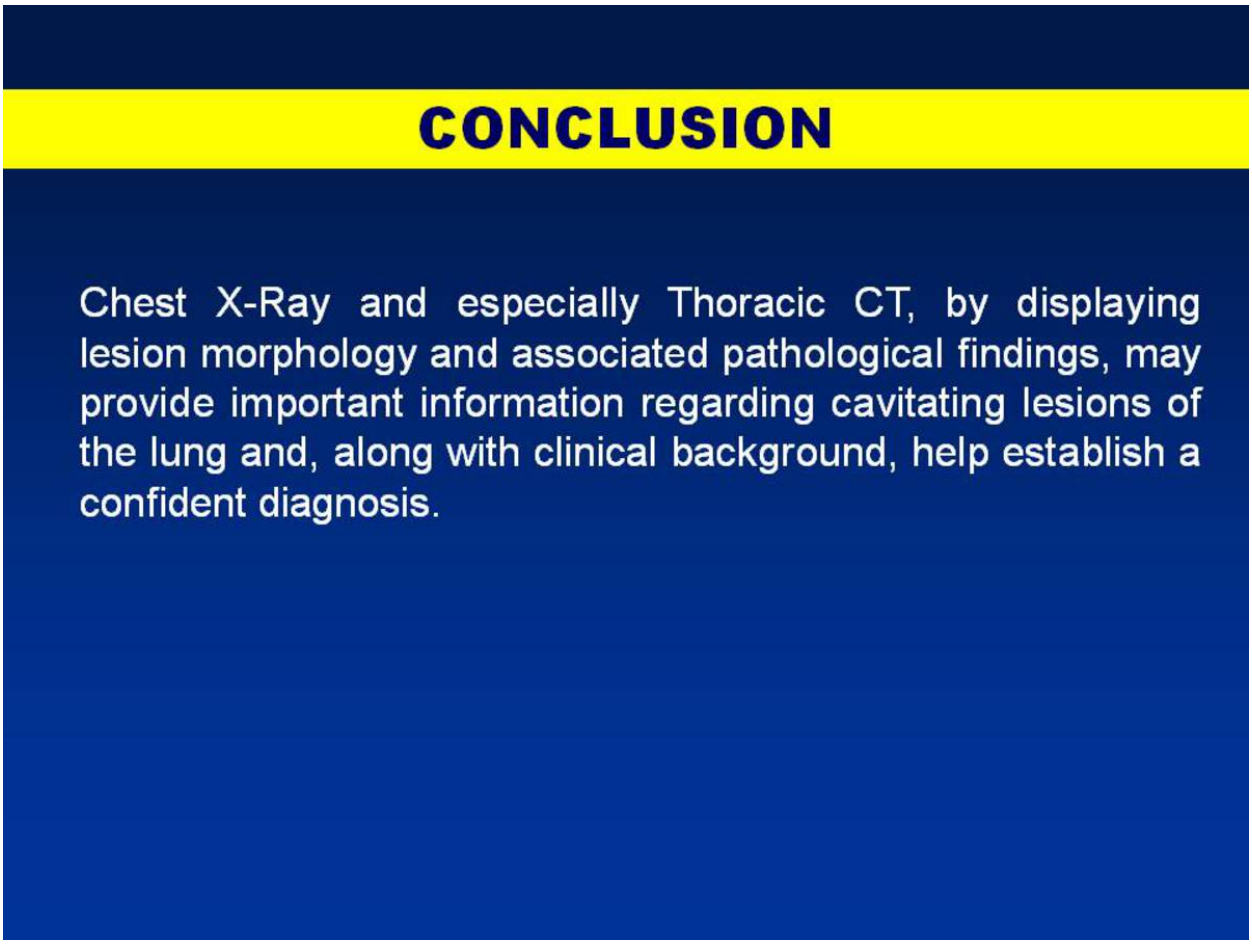

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

Personal Information

References

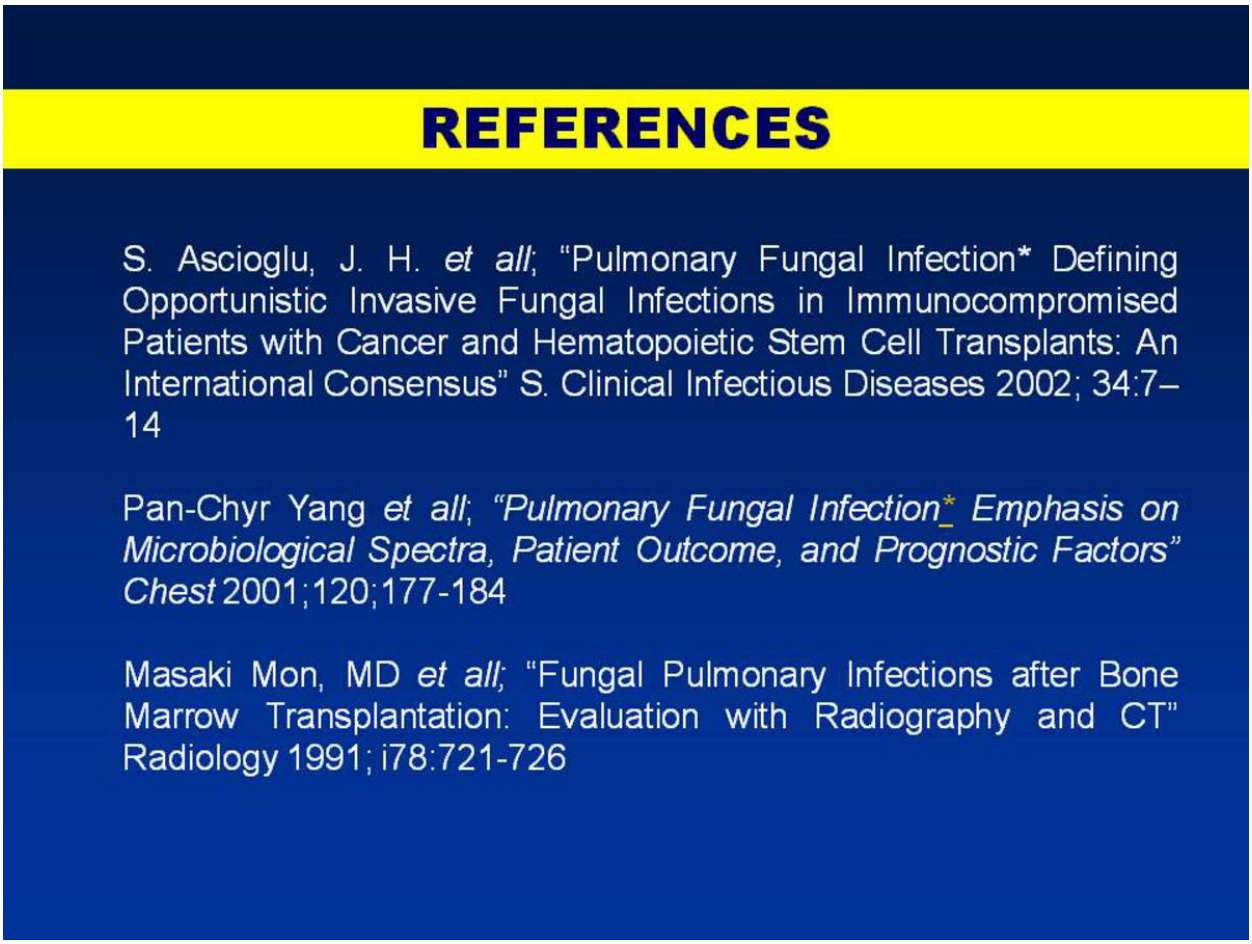

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

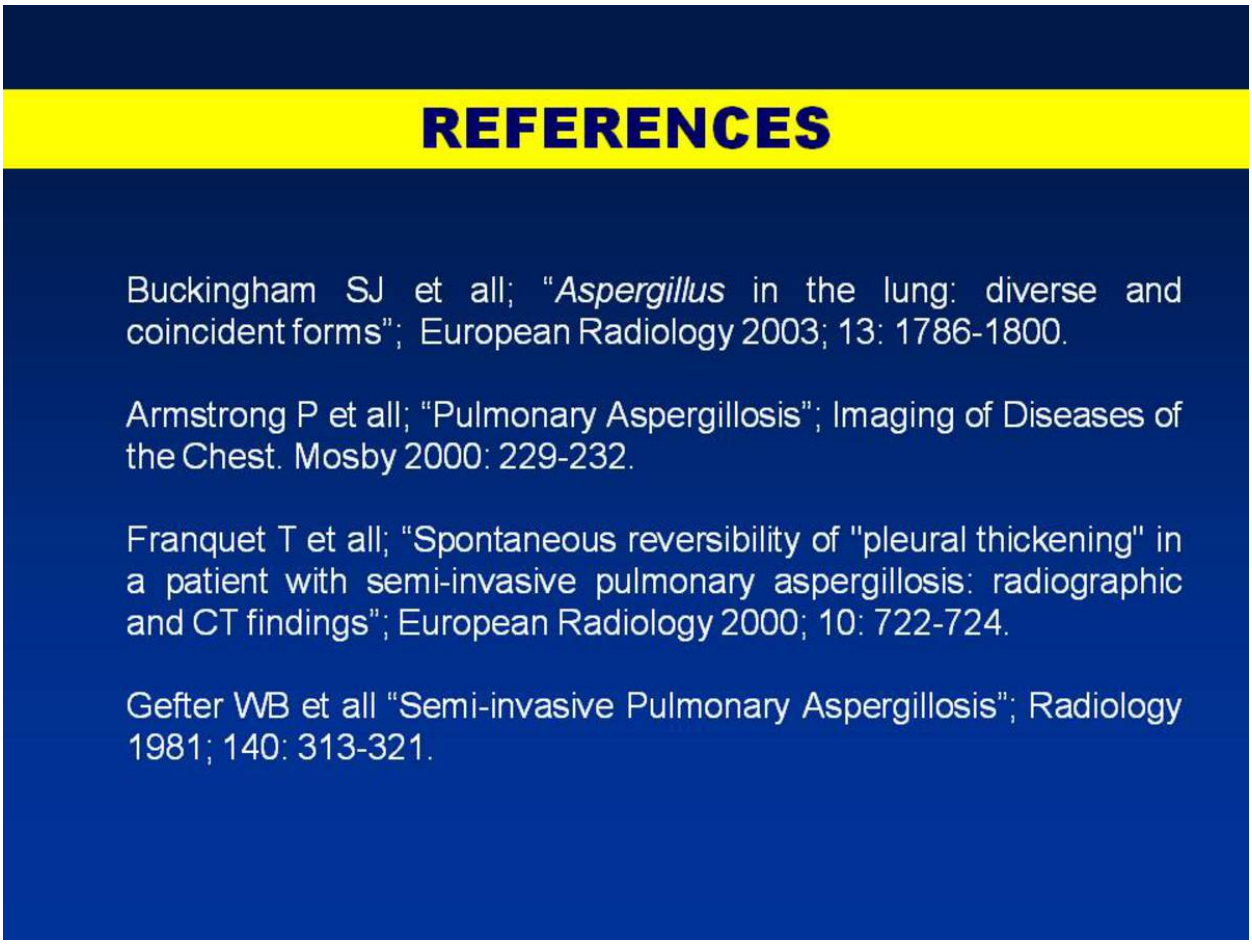

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

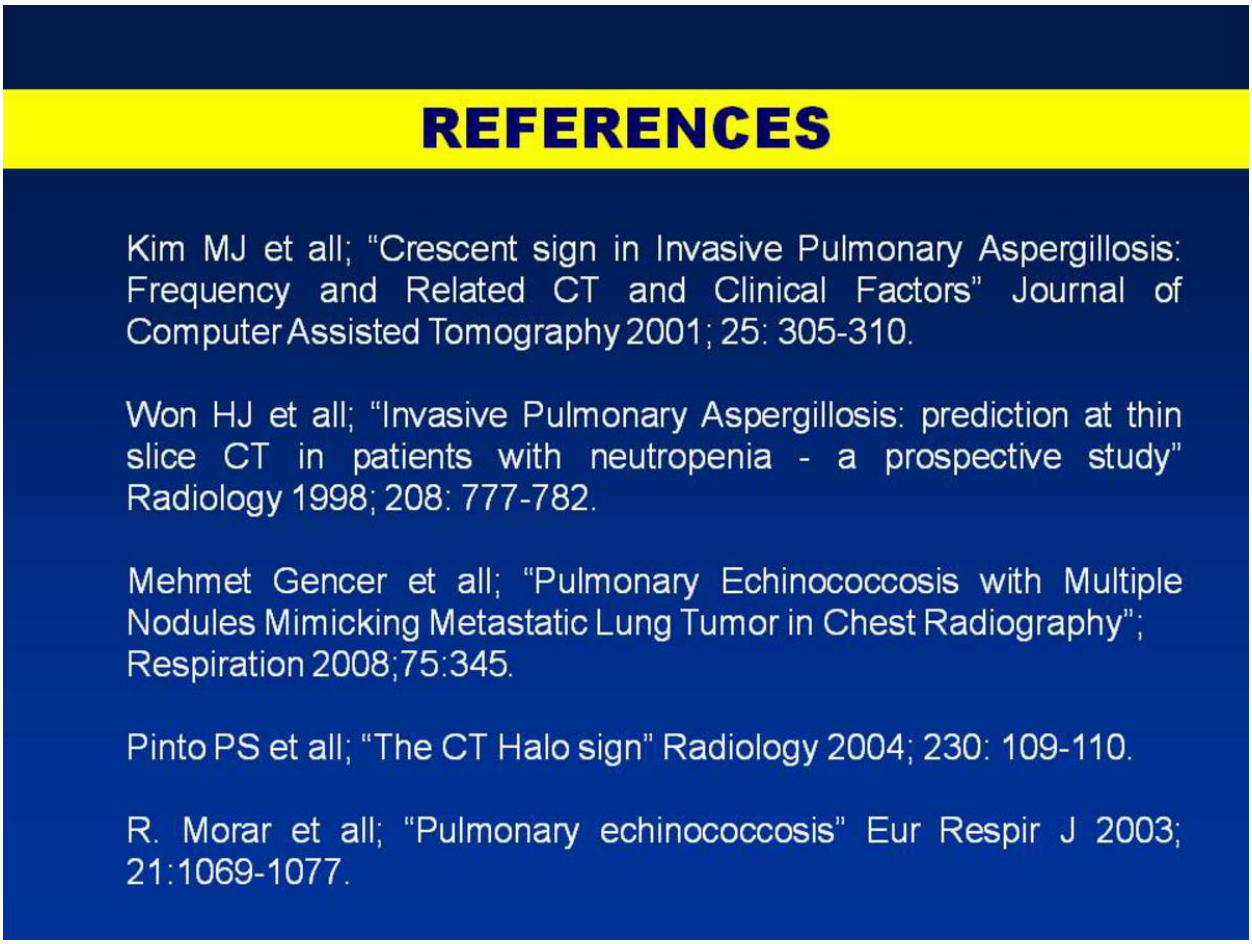

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

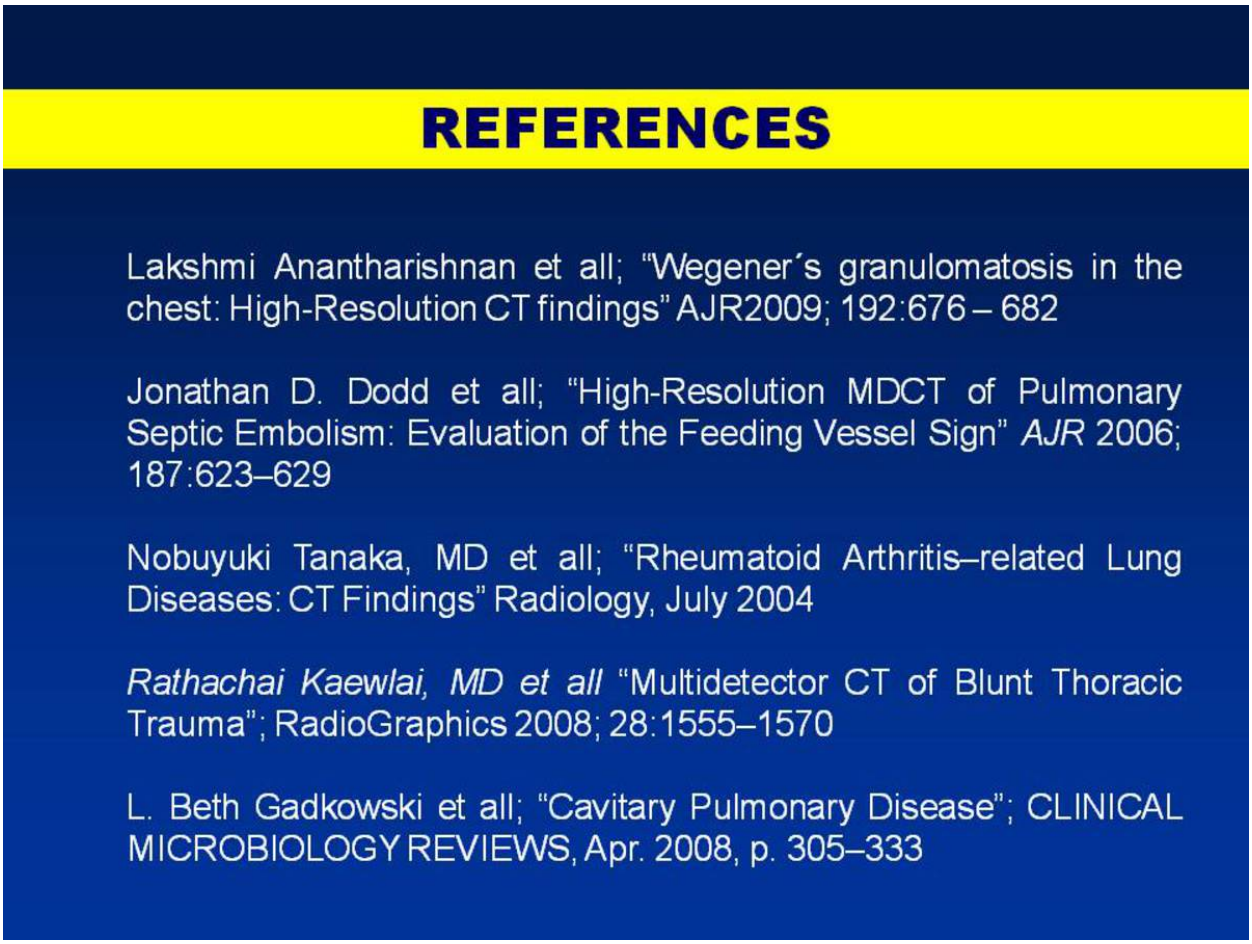

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

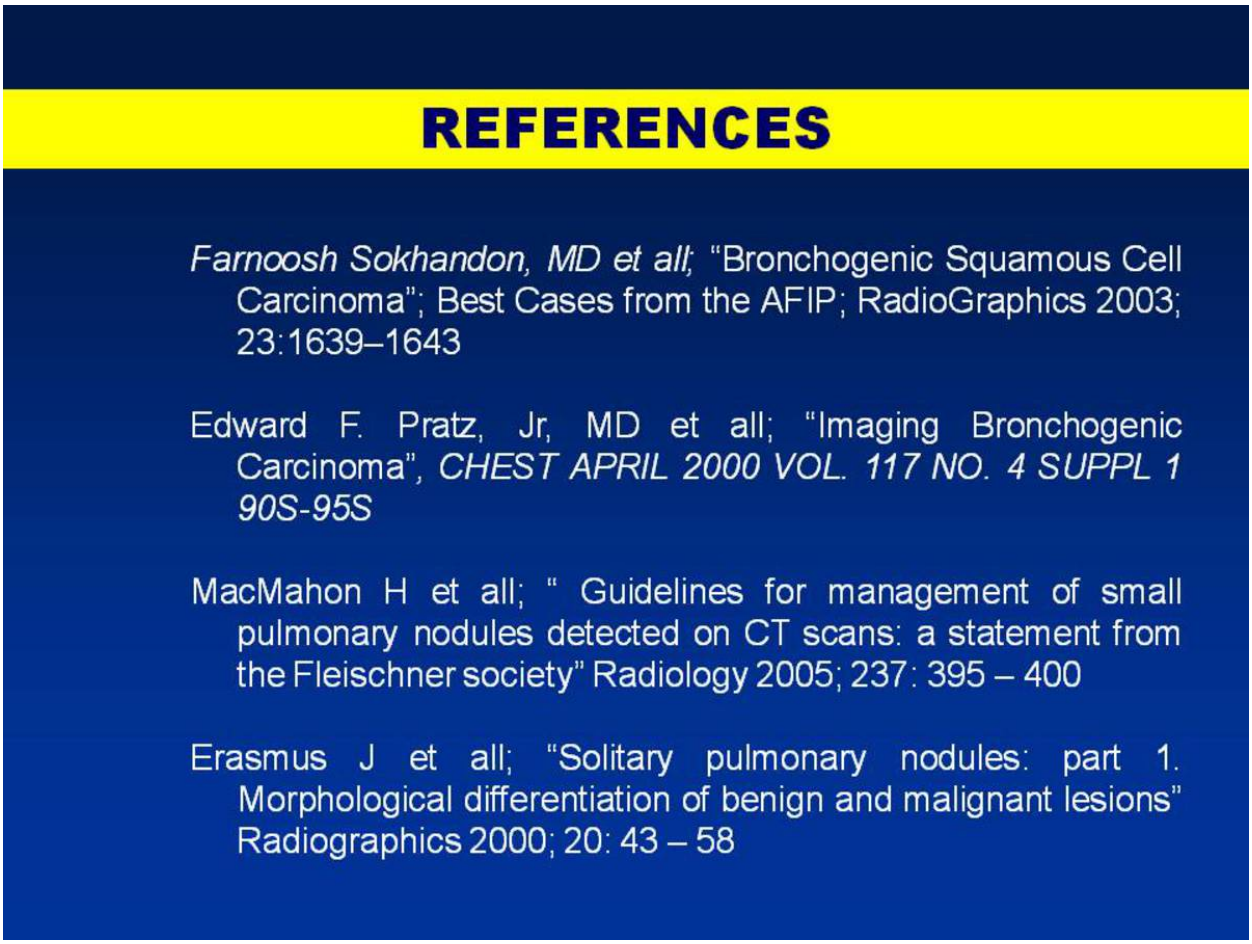

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL

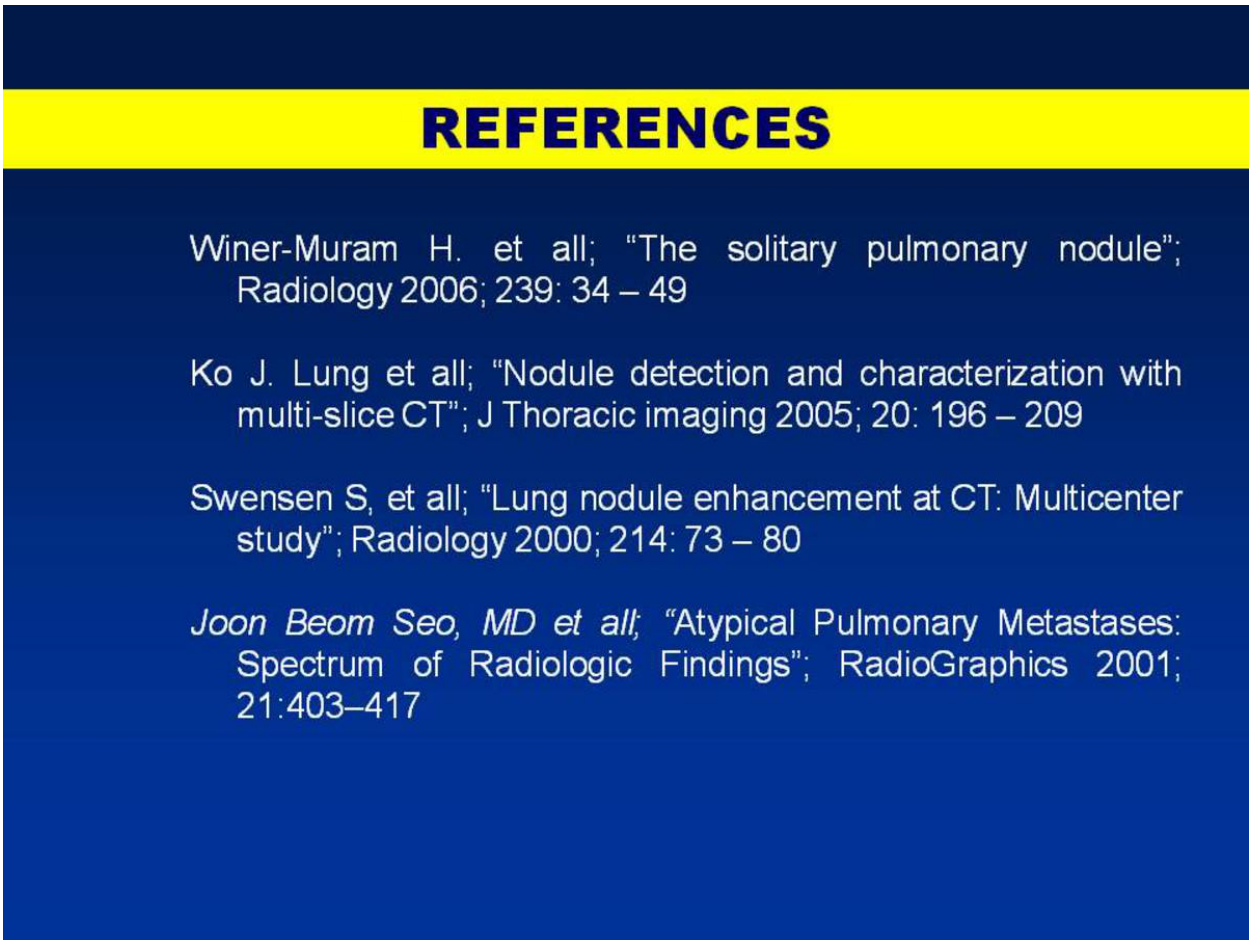

Fig.
References: I. Santiago; Radiology, Hospitais da Universidade de Coimbra, Coimbra, PORTUGAL