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Images of Interest / Imagens de Interesse

Hydatid Pulmonary Cyst Rupture: Diagnostic Challenges in a Non-Endemic Region

Rutura de Quisto Hidático Pulmonar: Desafios Diagnósticos numa Região Não-Endémica

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Abstract

In a non-endemic region like Portugal nowadays, a homeless migrant's case of a ruptured hydatid pulmonary cyst underscores the significance of imaging in diagnosing this condition. The article emphasizes the need for heightened awareness of imaging findings of this entity due to nonspecific symptoms.

Keywords

Echinococcus granulosus; Tomography Computed; Chest X-Ray; Public Health; Dyspnea.

Resumo

Relatamos o caso de um migrante sem abrigo com um quisto hidático pulmonar complicado, cujo diagnóstico foi sugerido pelos achados radiológicos. Tratando-se Portugal atualmente de um país não-endémico para hidatidose, o seu diagnóstico implica um elevado grau de suspeição dados os sintomas inespecíficos.

Palavras-chave

Echinococcus granulosus; Tomografia computorizada; Radiografia de tórax; Saúde Pública; Dispneia.

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A 65-year-old homeless, migrant man with no notable diseases presented to the Emergency Department complaining of persistent dry cough for the past three months. He had no fever and inflammatory markers were not elevated.

A Computed Tomography (CT) (Figure 1) was performed to evaluate an opacity with an air-fluid level detected on chest X-ray (Figure 2), demonstrating a cavity with an air-fluid level with a floating membrane, suggesting a ruptured hydatid pulmonary cyst. The diagnosis of hydatidosis was confirmed only by serology since the patient was discharged against medical advice. He started treatment with Albendazole.

Hydatid disease (HD), primarily caused by Echinococcus granulosus, remains a significant public health issue, intricately linked to socio-economic conditions and migration patterns.[1,2] Currently, Portugal is a non-endemic region for hydatidosis, with only sporadic cases that stem mainly from past infections.[3]

Echinococus granulosus can affect various organs being, most frequently, the liver (50%) and the lungs (20%), developing into small hydatid cysts (HC) with a three-layered wall: the outermost pericyst, the middle ectocyst and the innermost endocyst.[1,2,3]

Pulmonary involvement is more prevalent in children than in adults, affecting predominantly the right basal lobe with some particularities: due to the negative pressure in the lungs, cyst expansion is facilitated and it may grow compressing adjacent structures.[1,2,3] Furthermore, daughter cysts and calcifications are rare compared to hepatic HD.[1,2]

Clinically intact, small pulmonary cysts can remain asymptomatic.[1,2] In contrast, giant cysts can cause chest pain,

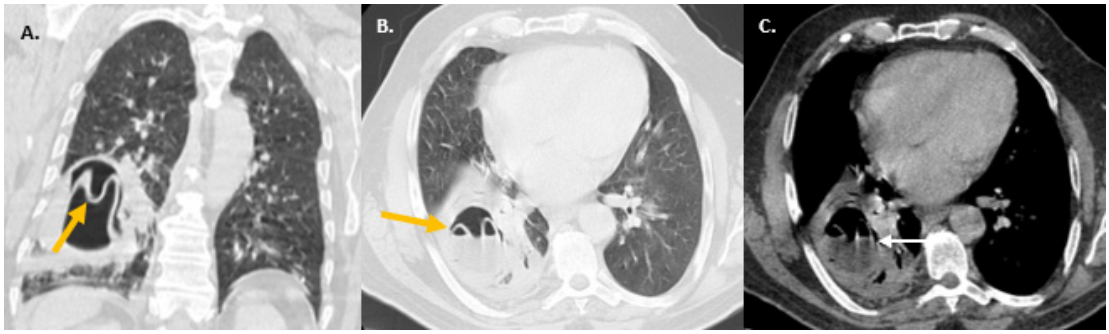

Figure 1 – Contrast-enhanced coronal (A) and axial (B-C) CT images revealed a cavity showing an air-fluid level with a floating membrane (yellow arrows) at the air-fluid interface (white arrow) ("water lily sign"), representing a ruptured hydatid cyst. There were no abnormal findings on the intersected liver.

Figure 2 – Postero-anterior chest radiograph showed a large cavity with an air-fluid level opacity (arrow) in the right lower hemithorax.

dry coughing, dyspnea and hemoptysis.[1,2] Acute-onset of these symptoms and anaphylactic reactions may suggest cyst rupture, with expectoration of membranes being rare but specific for this diagnosis.[1,2]

Imaging plays a crucial role in diagnosing this entity and visualizing the scope of their involvement, including complications (mainly rupture and infection), with CT being the modality of choice.[1,2]

Uncomplicated pulmonary HC appears as well-defined homogeneous masses with smooth walls of variable thickness, with low attenuation.

Cystic rupture occurs due to bronchus erosion caused by HC, which can be contained (detachment of the pericyst from the endocyst, existing air between these two layers producing an air crescent sign) or complete (due to the bronchus communication producing continuous accumulation of air with progressive collapse of the membranes), causing a spectrum of findings: firstly, as the endocyst shrinks resulting in an air-fluid level in the endocyst and the pericyst (onion peel sign); after the expectoration of cyst fluid, collapsed membranes are seen within the cyst (whirl sign). With complete collapse, the crumple endocyst appears as a wavy membrane floating in the remaining fluid (water lily sign). Finally, the pericyst falls empty and air-filled (dry cyst sign).[1,2]

Besides lung abscess, pulmonary HD should be differentiated from other cavitary lesions, such as aspergilloma, lung malignancies, and tuberculous cavities.[1,2]

A definite diagnosis of HC is based on surgery and pathological confirmation.

Although pulmonary involvement is not uncommon in HD, a high level of suspicion is necessary in non-endemic regions like Portugal. Due to non-specific symptoms, imaging is crucial in diagnosing typical and atypical findings in pulmonary HD given its diagnostic and therapeutic ramifications.

Ethical Disclosures / Divulgações Éticas

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Protection of human and animal subjects: The authors declare that the procedures followed were in accordance with the regulations of the relevant clinical research ethics committee and with those of the Code of Ethics of the World Medical Association (Declaration of Helsinki).

Protecção de pessoas e animais: Os autores declaram que os procedimentos seguidos estavam de acordo com os regulamentos estabelecidos pelos responsáveis da Comissão de Investigação Clínica e Ética e de acordo com a Declaração de Helsínquia da Associação Médica Mundial.

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