

“Community-Acquired Pneumonia”: Confusion with Pericardial Lipoma Through Imaging

“Neumonía adquirida de la comunidad”: su confusión mediante las imágenes con lipoma de pericardio

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Received: 01/10/2024

Accepted: 03/17/2024

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ABSTRACT

We present a case of acute bronchitis misdiagnosed as community-acquired pneumonia in Medical Emergencies with a pre-existing pericardial lipoma.

Considerations are made regarding lipomas in tomography, their incidence, and differential diagnoses, as well as the confusion that can arise among professionals who are not well-versed in imaging.

Key words: Pneumonia; Lipoma; Diagnostic Errors

RESUMEN

Se presenta un caso de bronquitis aguda confundido como neumonía de la comunidad en Emergencias Médicas con un lipoma pre existente de pericardio.

Se realizan consideraciones sobre los lipomas en tomografías, incidencia y diagnósticos diferenciales, así como su confusión por profesionales no avezados en imágenes.

Palabras clave: Neumonía; Lipoma; Errores diagnósticos

CASE REPORT

Male patient, 67 years old.

In December 2017, the patient presented with dyspnea with a score of I-II according to the mMRC (Modified Medical Research Council) scale, associated with non-productive cough and scanty mucous sputum. *Smoking history: 25 pack-years, having quit voluntarily 2-3 years ago.* Oxygen saturation (SO₂): 96 %. Auscultation revealed

globally diminished vesicular murmur without added noises.

Pulmonary function tests (PFTs) and chest computed tomography (CT) were requested to evaluate the degree of impairment caused by the smoking habit. The patient was prescribed vilanterol + umeclidinium once daily and scheduled for a follow-up in 25-30 days.

He attended a follow-up appointment with the studies showing improved condition. The PFT

showed *values within normal parameters*: FVC (forced vital capacity) 4670 (127%); FEV1 (forced expiratory volume in one second) 3460 (128%); Tiff (Tiffenau index) 100%.

The CT scan (Figure 1) reveals incipient signs of *centrilobular emphysema correlating with functional findings of hiatal hernia and pericardial lipoma (incidental and asymptomatic findings) located in the left cardiac region*

In August 2019, the patient reported having experienced a febrile respiratory condition with productive cough and mucopurulent sputum seven days prior. He sought medical attention at the Emergency Department, where he was diagnosed with “**left base pneumopathy**” based on chest X-ray (CXR) and chest CT. He was prescribed with levofloxacin 500 mg once daily, resulting in favorable evolution, and he was advised to follow up with Pulmonology.

Upon examination, oxygen saturation (SO₂) was 98%, with globally diminished vesicular murmur (VM) without added noises on auscultation. The chest X-ray did not reveal signs of consolidation. Previously known left paracardiac opacity. The image interpreted as community-acquired pneumonia (CAP) was actually the preexisting hiatal hernia and pericardial lipoma identified in previous CT scans (Figures 2 and 3).

He completed antibiotic treatment with favorable evolution.

COMMENT

The lipoma constitutes the most frequent benign mesenchymal tumor in the body. Whether single or multiple, it can manifest as a subcutaneous or visceral tumor.

The latter, the visceral tumors, are also rare, and their size tends to be larger on average than that of subcutaneous lipomas. Subcutaneous lipomas can be detected through non-invasive imaging techniques such as computed tomography (CT), ultrasounds, nuclear magnetic resonance imaging (MRI), or incidental autopsy findings. They are usually asymptomatic, but their size and location determine the type of symptoms, such as dyspnea, cough, and pain related to the compression of neighboring structures. The previously mentioned non-invasive studies can provide a certain level of certainty in distinguishing between lipoma and liposarcoma.

As an example, a lipoma is homogeneous and has a density between -30 and -100 Hounsfield Units (HUs), whereas a liposarcoma is heterogeneous and typically presents around -30 HUs.^{1,2}

Thoracic lipomas are rare, and primary tumors of the pericardium, whether malignant or benign, are exceptional, with a prevalence of 0.001-0.007%, representing between 6.7% and 12.8% of all primary neoplastic etiology cardiopathies. Approximately 90% of them are benign.^{3,4}

The most common benign pericardial masses are hemangioma, celomic cyst, lipoma, or teratoma. The most frequent malignant pericardial tumor is the mesothelioma, while less common are primitive neuroectodermal tumor, lymphoma, and sarcoma. Metastatic neoplasms of the pericardium are related to primitive tumors of the bone, breast, or lung.

Their etiology remains unknown. An association has been determined with genetic rearrangements on chromosome 12 with an abnormality in the HMGA2-LPP fusion gene in cases of solitary lipomas.⁵ Steger mentions the fact that the frequency of lipomas compared to liposarcomas would be approximately 120:1.⁶

Sometimes they present clinical symptoms. Bonamini et al describe a patient who presented severe cardiomegaly and paroxysmal supraventricular tachycardia. An MRI showed a large intrapericardial lipoma with 2 internal cavities communicating with the right ventricular chamber and traversing a parietal defect. The right ventricle was patched, and the mass was partially removed. Surgery combined with antiarrhythmic medication resulted in short-term success.⁷

In other cases, they have a considerable size and the patient shows severe dyspnea, mimicking a pericardial effusion or as an incidental finding on an echocardiographic study.⁸⁻¹⁰

To conclude, regarding the case described and linked to the experience or lack of practice of the examiner, following Raouf et al, we must remember the following:¹¹

CT imaging allowed for enhanced visualization of anomalies compared to chest X-ray by optimizing “contrast” and eliminating structure overlap, allowing for better visualization of the airways, mediastinum, and pulmonary vasculature.

CT is considerably used in everyday practice, sometimes excluding chest X-rays. As a result, the skill of reading the latter may diminish over time.

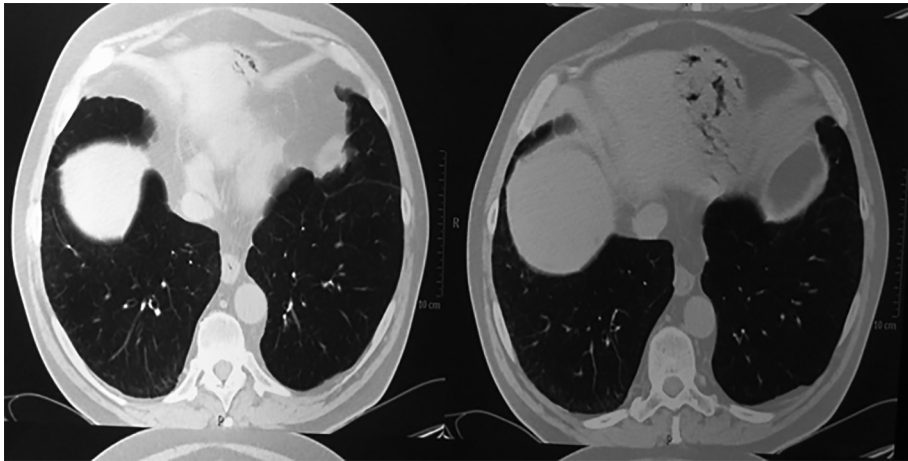


Figure 1. Pericardial Lipoma.



Figure 2. Basal pneumonia.

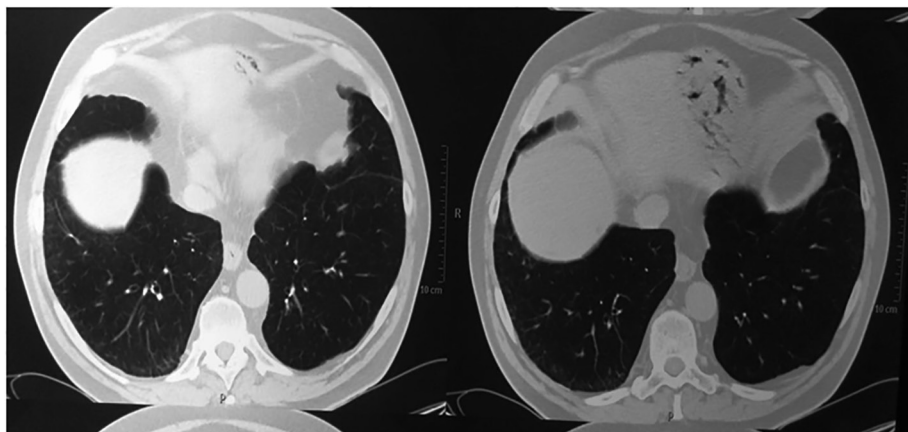


Figure 3. Pericardial Lipoma.

Most doctors don't have as much experience as radiologists or pulmonologists in interpreting chest X-rays. A trained radiologist or pulmonologist can often detect around 70 % of anomalies within 0.5 seconds based on gestalt detection.

It is important to consider that even with a methodical reading approach, around 10 % to 15 % of lesions may be overlooked (false negatives), which is approximately the same rate as false positives.

In summary, **“the eye does not see what the mind does not know”**. This highlights the importance of joint interpretation by experienced radiologists and pulmonologists. Diagnostic accuracy may be restricted by the absence of clinical information from the requester or the radiologist's negligence in not reading the suspicions of the study.

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