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Case Report

Splenic scintigraphy—reloaded: Pulmonary and pleural lesions proven to be splenosis by heat-damaged erythrocyte scintigraphy ☆

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ABSTRACT

We report the case of a 60-year-old patient whose computed tomography revealed multiple pleural foci that were classified as potentially malignant. After revealing traumatic splenectomy in the patient's history, the differential diagnosis of splenosis was considered and a 99m-techentium heat-damaged autologous red blood cells scintigraphy performed. This conventional method can be used to reliably make an exact diagnosis avoiding more expensive or invasive methods.

Introduction

In this report, a thoracic computer tomography (CT) was performed to investigate a patient with chronic cough. Pulmonary as well as pleural nodules were detected. The patient was sent to our department for further evaluation of the potentially malignant left sided intrathoracic lesions. By analyzing the patient history, a trauma, more than 10 years ago gave a clue and performing a splenic scintigraphy revealed a thoracic splenosis.

Usually splenosis is an asymptomatic benign traumatic or iatrogenic acquired condition characterized by the presence of heterotopic viable splenic tissue in other body compartment (abdominal or in the chest) or organs than the regular intraperitoneal spleen pouch [1–3]. The term "splenosis" was first introduced by Buchbinder and Lipkoff in1939 [4].

In order to diagnose splenosis correctly, an imaging procedure and a history of trauma that has occurred are essential. The clinical importance of a prompt and correct diagnosis lies in the avoidance of unnecessary ongoing procedures such as biopsies.

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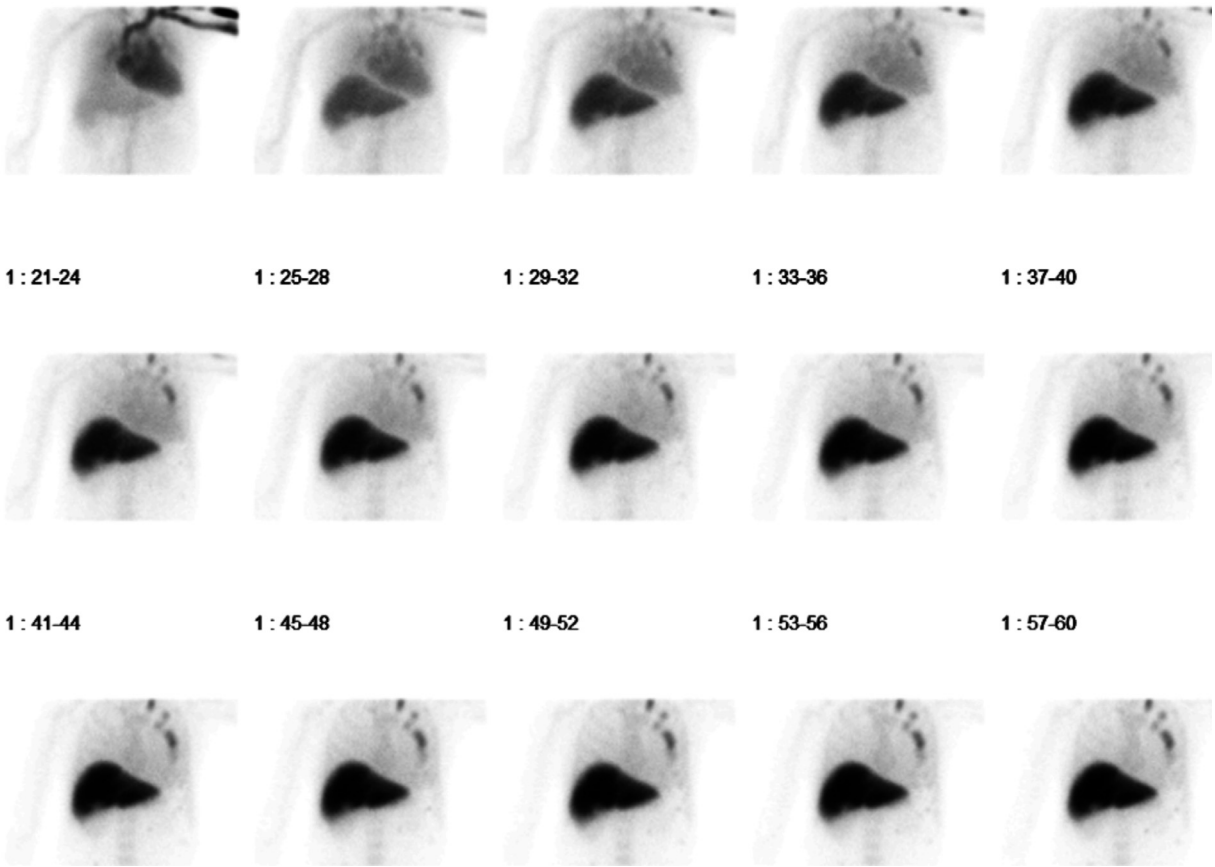

Fig. 1 – Planar, dynamic images showing the tracer distribution and subsequent uptake in the liver and left-sided intrathoracic splenosis lesions after tracer application in the left cubita.

According to the literature, 93% of patients with splenosis have a history of trauma with splenectomy, of which 70% had the trauma during adolescence [5,6].

The gold-standard imaging procedure is scintigraphy with 99m-techentium heat-damaged autologous red blood cells (HDRBC) [7]. 99m-Tc-HDRBC uses autologous in vitro or in vivo labeled erythrocyte by pyrophosphate method and incubate the solution for 20 minutes at 49.5°C water bath and saline washing them before reinjection. Postinjection imaging with a large field of view gamma camera is performed [8].

Case report

We report the case of a 60-year-old patient whose computed tomography revealed multiple pleural and pulmonary foci that were classified as potentially malignant.

However, since the patient also had a condition after a traffic accident with a rupture of spleen and the diaphragm, as well as a hematothorax on the left, splenosis was considered as differential diagnosis.

We performed a scintigraphy with 99m-techentium labeled heat-damaged autologous erythrocytes (Fig. 1). The images revealed focal tracer accumulation at each localization of the pulmonal and pleural lesions (Fig. 2). In addition, however, analogous accumulations were also found pericardial and intraabdominal. Thus, a malignant disease could be excluded, the diagnosis of splenosis confirmed and invasive methods for further clarification could be avoided.

Discussion

As traditional methods [9] are often forgotten even if they deliver excellent results we think that certain cases should be remembered.

As thoracic splenosis is rare and presents as multiple pleural-based nodules in the left hemithorax. It could possibly mislead the radiologist and even the physician in charge, especially if important information's are missing [10–12].

99m-Tc HDRBC scintigraphy with autologous erythrocytes is the gold-standard of imaging by specifically proving splenic tissue [13,14].

With radiological methods, especially computed tomography, it is often not possible to reliably differentiate between malignant foci and splenosis [15–19]. But also PET-CT, the most current modality in nuclear medicine today could mislead the reporting physician lacking patient history data [20].

However, with a corresponding history of splenectomy after trauma, the differential diagnosis of splenosis has to be

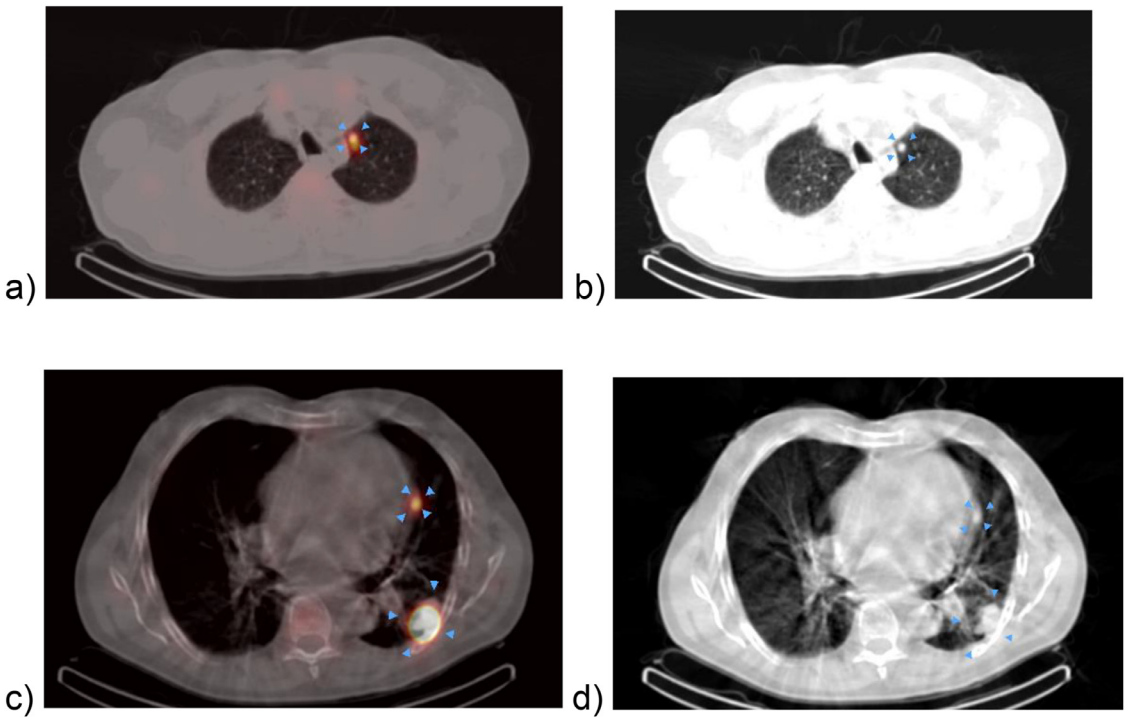

Fig 2 – Axial fused and attenuation-CT images from SPECT-CT 99m-Tc HDRBC indicating a pulmonary lesion in the segmentum apicoposterus of the left upper lung lobe (a,b) blue arrowheads) and a pericardial (segmentum lingulare inferius) as well as a pleural (segmentum superius) large splenic lesion (c, d) blue arrowheads).

considered. The patient should be presented to a nuclear medicine department for 99m Technetium heat-damaged erythrocytes scintigraphy, since this method can be used to reliably make an exact diagnosis using non-invasive as well as economically favorable imaging while avoiding invasive methods or more expensive modalities, respectively.

Patient consent

All patients sign a form to state their informed consent, before any procedure will be performed. This statement includes the information that the images or patient data might be published anonymously and/or might be used for student teaching.

We additionally contacted the patient (07.07.2022 14:00) and he gave us the informed consent to publish his case.

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