

Iodine 131 uptake in a pleuropericardial cyst: case report of a false-positive radioiodine total body scan result in a patient with a thyroid cancer

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Received 5 May 1991

Abstract. An uptake of iodine 131 was casually discovered in the precordial region of a patient with a thyroid cancer and corresponded to a pleuropericardial cyst.

Key words: Iodine 131 – Total body scan – Pleuropericardial cyst

Eur J Nucl Med (1991) 18:779–780

Introduction

Radioiodine total body scan (TBS) is used for the evaluation of functioning metastases in patients with differentiated thyroid carcinoma. The presence of abnormal iodine 131 uptake after thyroidectomy suggests metastatic disease. Not all such lesions concentrate the agent (Schlumberger et al. 1986). Conversely, occasional cases of false-positive ^{131}I images have been reported for body secretions, pathologic transudates, inflammations and cysts such as lymphoepithelial cyst, scrotal hydrocoele and pericardial effusion (Greeneler and Klein 1989). Although such false-positive ^{131}I images are rare, their occurrence is important to recognize to avoid unnecessary doses of radioiodine. The serum thyroglobulin (Tg) level can help and must be considered in the differential diagnosis.

In this report, a pleuropericardial cyst was casually discovered as an abnormal ^{131}I uptake in the precordial area in a patient with a thyroid papillary cancer.

Case report

A 41-year-old man underwent a total thyroidectomy for a thyroid nodule in February 1988. The histological examination revealed a bilateral multicentric papillary carcinoma. No lymph-node dissection was performed. He was treated postoperatively with 150 mCi

^{131}I , and the post-therapy TBS showed an uptake in the left precordial region. In April 1989, a TBS performed with 100 mCi confirmed this precordial uptake, which represented 206 μCi , 96 h after the oral administration of ^{131}I (Fig. 1). The Tg level was undetectable during thyroxine (T_4) treatment and following T_4 withdrawal. A chest computed tomography scan did not show any pulmonary lesion and a chest magnetic resonance (MR) image demonstrated an abnormal retrosternal mass of 3.5 \times 5.5 cm in diameter. The patient was then reoperated upon. No metastatic lymph node was found in the mediastinum. A cyst filled with a lemon-yellow fluid was removed. Histological examination showed fibrous connective-

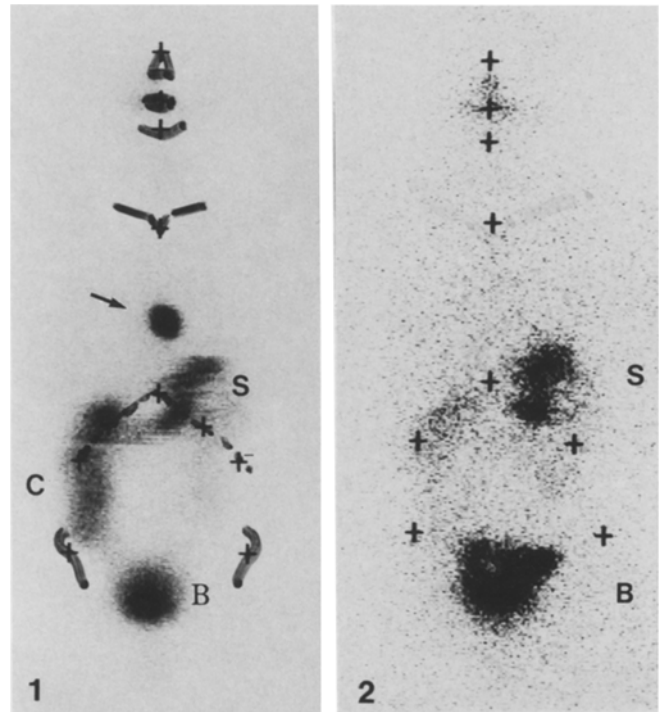


Fig. 1. Iodine 131 total body scan performed 4 days after the administration of 100 mCi: the uptake of ^{131}I in left precordial region is clear (arrow). There is also some accumulation of radioiodine in the stomach (S), colon (C) and bladder (B)

Fig. 2. Postoperative total body scan: disappearance of the abnormal ^{131}I uptake in the mediastinum

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tissue walls lined by flat or cuboid cells with an area of epidermoid metaplasia. Immunohistochemistry analysis with Tg-specific antibodies was negative. This allowed the diagnosis of a pleuropericardial cyst. Postoperative ^{131}I TBS with 10 mCi showed the disappearance of the abnormal uptake area in the precordial region (Fig. 2).

Discussion

Pleuropericardial cysts are unilocular, benign lesions composed of fibrous tissue wall lined by flat or cuboidal or endothelial cells. They contain a clear or lemon-yellow serous fluid and can be readily removed. The lesions are usually asymptomatic and are located typically in the anterior inferior mediastinum. They can remain unchanged for years and are practically always benign. Their aetiopathogenesis is obscure, and they likely result from the defective union of the cavities that form the pleura and the pericardium (Ochsner and Ochsner 1966). In the present case, the discovery of an abnormal area of ^{131}I uptake in the mediastinum suggested the ex-

istence of a metastatic lymph node. However, the Tg level was undetectable during T_4 treatment and following T_4 withdrawal. MR image showed a retrosternal mass which appeared upon histological examination to be a pleuropericardial cyst. The abnormal ^{131}I uptake in this pleuropericardial cyst can be explained by an uptake of ^{131}I through the pericardial serosa.

Although rare, such single areas of ^{131}I uptake should be interpreted with caution particularly when a discordance exists with the serum Tg level.

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