

Lung cancer in situs inversus totalis (SIT) – a case report

Rak płuca w zespole odwrócenia trzewi – opis przypadku



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Abstract

A case of a 69-year-old patient with bronchogenic large cell cancer of the left lung and metastatic tumor in the right suprarenal gland associated with situs inversus totalis (SIT) is presented. The patient underwent left thoracotomy and laparoscopy with the option of adjuvant chemotherapy afterwards. The SIT diagnosis was based on bronchofiberscopy, contrast enhanced chest computed tomography and echocardiography as well. At the time of both operations the mirror image anatomy was confirmed. This is the second SIT case treated surgically at the authors' department.

Key words: situs inversus, lung cancer.

Streszczenie

W pracy przedstawiono przypadek chorego, lat 69, z zespołem całkowitego odwrócenia trzewi z rozpoznaniem rakiem wielkomórkowym płuca lewego i przerzutem do nadnercza prawego. Chorego operowano dwuetapowo (torakotomia lewostronna + laparoscopia) z opcją adjuwantowej chemioterapii. Diagnozę zespołu SIT postawiono na podstawie ultrasonografii, bronchofiberoskopii, tomografii komputerowej z kontrastem i echokardiografii. W trakcie obu operacji stwierdzono lustrzane odbicie typowej anatomii. Prezentowany przypadek jest drugim tego typu operowanym w ośrodku autorów.

Słowa kluczowe: odwrócenie trzewi, rak płuca.

Introduction

Situs inversus (situs inversus totalis – SIT) is a rare anatomical anomaly occurring once in 8000, or even more seldom, once in 60 000 births. There are only 20 such cases with lung cancer described in the literature worldwide and only 12 of them were operated on [1-6]. Therefore each SIT lung cancer treated surgically seems to be clinically relevant.

Case report

A 69-year-old man suffering from non-small cell left lung cancer (NSCLC) confirmed by sputum cytology was admitted to our department. The patient reported cough, chest pain and hemoptysis. The interview revealed myocardial infarction 30 years ago and SIT. Contrast enhanced chest computed tomography (CT) confirmed SIT, left upper lobe tumor infiltrating the lung hilum, mediastinal lymph nodes of normal size and 3.8 cm enlargement of the right adrenal gland (Figs. 1, 2). The ultrasound-guided right adrenal gland fine needle biopsy proved neoplastic cells. Bronchoscopy showed

situs inversus without mucous hypertrophy. Abdomen ultrasound, head CT and echocardiography revealed no other metastases or anomalies. FDG-PET/CT was not performed. The preoperative staging was assessed as cT2aN0M1 and the patient was qualified for two stages of surgical treatment with adjuvant chemotherapy. On October 18th 2010 left pneumonectomy was performed after thorough inspection of the operative field. The vessels and lung anatomy were the mirror image of the right lung and the operation could be carried out typical and safely. The postoperative course was uneventful. On November 22nd 2010 laparoscopic right adrenalectomy was performed. Again complete situs inversus of the peritoneal and retroperitoneal anatomy was confirmed. The final histology showed large cell carcinoma and the TNM staging was unchanged: pT2aN0M1. Adjuvant therapy was administered.

Discussion

The first SIT case at our institution was treated surgically in 2009 [2]. A lower bilobectomy on the left side was per-

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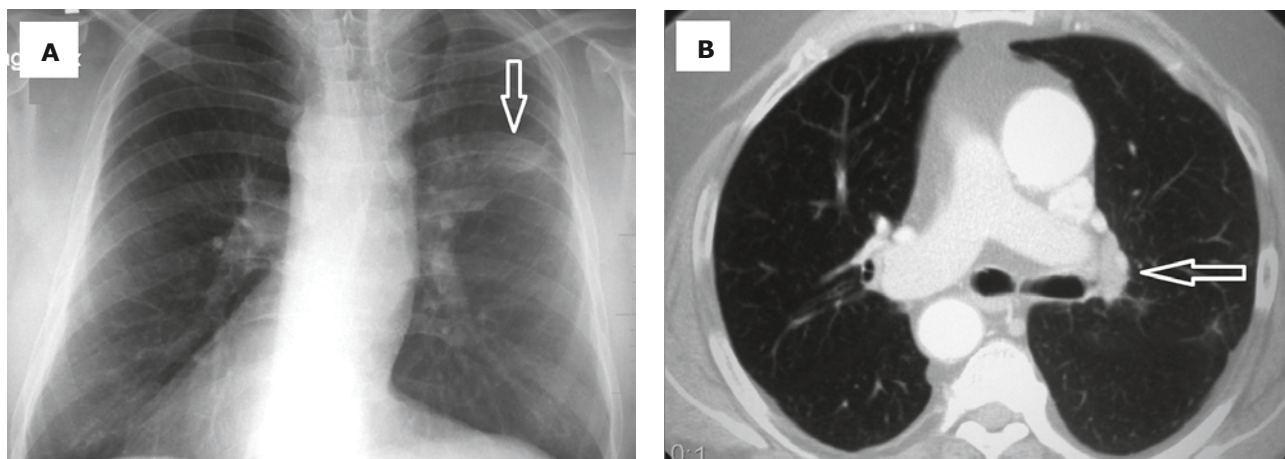


Fig. 1A-B. A. Chest X-ray shows mirror image and infiltration of the left upper field (arrow). B. Chest computed tomography with the mirror image and left lung hilum infiltration (arrow)

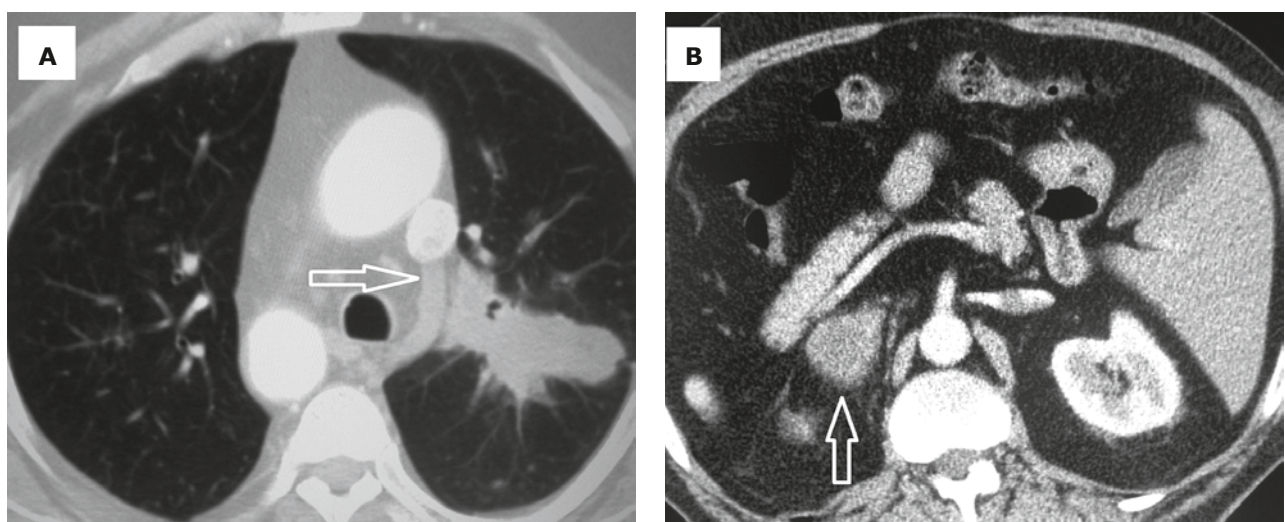


Fig. 2A-B. A. Left tracheobronchial angle involved by the tumor infiltration of the left lung. Left position of the azygos vein is marked (arrow). B. Abdominal computed tomography confirms the mirror image and enlarged right suprarenal gland (arrow)

formed, and the intraoperative inspection of the operative field revealed a mirror image of the right lung. This case is the second one. Both of them concerned the left lung having the anatomical features of the right one. The diagnosis of both cases consisted of the same elements: chest X-ray, contrast enhanced chest computed tomography, bronchoscopy, abdominal and supraclavicular ultrasonography and echocardiography. Ultrasonography guided fine needle aspiration biopsy was utilized in the second case. FDG-PET/CT was not performed. The preoperative diagnosis of SIT patients is usually based on bronchofiberoscopy and contrast enhanced chest computed tomography [3, 4, 6]. The operative field inspection always confirmed a mirror image typical for the opposite lung anatomy. Subotich suggests additional preoperative imaging of the aorta and pulmonary artery for SIT patients qualified for surgery [7]. In both our cases the contrast enhanced chest CT showed an inverted

anatomical picture, as in Subotich's patients diagnosed by angiography [3, 7]. Three-dimensional CT and MRI (magnetic resonance imaging) is probably the next step of preoperative assessment in such cases [8, 9]. Maybe the classical angiographic study of SIT patients will be necessary only in selected patients presenting additional anatomical changes, suspected in the former investigations.

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