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Cases Journal 2009, 2:9091   doi:10.1186/1757-1626-2-9091

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ISSN 1757-1626

Article type Case Report

Submission date 2 October 2009
Acceptance date 25 November 2009
Publication date 25 November 2009

Article URL http://www.casesjournal.com/content/2/1/9091

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Solitary splenic metastasis of squamous lung cancer: a case report

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Abstract

Background Lung cancer is the second commonest malignant tumour, with its splenic metastasis being a rare event.

Case Presentation We report an exceedingly rare case of a moderate-to-low differentiation squamous cell lung carcinoma in a middle-aged man with a large solitary splenic metastasis detected simultaneously with the primary tumour. Surgical removal of both the primary tumour and the solitary splenic metastasis offered the patient the best treatment option.

Conclusions The significance of the present case lies on the one hand in the appearance of a large solitary splenic metastasis from a squamous lung cancer at the time of its initial presentation and on the other in the successful excision of both lesions simultaneously.

Introduction

Lung cancer is the second commonest malignant tumour, with its splenic metastasis being a rare event [1]. When present, it is diagnosed more often at autopsy [2] and it is usually accompanied with metastases to other abdominal organs [1, 2]. We report an exceedingly rare case of a squamous cell lung carcinoma in a middle-aged man with a large solitary splenic metastasis detected simultaneously with the primary tumour.

Case presentation

A 59-year-old Greek man of Caucasian origin presented with cough and trivial haemoptysis for three days; he was a non-smoker fur-maker in excellent health status, unremarkable medical history and normal physical examination. Chest radiography revealed a homogenous tumour-like opacity (6 cm in diameter) in the upper lung zone near the right hilum (Figure 1). No supraclavicular lymphadenopathy was detected. Computed tomography scanning of the thorax showed a large (6 x 6 cm), almost spherical mass in the right upper lobe and a massive solitary lesion in the spleen (7 cm in its greatest diameter). The mediastinum and the other chest structures were normal. Magnetic Resonance Imaging (MRI) of the upper abdomen showed a massive solitary lesion in the spleen with a low-density core and a peripheral contrast enhancement suggestive of metastasis (Figure 2). Haematological and biochemical test results were normal, except for a slightly elevated level of erythrocyte sedimentation rate (33 mm/h) and of C-reactive protein (2.66 U/L).

Bronchoscopic examination revealed a mass within the posterior segmental bronchus of the right upper lobe and biopsy confirmed the diagnosis of squamous carcinoma of moderate-to-low differentiation. A routine workup was negative for liver, adrenal, brain
or bone metastatic lesions. A fine needle biopsy of the spleen under radiological
guidance confirmed the diagnosis of metastasis from the primary lung carcinoma. The
TNM stage of disease was cT2N0M1 (stage IV). Respiratory function tests were within
normal limits.

Surgical removal of both the primary tumour and the solitary splenic metastasis offered
the patient the best treatment option. The patient was scheduled for a simultaneous
right thoracotomy and splenectomy. Initially a standard right posterolateral thoracotomy
was performed. A thorough exploration of the pleural cavity revealed a 6 cm tumor of
the right upper lobe that was extended to the apical segment of the lower lobe. Under
these circumstances, the intraoperative decision was for a right pneumonectomy, which
was finally performed. Five hilar lymph nodes, 2 paratracheal, 2 subcarinal, 2
paraesophageal and 1 from the ligament were excised. After the repositioning of the
patient, a typical splenectomy was performed (Figure 3). A microscopic specimen of
resected spleen with the characteristic histology of non-small cell lung carcinoma is
shown in figure 4. All examined lymph nodes were negative for metastases. The
pathological TNM stage of the disease was pT2N0M1. Postoperative course was
uneventful and the patient was discharged from the hospital on the 12th postoperative
day.

Discussion
Metastases from lung cancer to the spleen develop usually at advanced cancer stages in
the context of disseminated abdominal visceral lesions, while solitary splenic metastasis
is extremely rare [3, 4]. More unusual is the discovery of a solitary metastasis at the
time of the initial lung cancer diagnosis [5, 6]. The importance of the present case lies
(a) in the appearance of a large solitary splenic metastasis from a moderate-to-low
squamous right lung cancer at the time of its initial presentation and (b) in the
successful excision of both lesions simultaneously.

Diagnosis can be achieved with splenectomy or with less invasive methods such as fine
needle aspiration or transcutaneous biopsy, as in our patient case, with high probability
of success and very low complication rate (less than 2%) [7]. The rarity of splenic
metastases may be related to the inhibitory effect of the immunologically well-equipped
splenic microenvironment on the growth of metastatic cells, given that micro-metastatic
dissemination occurs early in the course of malignant disease and is not affected by
mechanical factors [3].
Surgical removal of the solitary splenic metastasis is considered the best treatment option. With this aggressive practice, long survival attainment is possible [6] even without adjuvant chemotherapy, which does not appear to be superior to surgery alone [8].

**Competing interests**
The authors declare that they have no competing interests.

**Consent**
Written informed consent was obtained from the next of kin for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this Journal.

**Authors’ contributions**
DC and GB were the responsible doctors of the patient. They also analyzed and interpreted the patient data. MK was a major contributor in writing the manuscript. GC and CM performed the surgical operation. IT performed the fine needle biopsy of the spleen. All authors read and approved the final manuscript.

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**Figure legends**

**Figure 1.** Plain chest radiograph showing a large homogenous tumour-like opacity in the upper lung zone near the right hilum.

**Figure 2.** MRI of the upper abdomen showing a massive solitary lesion in the spleen with a low-density core and a peripheral contrast enhancement suggestive of metastasis.

**Figure 3.** Gross appearance of the resected spleen with a large (8 cm in diameter) tumour on the upper splenic pole.

**Figure 4.** Microscopic specimen of resected spleen with the characteristic histology of non-small cell lung carcinoma of squamous cell type (Haematoxylin and eosin stain).
