Pulmonary metastases from renal cell carcinoma simulating alveolar haemorrhage

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Introduction

The study of bronchoalveolar lavage (BAL) cells is useful in the diagnosis of alveolar haemorrhage (AH) (1–3). Thus, in a patient with consistent radiologic and clinical features, the discovery of a high percentage of haemosiderin-laden macrophages on BAL confirms the diagnosis of AH (1–4).

We present the case of a patient with clinical and radiologic features consistent with AH. Two fibre-optic bronchoscopies were performed with a 2 month interval between each, which showed a high percentage of haemosiderin-laden macrophages on BAL. However, the definitive diagnosis was pulmonary metastases from renal cell carcinoma.

Case Report

The patient was a 67-year-old man, an ex-smoker, moderate drinker and allergic to sulphonamides. Relevant medical history included ischaemic heart disease which had required aorto-coronary bypass and nephrectomy for renal cell carcinoma, 2 years and 3 months prior to admission, respectively. He was admitted to our service because of progressive dyspnoea, asthenia, anorexia and weight loss. Physical examination revealed pallor and bilateral crackles on lung auscultation. Laboratory data included haemoglobin 104 g l⁻¹ (10.4 g dl⁻¹), haematocrit 0.33 (33%), mean corpuscular volume (MCV) 81 fl, erythrocyte sedimentation rate (ESR) 110 mm h⁻¹, urea 12.5 mmol l⁻¹ (35 mg dl⁻¹) and creatinine 141 mol l⁻¹ (1.6 mg dl⁻¹); chest X-ray revealed a bilateral diffuse alveolar pattern predominantly in lower fields (Plate 1). Fibre optic bronchoscopy disclosed slightly hyperaemic mucosa and 70% macrophages with 50% haemosiderin-laden macrophages on BAL. Cultures and cytology were negative. For reasons beyond our control, we were unable to follow-up the patient until 2 months later, when he was re-admitted because of increased dyspnoea. Physical examination did not differ from that performed 2 months earlier and chest X-ray showed worsening of alveolar infiltrate. Laboratory data included haemoglobin 110 g l⁻¹ (11 g dl⁻¹), haematocrit 0.34 (34%), MCV 80 fl, ESR 110 mm h⁻¹, urea 24 mmol l⁻¹ (67 mg dl⁻¹) and creatinine 159 mol l⁻¹ (1.8 mg dl⁻¹); ABG was: pH 7.44, Pco₂ 4.7 kPa, Po₂ 6.1 kPa; ANA, anti-DNA antibodies, anti-centromere and anti-basal membrane antibodies were negative. A second fibre optic bronchoscopy was performed which showed no endobronchial pathology, and a BAL with 70% macrophages with 15% haemosiderin-laden macrophages. The patient progressed towards worsened respiratory failure and thus it was decided to perform open lung biopsy, which showed interstitial infiltration and vascular permeation by renal cell carcinoma, with no significant alveolar haemorrhage in the sample.

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Plate 1 Chest X-ray revealed a bilateral diffuse alveolar pattern.
Discussion

Diagnosis of alveolar haemorrhage is supported by the presence of dyspnoea, haemoptysis, hypoxaemia, iron deficiency and alveolar infiltrate or a mixed alveolo-interstitial pattern on chest X-ray (2). BAL is a technique which has proved useful in the diagnosis of opportunistic infections and the study of interstitial lung diseases (5). The diagnosis of AH is also confirmed when numerous haemosiderin-laden macrophages are found in BAL (14). In these cases, some authors have found 78% sensitivity in a study on the diagnostic performance of BAL in immunocompromised patients, although it is known that pulmonary haemorrhage may be associated with other processes, particularly lung infection (3). In this sense, Grebski et al. (6), recently stated that a high percentage of haemosiderin-laden macrophages in BAL fluid makes it difficult to obtain a conclusive diagnosis of AH. Nevertheless, for other authors, haemosiderin-laden macrophages are reasonable markers for the prior presence of AH (4). Anatomopathologic findings of AH in lung tissue samples include capillaritis and the finding of haemosiderin-laden macrophages (7).

We present the case of a patient with clinical, radiologic and bronchoscopic features on BAL consistent with AH. It is noted that abundant haemosiderin-laden macrophages were found in two BAL performed with an interval of 2 months. The final diagnosis, established by open lung biopsy justified by the patient's worsening condition and the lack of definitive diagnosis, was metastases from renal cell carcinoma, a type of tumour whose metastases bleed easily. This may suggest that pulmonary metastases could have haemorrhaged into the alveoli, giving rise to an increase in haemosiderin-laden macrophages on BAL. However, we have found no reference in the literature to lung metastases from renal cell carcinoma which behave like AH.

We conclude that it is advisable to exercise caution when attempting to interpret the finding of BAL consistent with AH. This should be investigated until a definitive diagnosis is made.

References