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Black pleural effusion: an unusual presentation of metastatic melanoma diagnosed by medical thoracoscopy

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Abstract

Melanoma presenting with black pleural effusion is rare, with only five cases reported till date. In distinction to others, this is the only case where patient did not have a prior diagnosis of melanoma and was diagnosed by thoracoscopy. Reported is the case of a 49-year-old male who presented with dyspnoea and weight loss. Patient had a large left-sided pleural effusion. Ultrasound showed thickened irregular pleura and multiloculated pleural effusion. Diagnostic pleural aspiration was performed, and fluid was black in colour and was exudative lymphocytic. Atypical cells were noted on pleural fluid cytology. Medical thoracoscopy was carried out and histopathology suggested metastatic melanoma. Patient had multiple nevi all over the body, but clinically none was indicative of melanoma. He refused skin biopsy. The case was referred to medical oncology where palliative management was planned. Patient died within two weeks of diagnosis.

Introduction

Malignant melanoma is a rare albeit most lethal form of skin cancer that arises from unrestrained proliferation of melanocytes. Metastasis occurs in up to 30% of cases and lung is the most frequently involved site [1]. Pleural effusion is an uncommon presentation of metastatic melanoma, reported in only 2% of cases [2]. Here, we report the case of a male patient who presented with black pleural effusion due to malignant melanoma diagnosed by medical thoracoscopy.

Case Report

A 49-year-old male, teacher by occupation, presented with gradual onset of progressive dyspnoea for the past two months. He also complained of unintentional weight loss of 10 kg within two months.

He had childhood asthma, was diabetic, hypertensive, and had ischaemic heart disease and heart failure. Patient was on formoterol/budesonide, metformin, amlodipine, furosemide, and aspirin. He had undergone coronary artery bypass graft two years ago. He was taking first-line anti-tuberculous treatment for 15 days before presentation, which had been prescribed by a general practitioner for his ailment.

The patient was a lifelong non-smoker. He denied any other substance abuse. He never had tuberculosis nor remembered contact with tuberculosis patient. He did not report avian exposure. His family history was not significant for any respiratory conditions or malignancies.

His general physical examination was notable for bilateral pitting pedal oedema and multiple hyperpigmented nevi all over the body. He did not notice any change in shape, size, or colour of any of the moles. His brother and father also had similar nevi that never bothered them. Chest examination suggested left-sided pleural effusion. The rest of the systemic examination was unremarkable.

Chest radiograph revealed left-sided pleural effusion. Computed tomography scan of the chest showed thickened nodular pleura on the left side (Fig. 1A). Ultrasound also showed irregular thickened pleura with multiple septations and loculations of pleural fluid on the left side.

Figure 1. (A) Computed tomography scan of the chest showing left-sided effusion with nodular pleural thickening. (B) Diagnostic thoracentesis showing black pleural effusion.

Ultrasound-guided diagnostic thoracentesis was performed. Pleural fluid was black in colour (Fig. 1B). It was exudative lymphocytic, with protein of 3.9 g/dL, white cell count 700/mL, 30% neutrophils, 70% lymphocytes, and glucose of 231 mg/dL. Pleural fluid Gram stain, culture, acid fast bacilli smear and culture, Xpert assay, and fungal culture were all unremarkable. Pleural fluid cytology revealed atypical cells. Medical thoracoscopy was carried out under local anaesthesia (Fig. 2), and histopathology revealed atypical cells with abundant brown pigment with enlarged nuclei and prominent nucleoli. Immunohistochemical stains were positive for human melanoma black-45 (HMB-45) and Melan A, suggesting it to be metastatic malignant melanoma.

After medical thoracoscopy, the patient's lung expanded and his dyspnoea improved. The patient refused skin biopsy. He was referred to the medical oncology department for further management where he was counselled for palliative care. After two weeks of discharge from the hospital, the patient's condition deteriorated and he succumbed to the disease.

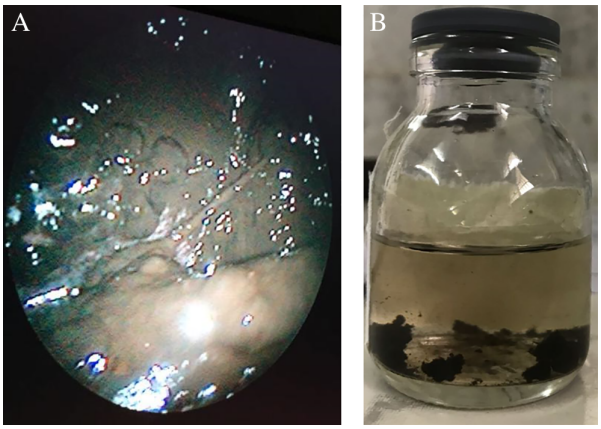

Figure 2. (A) Gross thoracoscopic view of pleural cavity of the patient showing multiple nodules. (B) Black-coloured parietal pleural (biopsy specimen).

Discussion

Pleural effusions complicate a number of medical conditions. Differentiating exudate from transudate helps narrow the differential diagnosis. Macroscopic appearance of effusion is important but it may sometimes be overlooked. Colour of the pleural effusion vary according to underlying disease; yellow and red effusions are the most common while black effusion is a rare entity. To date, only 21 cases of black pleural effusion have been reported in the literature [3], causes being metastatic melanoma (five cases), pancreatico-pleural fistula (five cases), fungal infection (three cases), haemolysis due to adenocarcinoma (three cases), crack smoking (two cases), and one case each of mediastinal teratoma, rheumatoid pleurisy, and charcoal-containing empyema.

Prognosis depends on the underlying disease and black colour of the pleural effusions by itself does not suggest a poor prognosis [4]. Melanoma is an aggressive tumour and hence early diagnosis is crucial to avoid complications, notably death. Black effusion, although unusual in melanoma, may hint towards this malignancy; it is caused by the presence of melanocytes in the pleural fluid [4].

All the five reported cases had a known diagnosis of melanoma and later developed black effusion. Our case is unusual in that the patient had no known malignancy, he presented with black pleural effusion. The increased risk of developing malignant melanoma may be because of numerous nevi all over his body [5]. To the best of our knowledge, ours is the first case that was diagnosed as having melanoma by thoracoscopic pleural biopsy under local anaesthesia.

Black pleural effusion is uncommon but may conceal an underlying grave disease. Clinicians dealing with patients having pleural effusion should be familiar with gross

appearances of effusion and approach to diagnosis and management.

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Disclosure Statement

Appropriate written informed consent was obtained for publication of this case report and accompanying images.

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