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Primary Pulmonary Malignant Melanoma of Right Upper Lobe of Lung

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Malignant melanoma is a malignant tumor arising from the melanosomes (pigment-producing cells) of the deeper layers of the skin or the eye [1]. Primary pulmonary malignant melanoma is a very rare disease that generally occurs in the fifth decade of life and has a poor prognosis [2]. The symptoms and signs of PPMM are similar to those associated with bronchogenic carcinoma, and surgical resection with or without adjuvant chemoradiation remains the mainstay of therapy and offers patients the best chance of cure [3]. Approximately 30 PPMM cases are described in the literature, mostly case reports [3]. These cases suggest that melanoma can arise in the lung as a primary tumor, probably from residual melanoblasts. We present the case of a 68 year old man diagnosed preoperatively with PPMM who underwent curative right upper lobectomy.

PPMM = primary pulmonary malignant melanoma

PATIENT DESCRIPTION

A 68 year old non-smoking, healthy, asymptomatic man underwent a chest X-ray prior to a lens extraction due to a senile cataract. The X-ray revealed a space-occupying lesion in his right upper lobectomy [Figure 1]. The patient had no respiratory complaints or other physical symptoms and no personal history of lung disease. A computerized tomography scan of his chest showed a mass 5 cm in diameter in the RUL. Fiberoptic bronchoscopy did not reveal any endobronchial lesions. Transthoracic needle biopsy showed metastatic malignant melanoma. The evaluation also included a fluorodeoxyglucose positron emission tomography scan that showed increased fluorodeoxyglucose uptake only in the RUL mass.

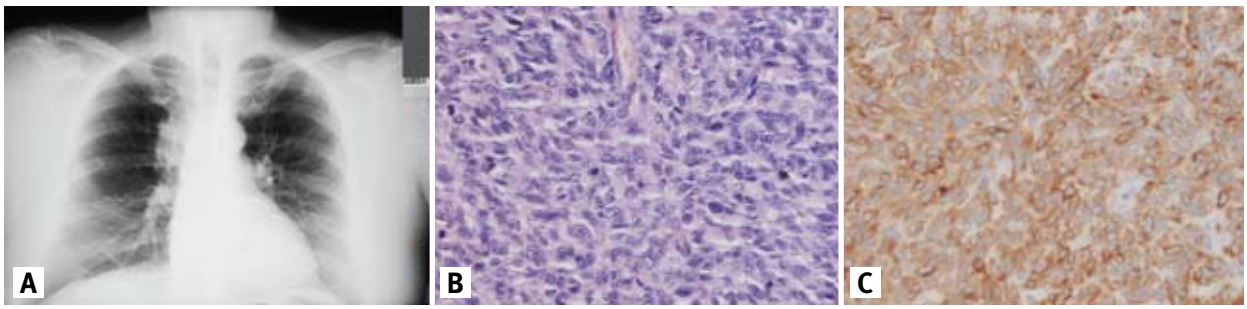
RUL = right upper lobectomy

Further meticulous metastatic workup of the skin, eyes, anorectal region, and upper and lower gastrointestinal tract did not reveal a primary origin for the disease. In the absence of further metastatic foci, we decided to resect the RUL. Preoperative pulmonary function testing revealed a forced expiratory volume in the first second of 2.68 L/min, 123% of the predicted value. The surgery was performed via a standard right thoracotomy incision.

On gross examination of the specimen, the tumor appeared grayish, and felt semi-solid and multilobulated without involvement of surgical margins. Microscopic examination showed significant atypia, prominent nucleoli, and marked mitotic activity [Figures B and C]. Immunohistochemical reactions supported the diagnosis with a positive melanoma cocktail of S-100 and Alpha-SMA. Dissected hilar and mediastinal lymph nodes were free of metastatic disease. The postoperative period was unremarkable and the patient was discharged seven days after surgery.

After a short recovery period, he received adjuvant chemotherapy with

[A] Chest radiography of the 68 year old patient with a right upper lobe mass. **[B]** and **[C]** Slides showing the histological findings of cells with primary pulmonary malignant melanoma



interferon. He was followed up by annual clinical checkups and CT scan evaluations and is currently (6 years post-surgery) in good health without evidence of local recurrence or metastatic disease.

COMMENT

PPMM is an aggressive, unpredictable tumor that accounts for less than 1% of all primary lung cancers [3]. Symptoms and signs are similar to those of bronchogenic carcinoma. The tumor is frequently endobronchial and the patient generally presents with a cough, post-obstructive pneumonia, atelectasis, hemoptysis and lobar collapse. More rarely, as in the present case, it is discovered in an asymptomatic healthy patient. Surgical resection is the treatment of choice as in cases of non-small cell lung carcinoma, but the role of postoperative adjuvant chemotherapy or radiotherapy is not fully known. Radiotherapy has been tried in mucosal melanoma of the head and neck [4] with disappointing results and chemotherapy has been used for palliation only [4]. The prognosis of PPMM is poor. Long-term survival was achieved in two cases in the past (10 years and 11 years after lobectomy and pneumonectomy, respectively) [5]. Our patient underwent RUL lobectomy, received adjuvant chemotherapy with interferon, is currently 6 years post-surgery and remains healthy without local recurrence or metastatic disease.

In conclusion, PPMM represents a rare pathological entity. Careful preoperative investigation and postoperative confirmation of the diagnosis together with clinical findings may establish the diagnosis. Surgical intervention is appropriate and remains the cornerstone of treatment.

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