Metastatic hepatoblastoma: a rare cause of lung mass in adults

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Hepatoblastoma is a pediatric malignant tumor of the liver with very few cases reported in adults. There are no case reports on isolated metastatic lung involvement with hepatoblastoma in an adult who had been previously treated for the pediatric form of this disease. We report the case of a 27-year-old asymptomatic man who presented to the hospital after a motor vehicle accident. Imaging studies revealed bilateral lung masses. He had been treated for hepatoblastoma at the age of 10 years. Histopathologic examination of the lung biopsy revealed embryonal subtype of hepatoblastoma. Further imaging studies failed to reveal the presence of any concomitant liver lesions.
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Introduction

Hepatoblastoma, a rare malignant tumor of the liver, is most commonly known to occur before the age of 5 years [1]. Metastatic involvement of the lung is known to occur in pediatric population and is associated with a poor prognosis. Hepatoblastoma is very rare in adults, with less than 40 reported cases [2]. Metastatic involvement of the lungs in such cases is even rarer. To the best of our knowledge, this is the only case report describing an adult who had previously treated for pediatric hepatoblastoma presenting with an isolated metastatic lung involvement.

Case history

A 27-year-old nonsmoker African American man presented to the hospital after being involved in a motor vehicle accident. Chest radiography and computed tomography (CT) of the chest were performed as a part of trauma protocol. Chest radiograph (Fig. 1) and CT of the chest (Fig. 2) revealed a left upper lobe mass and two masses on the right side without any lymphadenopathy. Abdominal and pelvic CT showed postsurgical changes with an absent right lobe of the liver. There was no lymphadenopathy and no other hepatic or splenic lesions. On further questioning, the patient denied any pulmonary or systemic symptoms, including cough, dyspnea, hemoptysis, fever, and weight loss. The patient was known to have a right hepatic lobectomy for hepatoblastoma at the age of 10 years. He had received four cycles of cisplatin and doxorubicin. He had been followed up for 5 years after the treatment and was not known to have any recurrence.

The patient was hemodynamically stable. He was well built and well nourished. There was no palpable lymphadenopathy. Abdominal examination revealed a well-healed scar in the right upper quadrant without any organomegaly. The rest of the physical examinations were within normal limits. Laboratory tests including complete blood counts and markers of liver and renal function were within normal limits. Because of the patient's previous history of hepatoblastoma, serum α-fetoprotein was evaluated and was found to be 710 ng/ml (normal, <5.4 ng/ml).

To establish a definitive diagnosis, it was decided to proceed with CT-guided biopsy of the left-sided lung mass. Histopathologic examination of the lung biopsy showed epitheliod and spindle neoplasm with a nested architecture (Fig. 3). Immunohistochemical staining was positive for α-fetoprotein, β-catenin, and CK19. This was consistent with a slow-growing embryonal subtype of hepatoblastoma.

Because of extensive bilateral pulmonary involvement the patient was not considered to be a surgical candidate. The patient was started on combination chemotherapy with cisplatin and doxorubicin. He was also started on adjuvant radiation therapy. A follow-up CT scan of the chest after 2 months showed reduction in the size of the pulmonary masses.

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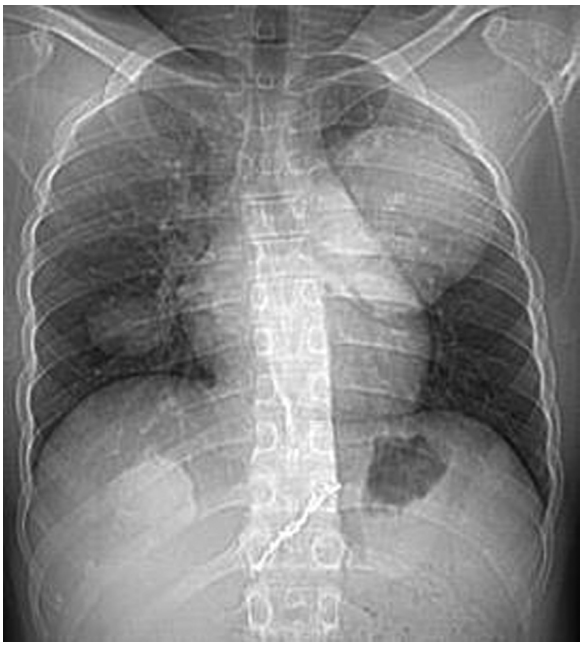
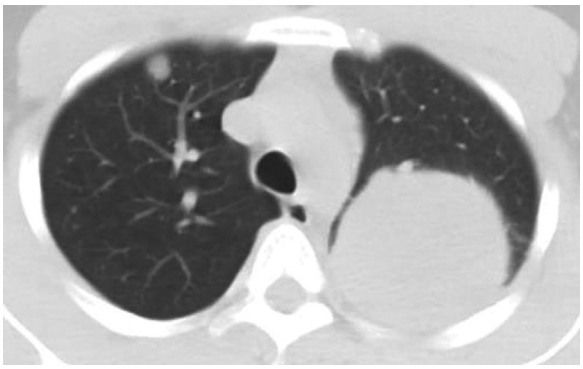
Figure 1



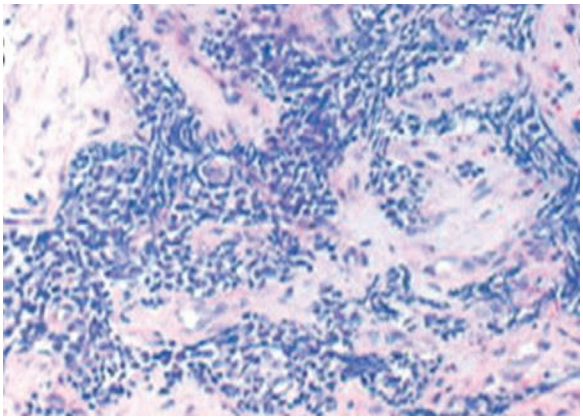
Chest radiograph revealing a left upper lobe mass and two masses on the right side without any lymphadenopathy.

Figure 2



Computed tomography (CT) of the chest revealing a left upper lobe mass and two masses on the right side without any lymphadenopathy.

Figure 3



Histopathologic examination of the lung biopsy showing epitheliod and spindle neoplasm with a nested architecture.

Discussion

Isolated metastatic lung involvement in an adult with previously treated pediatric hepatoblastoma has not been described in the literature, with this being the first and the only case report describing such involvement. Because of the rarity of the disease, there are no standardized guidelines for the management of hepatoblastoma in adults or for the management of pulmonary involvement in such patients [3].

Pulmonary involvement is considered to be a poor prognostic factor in both adult as well as pediatric hepatoblastoma. Such patients are usually treated with cisplatin-based chemotherapy, followed by surgical resection of the pulmonary nodules [4]. Improvement in the long-term survival has been noted in these patients who have had pulmonary metastatic nodule resection. It should be remembered that liver transplant, a possible therapeutic option for the patients with hepatoblastoma, is not contraindicated in patients with pulmonary metastasis, if such nodules are removed before the transplantation [5].

In the recent years, the availability of newer chemotherapeutic agents and better surgical modalities has led to an increase in the survival of children with hepatoblastoma. Most of the children who do not have widespread metastatic disease at the time of presentation are now known to survive until adulthood. The prognosis in the adult disease is improved with early detection, diagnosis, and treatment [6]. Thus, it is important for all physicians to know about this pediatric malignancy and its rare pulmonary manifestations.

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Conflicts of interest

There are no conflicts of interest.

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