Cannon Ball Metastases and Atrial Thrombus

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Abstract Cannon ball lesions and atrial thrombosis are seldom seen in clinical practice. A variety of infectious or non infectious conditions are associated with them. A meticulous search is required to delineate the exact etiology.

Keywords Cannon ball metastases · Hepatocellular carcinoma · Right atrial thrombus

A 65-year-old male, presented to us with 4 months history of hemoptysis and low grade fever. General physical examination and clinical examination were unremarkable except for a non-tender hepatomegaly.

A chest X-ray done showed multiple cannon ball lesions of variable sizes in all lung fields highly suggestive of metastases (Fig. 1). A PET-CT scan was ordered and it revealed multiple heterogeneously fluoro-deoxy-glucose (FDG) avid mass lesions in bilateral lungs. Another large FDG avid mass lesion was noted in segment IV of liver. There was evidence of FDG avid filling defect with calcification in the sub-diaphragmatic and supra-diaphragmatic inferior vena cava (IVC), extending into the right atrium- suggestive of malignant thrombus (Figs. 2 and 3). Australia antigen (HBsAg) was positive. Alfa fetoprotein was within normal limits (9.8 ng/mL). Biopsy and subsequent immunohistochemistry performed confirmed the diagnosis of hepatocellular carcinoma. He was started on sorafenib and anti-viral therapy.

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Fig. 1 Chest Xray showing multiple pulmonary nodules (cannon ball lesions) in all lung fields

Fig. 2 PET image showing FDG avid thrombus in the right atrium

Hemoptysis as an initial presentation of HCC is uncommon. Though cannon ball lesions can be seen in a variety of infectious and non-infectious conditions, metastatic disease should be the most common differential diagnosis [1]. HCC has a propensity for vascular invasion. It mostly invades portal and hepatic veins. Invasion of the IVC and right atrium is an uncommon phenomenon. IVC invasion is seen in 9–26 % and right atrium thrombus is seen in 2.4–6.3 % of the cases [2, 3]. Prognosis is dismal due to advanced nature of the disease.

Fig. 3 Contrast-enhanced CT image showing thrombus in the inferior vena cava with partial canalisation

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