Gall bladder carcinoma presenting as multiple cavitory pulmonary metastases – a rare event

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Abstract Carcinoma of the gall bladder is the commonest malignancy of the biliary tract. It is either detected incidentally during routine imaging or presents as lump in right hypochondrium or with signs of jaundice. Rarely, it may present with multiple cavitory metastatic lesions in the pulmonary parenchyma. The authors, report such a rare case of gall bladder carcinoma that presented with extensive, bilateral pulmonary cavitory metastases with no evidence of any nodal disease and where the diagnosis was delayed due to this rare presentation.

Keywords Carcinoma · Gall bladder · Metastases · Cavitory

Introduction

Gall bladder carcinoma, though uncommon, is the commonest malignancy of biliary tract with highest incidence in the elderly [1]. The diagnosis is often delayed due to vague and insidious onset of symptoms. Most of the patient present with pain or lump in right hypochondrium, weight loss, anorexia, vomiting secondary to duodenal obstruction and jaundice. Most of them harbor unresectable disease at the time of diagnosis because of direct extension in to the adjacent organs or distant metastatic disease. Cavitory pulmonary lesions as the initial presentation of gallbladder carcinoma have rarely been reported [2].

Case report

A 65-years-old female with complaints of cough, anorexia and weight loss and multiple cavitory lesions on chest radiograph, non-responsive to medical treatment came for computed tomographic (CT) scan of thorax for further evaluation. She had a past medical history of antibiotic therapy including antitubercular treatment for more than 2 years including second line drugs. Repeated sputum cultures were negative for acid fast bacilli, fungi and other pathogens. Other laboratory examinations were unremarkable.

CT scan of thorax revealed multiple cavitory lesions and fewer solid appearing nodules in both lung fields; most numerous at the bases (Fig. 1). The cavities were of variable sizes and wall thickness; maximum diameter being 2.8 cm and wall thickness of 4.5 mm. Majority of the cavitory lesions contained only air. No evidence of any calcification or any mediastinal abnormality was noted. Retrospective evaluation of the serial past radiographs of the chest

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revealed multiple cavitory lesions of variable sizes and wall thickness that were increasing in number in both lungs. Few nodular lesions with subsequent cavitation were also noted in the bilateral lungs. No evidence of disappearance of any nodule or cavitory lesion was noted. Based on the CT findings and serial radiographic findings, the diagnosis of cavitory pulmonary metastases was suggested.

In an attempt to search the possible primary tumor, the patient was taken up for thorough clinical examination including the upper aerodigestive tract. An ultrasound scan of abdomen was obtained in addition, which revealed a mass in the gall bladder with no evidence of any visible calculi. Patient was then taken up for CT scan of the abdomen for further evaluation. The latter revealed an infiltrative mass in the gall bladder in the region of neck and body with poorly defined interfaces with the liver (Figs. 2, 3). Besides, a focal subcentimeter lesion was noted in the liver (Fig. 4). The rest of the abdomen was unremarkable with no evidence of any lymphadenopathy or other visceral abnormality.

Fig. 1 Transaxial CT image in pulmonary window settings shows multiple cavitory lesions of variable sizes and wall thickness distributed diffusely in both lung fields

Fig. 2 Transaxial contrast enhanced CT image shows an ill-defined mass in GB neck with infiltration of the adjacent hepatic parenchyma (arrow)

Based on the clinical radiologic findings, the provisional diagnosis of carcinoma of the gall bladder with local invasion in to the hepatic parenchyma, focal hepatic metastasis and multiple cavitory pulmonary metastases was suggested.

Transbronchial biopsy from pulmonary parenchymal lesions and FNAC from the gall bladder and hepatic lesion revealed adenocarcinoma cells of similar variety, thus confirming the provisional diagnosis. Patient was explained about the prognosis and was advised chemotherapy. Patient was lost in follow up.

Discussion

Gall bladder carcinoma is the commonest malignancy of biliary tract and fifth most common malignancy of the gastrointestinal tract [1, 3]. Adenocarcinoma is the commonest histological type. Death due to gall bladder carcinoma occurs commonly due to aggressive local disease, much before the distant metastases can occur [4].

Fig. 3 Transaxial contrast enhanced CT image shows an ill-defined mass in body of GB (arrow)

Fig. 4 Transaxial contrast enhanced CT image shows a well defined, hypodense metastatic nodule in liver (arrow)

Metastases from gall bladder carcinoma usually involve the liver, local & para-aortic lymph nodes, adjacent organs including biliary tract, duodenum, colon and peritoneum with infrequent involvement of lungs, adrenal, bones and scalp [4, 5].

Cavitation in pulmonary metastases is considered rare and usually coexists with solid pulmonary nodules [2, 3, 6]. Most common neoplasms producing cavitation in pulmonary metastases are the squamous cell carcinoma of lung, head & neck region and female reproductive system. Less frequently, such metastases can occur in adenocarcinoma of colon, breast, pancreas, sarcomas, testicular seminoma, and transitional cell carcinoma of urinary bladder [2, 3, 6]. Adenocarcinoma of gall bladder is a very rare cause of cavitary pulmonary metastases [2, 3]. Very few reports of cavitary pulmonary metastases from adenocarcinoma of gall bladder as the first presentation resulting in diagnostic dilemma and delay exist in the medical literature [2, 3, 7]. Cavitary metastases may appear as bleb, cyst, irregular or rounded lesions [6].

Multiple mechanisms have been proposed for cavitation in pulmonary metastases; commonest being tumor cells outgrowing the vascular supply, ischemic necrosis secondary to obstruction of supplying vessels, keratin or mucin degeneration and tumor cells growing in to the pre-existing cavity. However, bronchioloectasis and ischemic or enzymatic breakdown of tumor cells has been proposed as the mechanism of cavitation in metastatic pulmonary nodules occurring secondary to adenocarcinoma of gall bladder in previous reports [2, 3].

Differential diagnosis of multiple cavitary lesions are numerous and most common causes include infections like tuberculosis & fungal diseases, pulmonary cystic disease, Wegener's granulomatosis, septic embolism and uncommonly metastases. Infectious diseases can be ruled out by sputum examination or failure of response to antibiotic therapy as seen in our case. Wegener's granulomatosis is typically characterized by fleeting cavitary lesions associated with history of upper respiratory tract infection.

Patients with gall bladder carcinoma have a mean survival period of around six months with 5 year survival rate of approximately 5 percent [8]. Patient with distant metas-

tases has a median survival rate of 3–4 months; hence no intervention is recommended [4].

To summarize, metastases from adenocarcinoma of gall bladder though rare, but should be included in the differential diagnosis list of multiple cavitary lesions in pulmonary parenchyma along with the other benign & malignant causes especially those nonresponsive to medical treatment. This case report also highlights the role of imaging in early diagnosis of gall bladder carcinoma, thus preventing unnecessary medical treatment and may probably result in improved survival due to early institution of management.

Conflict of interest The authors do not have any disclosable interest

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