Case Report

Metastatic Gallbladder Carcinoma to Pleura with Gallbladder Tuberculosis – Case Report with Literature Review

Abstract

Gallbladder carcinoma (GBC) is the most common malignant tumor of the biliary system and presents with frequent locoregional lymphadenopathy and distant metastasis. Gallbladder tuberculosis (GT) is rare abdominal tuberculosis (TB). GBC and GT mimic each other. The clinical examinations and radiographic investigations sometimes fail to exhibit the difference between these two which are confirmed only after postoperative histopathological assessment. Herein, we report a patient of GBC with coexistent GT with pleural metastasis and pleural effusion. We emphasize the importance of differential diagnosis of the two conditions, with similar signs and symptoms. The pleura is an extremely rare site of spread of GBC as seen in our patient.

Keywords: *Carcinoma, gallbladder, metastasis, pleura, tuberculosis*

Anjum Ara, Mohammad Saleem, Kafil Akhtar[1]

Department of General Pathology, Faculty of Dentistry, Jamia Millia Islamia, New Delhi, [1]Department of Pathology, Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh, Uttar Pradesh, India

Introduction

Gallbladder carcinoma (GBC) is the most common malignant tumor of the biliary system. It is aggressive and shows frequent locoregional lymph node involvement and distant metastasis. GBC has poor outcomes owing to late detection and diagnosis.[1] The familiar pathways of the spread of GBC are direct, lymphatic, vascular, neural, intraperitoneal, and intraductal. Liver and lymph nodes are the most common sites of metastasis of GBC, but pleural involvement with pleural effusion is extremely rare.[2]

Gallbladder tuberculosis (GT) first described by Gaucher is also an uncommon disease.[3] The GBC and GT mimic each other. Clinical evaluation and radiographic investigations may not always be able to differentiate between the two. The diagnosis can only be confirmed by histopathological examination.[3]

Herein, the case of a patient is reported with preoperative diagnosis of GBC with pleural effusion on CT scan and a postoperative diagnosis of GBC with coexistent GT with pleural metastasis. Here, we stress the significance of differentiating between these two illnesses because of comparable signs and symptoms. Moreover, in cases of GBC, coexisting abdominal tuberculosis (TB) with lymphadenopathy may significantly impact staging and treatment options. In addition, as in the present case, pleurae are very uncommon sites of GBC dissemination.

Case Report

A 45-year-old female presented with complaints of recurrent pain in the upper right quadrant of the abdomen and yellowish discoloration of the body. There was a history of marked anorexia, weight loss, belching, and difficulty in breathing for the last 3 months. Family history was not significant.

On physical examination, a firm to hard mass was palpable in the right hypochondriac region. The chest examination revealed bilaterally reduced breath sounds and dullness on percussion. The routine hematological and biochemical tests showed increased bilirubin level with deranged enzymes. There was a past history of pain in the right hypochondriac region of the abdomen possibly due to gallbladder (GB) stones, relieved on treatment.

X-ray chest showed bilateral blunting of costophrenic angles. Abdominal ultrasonography (USG) revealed a mass in the GB with 18-mm wall thickness with variable-sized multiple calculi. Contrast-enhanced computed

How to cite this article: Ara A, Saleem M, Akhtar K. Metastatic gallbladder carcinoma to pleura with gallbladder tuberculosis – Case report with literature review. Int J App Basic Med Res 2025;15:125-7.

Submitted: 28-Aug-2024
Revised: 18-Nov-2024
Accepted: 02-Feb-2025
Published: 07-Apr-2025

Address for correspondence:
Prof. Mohammad Saleem, Department of General Pathology, Faculty of Dentistry, Jamia Millia Islamia, New Delhi - 110 025, India.
E-mail: msaleem1@jmi.ac.in

Access this article online

Website: https://journals.lww.com/IJAB

DOI: 10.4103/ijabmr.ijabmr_412_24

Quick Response Code:

tomography (CECT) thorax confirmed GB mass with massive pleural effusion with thickened pleura. USG-guided FNAC of the mass showed scattered pleomorphic cells with marked anisonucleosis and hyperchromatic nucleus. Activated histiocytes with epithelioid morphology and lymphocytes with splintered chromatin were also present [Figure 1]. The pleural tap was highly cellular with the presence of large atypical cells with marked anisokaryosis with numerous lymphocytes and activated mesothelial cells [Figure 2]. Section from the pleura revealed fibrocollagenous tissue with multiple glands lined by atypical cells with foci of hemorrhage [Figure 3]. The immunohistochemistry revealed diffuse cytoplasmic positivity of cytokeratin in the metastatic tumor cells, which are arranged in glandular configuration [Figure 4]. The cartridge-based nucleic acid amplification test (CBNAAT) for tuberculosis was positive.

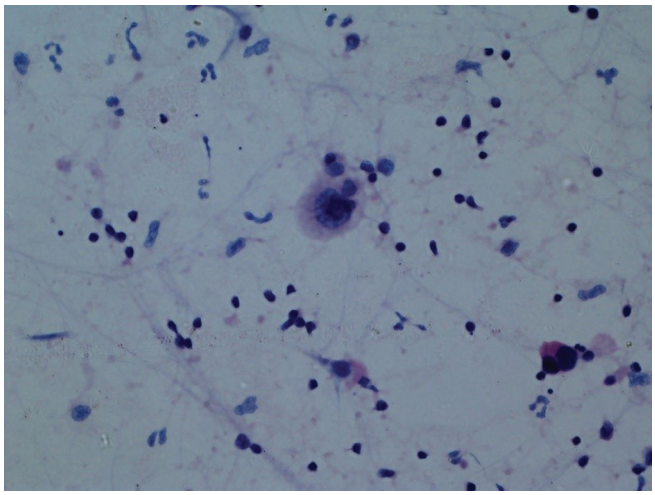

Figure 1: Ultrasound-guided fine-needle aspiration of the mass showed scattered pleomorphic cells with marked anisonucleosis and hyperchromatic nucleus with activated histiocytes with epithelioid morphology and lymphocytes with splintered chromatin – Papanicolaou stain, ×40

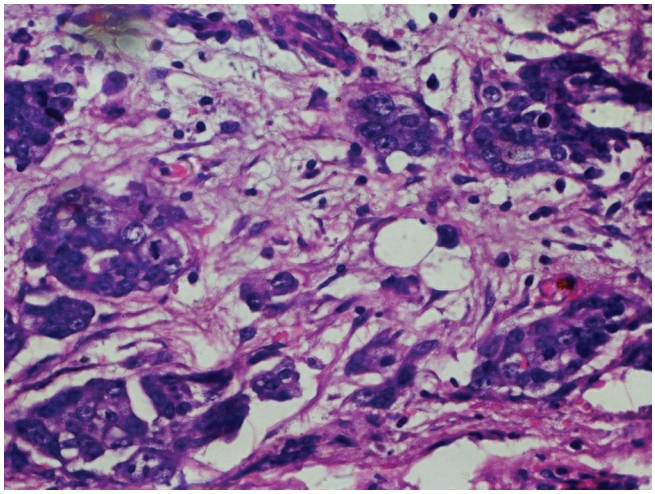

Figure 3: Section from the pleura revealed fibrocollagenous tissue with multiple glands lined by atypical cells with foci of hemorrhage – H and E, ×40

A final diagnosis of metastatic GBC to pleura with GT was given. The patient was administered 6 cycles of 5-fluorouracil (5-FU)-based chemotherapy with 9-month regimen of 4-drug antitubercular treatment. The patient has tolerated the drugs well and doing fine on follow-up at 3 months.

Discussion

The primary concern is to distinguish cancer from other illnesses that frequently affect the GB and lead to delay in its diagnosis. GBC has a poor prognosis. Its early detection is difficult because the clinical features overlap with many benign conditions such as chronic cholecystitis, adenomyosis, and TB.

The coexistence of GT and malignancy is a very rare incidence. GB is a rare site for TB, and prognosis of GBC is poor.[1,3] Advance radiological imaging techniques such

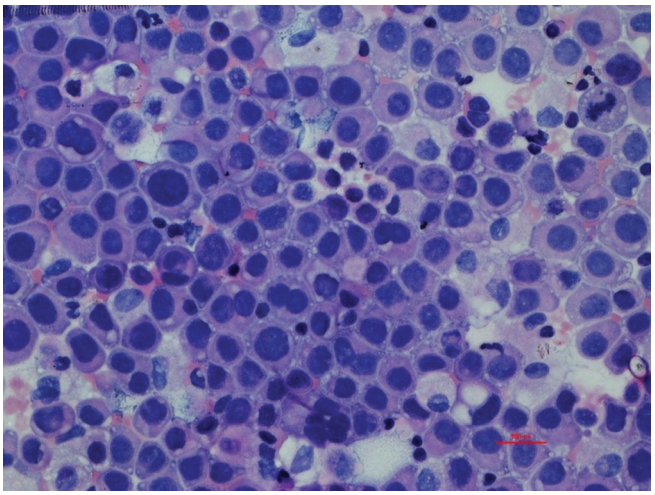

Figure 2: The pleural tap was highly cellular with the presence of large atypical cells with marked anisokaryosis with numerous lymphocytes and reactive mesothelial cells – Papanicolaou stain ×40

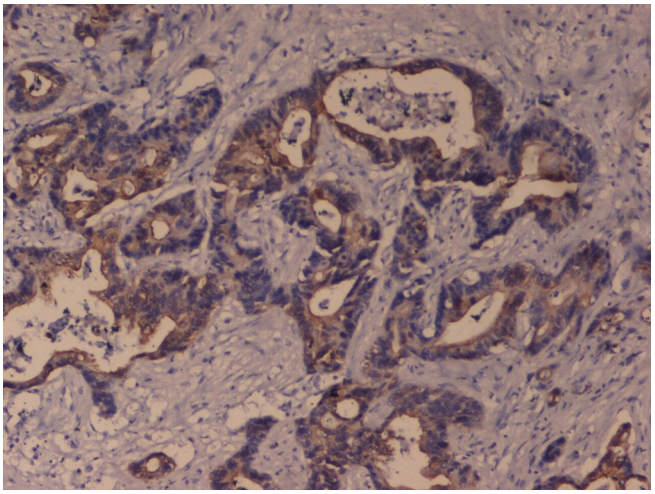

Figure 4: Immunophotograph shows diffuse cytoplasmic positivity of cytokeratin in the metastatic tumors cells, which are arranged in glandular configuration

as combined positron emission tomography and computed tomography have enabled clinicians to make a more accurate diagnosis, but these conditions pose a serious challenge to final diagnosis, as they clinically mimic one another.[4]

The GBC presents with varied clinical symptoms of decreasing weight, consistent discomfort in the upper right abdomen, dyspepsia, bilious vomiting, loss of appetite, and jaundice. There may be low-grade fever, decreased appetite, and weight loss preceding the onset of abdominal pain pointing toward associated tuberculosis, especially in endemic areas.[5] Our patient presented with similar complaints with signs of pulmonary involvement either by metastasis or foci of TB. Hence, the past and family history is also important in case of suspected TB.

The alkaline pH of bile and bile acid inhibits the growth of mycobacterium bacilli. However, there are several predisposing factors. Cholecystitis damages the GB mucosa providing a nidus for TB, whereas cystic duct obstruction lowers bile acid concentration. Gallstones accompany about 70% of GT cases.[6] Similarly, the patient in our case had a history of gallstone-associated pain, which subsided on treatment.

The glands in adenomyosis are usually bland, some with cystic dilatation and communicate with the GB lumen. There are reports of Rokitansky-Aschoff (R-A) sinuses being misinterpreted as GBC. The R-A sinuses resembling gland-like structures have laminar distribution as compared to haphazardly distributed glands in adenocarcinoma. The R-A sinuses which extend deeper into subserosal or perimuscular tissue are surrounded by hyperplastic smooth muscle bundles and are lined by pseudostratified columnar epithelium showing reactive atypia.[7]

CT scan or MRI is important to reach an accurate diagnosis. The occurrence of intraluminal polypoid mass or invasion to adjacent organs and angioinvasion are significant indicators of GBC.[8] Gupta *et al*. have described varied morphological patterns for GT based on CT findings.[9] Because of diverse morphology on CT scan, histopathological correlation is imperative.

The most common sites of GBC metastasis are lymph nodes, liver, bile ducts, pancreas, etc., Pleural effusion is common in cancers such as breast carcinoma, gynecologic cancers, and lung cancers in 91.0%, 82.0%, and 72.0%, respectively. Pleural effusion in GBC is very rare.[2] Our patient also presented with severe clinical signs and symptoms due to the involvement of pleura, which occurs very rarely. The CECT of our patient showed a bilateral obliterated costophrenic angle and a GB mass. The pleural tap findings revealed the presence of highly atypical cells. Histopathology of pleural biopsy tissue was suggestive of metastatic GBC to the pleura.

Conclusion

GT is rare as compared to GBC. However, GT should be considered in patients with GB masses with a history of tuberculosis. The correlation of clinical presentation with histopathologic and radiographic findings helps to distinguish GBC from other benign pathologies and detect rare sites of metastasis.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Miao W, Liu F, Guo Y, Zhang R, Wang Y, Xu J. Research progress on prognostic factors of gallbladder carcinoma. J Cancer Res Clin Oncol 2024;150:447.
2. Lee MJ, Lee Y, Kim Y, Ahn S, Sohn CH, Seo DW, *et al*. Etiology of pleural effusions in cancer patients. J Korean Soc Emerg Med 2016;27:15-21.
3. Ramdani A, Rockson O, Bouhout T, Serji B, El Harroudi T. Gallbladder tuberculosis mimicking gallbladder carcinoma: A case report and review of the literature. Cureus 2020;12:e7950.
4. Liu Y, Wang K, Liu H. Gallbladder tuberculosis mimicking gallbladder carcinoma: A case report and literature review. Case Reports Hepatol 2016;2016:3629708.
5. Harshal K, Sangita S, Roshan U, Nita R. Case report on gall bladder malignancy with tuberculosis. Nat Volatiles Essent Oils 2021;8:810-5.
6. Yu R, Liu Y. Gallbladder tuberculosis: Case report. Chin Med J (Engl) 2002;115:1259-61.
7. Dorantes-Heredia R, Chablé-Montero F, Henson DE, Albores-Saavedra J. Rokitansky-Aschoff sinuses mimicking adenocarcinoma of the gallbladder: A study of 8 cases. Am J Surg Pathol 2013;37:1269-74.
8. Ramachandran A, Srivastava DN, Madhusudhan KS. Gallbladder cancer revisited: The evolving role of a radiologist. Br J Radiol 2021;94:20200726.
9. Gupta P, Marodia Y, Bansal A, Kalra N, Kumar MP, Sharma V, *et al*. Imaging-based algorithmic approach to gallbladder wall thickening. World J Gastroenterol 2020;26:6163-81.