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Renal cell carcinoma metastasize to gallbladder

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Abstract

A 66-year-old Caucasian female had intermittent chest pain without any exertion or shortness of breath. Chest X-ray revealed a 1.1-cm nodular lesion in the right upper lobe. Computed tomography (CT) chest revealed multiple bilateral pulmonary nodules. Repeated CT chest scan four months later showed nodule increased from 10mm to 14mm in right upper lobe. CT abdomen and pelvis with contrast revealed a mass arising from the right kidney. Magnetic resonance image of the abdomen and pelvis confirmed the lesion of the right kidney. There was additional uptake in the right hepatic lobe as well as the gall bladder neck. The patient underwent a cholecystectomy and right nephrectomy. Biopsy revealed renal cell carcinoma and gall bladder showed metastases secondary to RCC. She was started on pazopanib chemotherapy. Follow-up after 1 month showed that she was tolerating chemotherapy and denied any complaint.

Keywords

renal cell carcinoma; gallbladder; lung; lesion; oncology; metastasis

Abbreviations

CT: Computed tomography; GB: gall bladder; RCC: renal cell carcinoma

Introduction

Renal cell carcinoma (RCC) is a rare tumor accounting for 3% of all malignancies in adults and 85% of primary renal tumors [1-3]. Metastasize sites are the lung (most common), bone, liver, brain, or adrenal glands [2-4]. By contrast, metastatic tumors to the gall bladder (GB) in patients with RCC is extremely rare, being present in less than 0.6% of autopsies [1,4-5]. When gallbladder is affected by metastatic disease, it usually from melanoma, stomach, pancreas, ovary, small bowel, biliary duct and breast carcinomas [5]. However, gallbladder metastasis in patients with RCC cancer is very rare.

Smoking and obesity are other known risk factors. The incidence and mortality of RCC is higher in African Americans than in whites. Hematuria is the most common symptom of this type of cancer. Other symptoms include flank pain, abdominal mass, fever, cough and bone pain [6]. We present an interesting case where a lung nodule suspicious for primary bronchogenic carcinoma was investigated further which turns out to be a hidden symptomless metastatic RCC.

Case Presentation

This is a case of a 66-year-old female with history of smoking 30 packs per year who came to the ED complaining of intermittent chest pain without any exertion. She denied any shortness of breath. EKG,

troponin, ECHO, and stress were all normal. Chest X-ray revealed a 1.1-cm nodular lesion in the right upper lobe. CT chest with contrast revealed multiple bilateral pulmonary nodules, 10 mm, Right lower lobe. Repeated CT chest scan 4 months later showed nodule increased from 10 mm to 14mm. CT abdomen and pelvis with contrast revealed a 10.8 x 8.5 cm mass arising from the right kidney. There was additional uptake in the right hepatic lobe as well as the gall bladder neck. MRI of the abdomen and pelvis confirmed the lesion off the right kidney (Figure 1). She underwent a cholecystectomy and right nephrectomy. Biopsy revealed renal cell carcinoma and gall bladder showed metastases secondary to RCC. Patient was started on pazopanib chemotherapy. Follow-up after 1 month showed that she was tolerating chemotherapy well and denied any other complaint.

Discussion

There have been less than 50 reported cases of RCC metastasis to GB. Patients with distant metastases from RCC have a poor prognosis, with 1-year survival of less than 50%. Metastases to the gallbladder may resemble a primary gallbladder carcinoma [6]. Increase in lung nodule size always triggers to rule malignancy. Metastatic disease of the gallbladder should be considered in every oncologic patient even if the initial tumor was treated many years before, especially in patients with hypervascular polypoid or pedunculated-type gallbladder tumors who have a previous history of RCC [7].

Gallstone ileus (GI) is a mechanical blockage due to large gallstones in the bowel. The most common fistulas are amongst the gallbladder and duodenum, or the ileum and colon. Fistula with the stomach is quite rare. The terminal ileum and the ileocecal valve, followed by proximal ileum and jejunum, stomach, and duodenumare usually impacted [8].

CT is the method of choice for detection and staging of RCC. Patients with carcinoma of gallbladder most commonly presents with right upper quadrant pain [6]. Pre-operative imaging and intra-operative findings are key factors in determining the proper treatment [7].

GI is difficult to diagnose, and is intraoperative in about half of the cases. Only 10% of gallstones are calcified enough to be seen radiographically. Typical findings include: pneumobilia, intestinal blockage and aberrant gallstone location (Rigler's triad) [8].

Ultrasound, linked to a plain abdominal film, is used to affirm the pre-operative diagnosis, displaying cholelithiasis and fistula in some cases. For bilio-enteric fistula, computed tomography (CT) scan may improve diagnostic precision using the stone's location, number and size. Additionally, contrast-enhanced abdominal CT scan is known to have the greatest specificity and sensitivity for diagnosing GI [8].

Surgery is the preferred option if the tumor can be resected may improve long-term survival of patients [5]. Localized diseases such as mucosal tumors prefer cholecystectomy, tumors of the liver segments IVb/V use radical cholecystectomy with resection, and advanced diseases such as tumor at the hepatoduodenal ligament requires lymphadenectomy [3,9]. In gallbladder with suspected malignancy, lesions larger than 1 cm, a cholecystectomy should be performed to obtain a definitive diagnosis [1]. Cholecystectomy provides the best survival outcome for both primary and secondary gallbladder tumors [6].

Surgical treatment remains a topic of research. Current options include: enterolithotomy with or

without cholecystectomy (done later, two-stage surgery), enterolithotomy with cholecystectomy and fistula repair (one-stage surgery).

Enterolithotomy is the most frequent operative method since it has low incidence of complications and results in spontaneous closure of the fistulous tract in more than half of the cases. Recently, laparoscopy-assisted enterolithotomy and endoscopic removal are being preferred for GI treatment [8].

Conclusion

In conclusion, metastatic tumors to the gall bladder (GB) in patients with RCC is extremely rare, being present in less than 0.6% of autopsies. There have been less than 50 reported cases of RCC metastasis to GB. Metastatic disease of the gallbladder should be considered in every oncologic patient even if the initial tumor was treated many years before especially in patients with hypervascular polypoid or pedunculated-type gallbladder tumors who have a previous history of RCC. Surgery is the preferred option if the tumor can be resected may improve long-term survival of patients.

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Figures

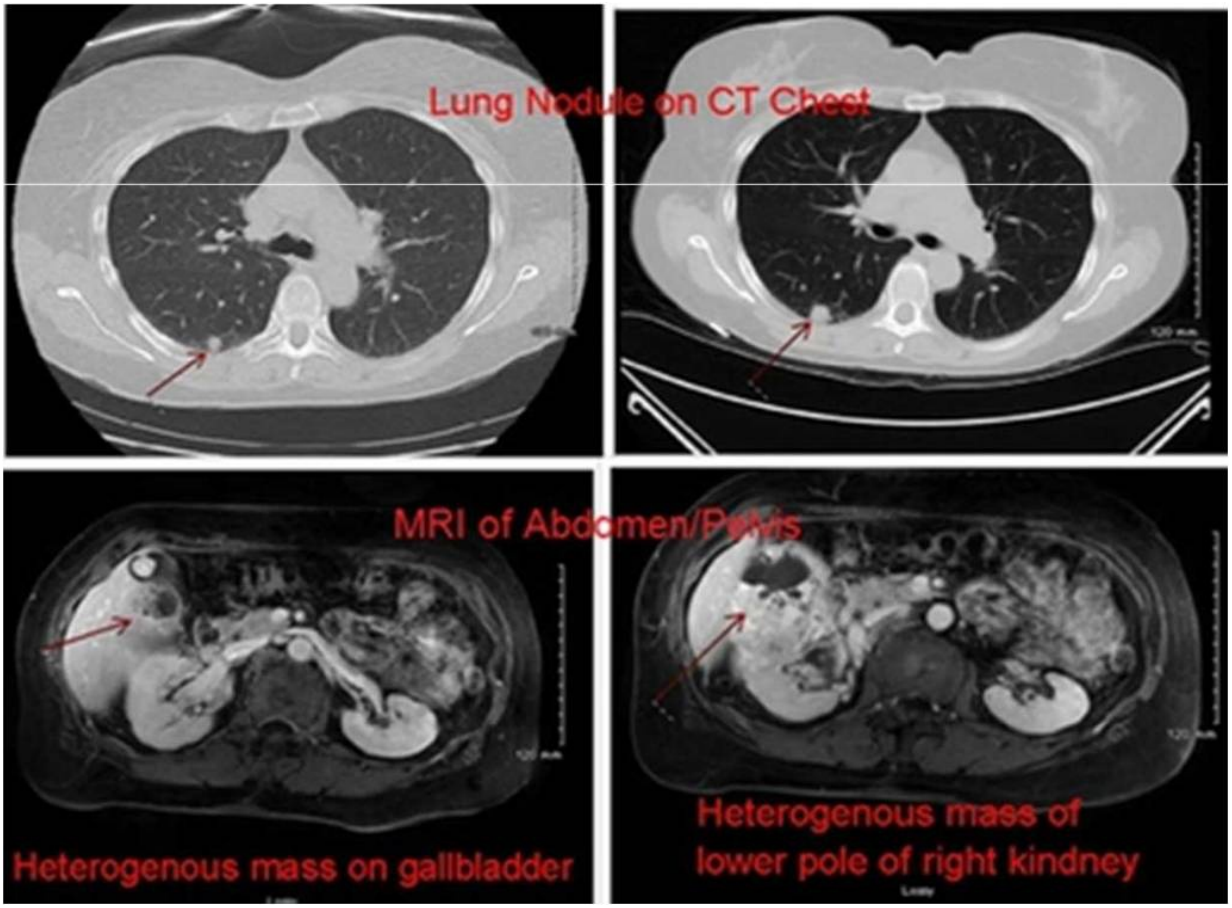

Figure 1: CT Chest, and MRI Abdomen, Pelvis
Two images on the top show CT scan of chest. Arrows point to lung nodules. Two images on the bottom show MRI of abdomen and pelvis. Arrow on the left points to heterogenous mass on gallbladder, and arrow on the right points to heterogenous mass on lower pole of right kidney.

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