

C A S E R E P O R T

Acute cholecystitis as a sign of occult metastatic gastric cancer: Case report and literature review

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Abstract. Acute cholecystitis is a frequent clinical condition, usually related to biliary lithiasis. In very few cases, acute cholecystitis can be caused by tumor infiltration and distant metastasis. Gallbladder represents an uncommon site of tumor metastasis, mostly from melanoma and clear cell renal tumor. Gastric cancer has rarely been reported to metastasize to the gallbladder. Herein, we present a very singular case of lithiasic acute cholecystitis, which turned out to be a metastatic gastric cancer in a previously healthy man. We also offer a review of the pertinent literature. (www.actabiomedica.it)

Key words: acute cholecystitis, gallbladder metastases, gastric cancer

Introduction

Acute cholecystitis (AC) is a prevalent disease in Western countries and is frequently associated with gallstones. The infiltration of tumor metastases represents a rare cause of AC. The gallbladder (GB) is an uncommon site of distant metastasis, primarily associated with melanoma and clear cell renal tumor (1–3). Only 12 cases reported in the literature display that metastases of GB hailed from a primitive tumor located in the stomach (4–8). Gallbladder metastasis clinical manifestations (upper right abdominal pain, vomiting) can be similar to those related to acute cholecystitis. Here, we report a case of AC associated with synchronous occult advanced gastric cancer and a review of the pertinent literature.

Case Report

A 72-year-old male patient was admitted to the ER complaining of abdominal pain, vomiting and weight loss, roughly 13 kg over a few months. His

past medical history included former smoker (15 pack year), hypertension and radical prostatectomy for cancer 15 years earlier. Blood tests admission: WBC 18.57×10^3 /ul, Hb 12.6 g/dL, PCR 127.5 mg/L, Total Bilirubin 1.01 mg/dL, PCT 3.05 ng/mL. Abdominal US showed a lithiasic gallbladder with thickened walls without common bile duct dilatation. The patient was referred for laparoscopic exploration and cholecystectomy in an emergency setting. During surgery, the exploration of the abdominal cavity showed acute cholecystitis associated with multiple large nodes next to the greater stomach curve and on the great omentum. Laparoscopic cholecystectomy and omental biopsy were performed. The histological examination showed a full-thickness GB widespread infiltration by gastric adenocarcinoma. The GB's lymph node was a massive metastasis of gastric adenocarcinoma, and the omental node was confirmed to be an infiltration of a gastric adenocarcinoma poorly differentiated. After surgery, the patient underwent:

1. EGDS, which showed a bowl-shaped lesion on the greater stomach curve. Histological

examination confirmed the diagnosis of infiltrating gastric adenocarcinoma (Figure 1).

2. An abdominal CT scan confirmed the presence of a concentric thickening of the antrum-pyloric area, associated with contrast enhancement, stomach dilatation and multiple lymph nodes within the lesser sac adjacent to the stomach with stranding of adipose tissue. A 15 mm solid nodule of the V segment of the liver, highly suspicious for metastasis, was reported (Figure 2).
3. Blood tests showed an increase of tumor marker CA 19-9: 1149.7 UI/mL.

Postoperatively, the patient experienced multiple episodes of vomiting. The radiological examinations



Figure 1. Abdominal CT-scan that describes gastric cancer.



Figure 2. Endoscopic image of the gastric lesion.

showed stomach over-relaxation without the progression of contrast medium in the duodenum. The patient underwent PEG and jejunostomy. The patient was discharged on the 14th post-operative day, and he started chemotherapy on day 35th after surgery.

Discussion

Gallbladder tumors are uncommon, as they represent the 1,2% of all neoplasias (9). Gallbladder metastases (GBm) are even rare and often associated with poor prognosis—GBms by gastric cancer account for 2.4% of overall cases (10). We can only find five studies about this topic in literature today (Table 1). The first study by Yoon and colleagues in 2009 was a single-centre retrospective study analyzing 417 patients affected by gallbladder neoplasias: only 20 cases (4.8%) were found to be GBm. According to this series, gastric cancer accounted for 40% (8 of 20) of GBm, mostly adenocarcinomas, in the case of signet ring cell adenocarcinoma (SRCC) (4). Malignant melanoma has been reported as the most frequent primitive tumor associated with GBm, followed by primary renal cell carcinoma, breast cancer and hepatocellular carcinoma (7). The other four studies are case reports (5–8). Overall, only 12 cases of GBm from gastric cancer have been reported in the literature. The average age of patients with GBm is 65 years old. In 6 cases, the diagnosis of gallbladder metastases was synchronous with the diagnosis of stomach cancer; meanwhile, in 6 cases, the diagnosis occurred later with a median time of 23.8 months.

Table 1. Gallbladder metastases by gastric cancer reported in the literature.

Authors	Journal	Year of publication	N° case
Yoon WJ <i>et al.</i>	Word J Gastroenterol	2009	8
Bilici A <i>et al.</i>	Turk J Gastroenterol	2011	1
Gorenstein L <i>et al.</i>	Isr Med Assoc J	2023	1
Sugita H <i>et al.</i>	Int J Case Rep	2021	1
Ooe Y <i>et al.</i>	Gan To Kagaku Ryoho	2019	1

In 11 cases, gallbladder metastases originated from ADK of the stomach, and only in 1 case was it due to SRCC tumor of the stomach. In most cases, gallstones and tumor infiltration are simultaneously present. Only one case, described in Sugita's study, reports a non-lithiasic AC caused by metastasis (7). As in our case, GBm clinical manifestations (upper right abdominal pain, vomiting) can be similar to those related to acute cholecystitis due to obstruction of the cystic duct. Advanced-stage gastric cancer is related to poor survival, and the presentation of MGB with acute cholecystitis was described as a significant negative prognostic factor with an average survival of 2.8 months. A possible explanation for this finding is that a significant infectious episode, such as acute cholecystitis, may have significantly impacted the patient's survival.

Conclusion

GBm is rare, especially in cases of primary gastric cancer, usually manifesting with abdominal pain mimicking acute cholecystitis. Preoperative diagnosis is rare. In our experience and from the review of cases published in the literature, we can deduce the need for careful evaluation of abdominal symptoms and rigorous surveillance of imaging tests in case of AC symptoms in a frail middle-aged patient. Infrequently, AC can be an epiphenomenon of advanced-stage gastric cancer, and it should be considered as an adverse prognostic factor.

Conflict of Interest: Each author declares that they have no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement, etc.) that might pose a conflict of interest in connection with the submitted article.

Ethics: The patient gave an informed written consent agreement before being included in the study.

Authors Contribution: F.M: conceived and wrote the manuscript. R.C: supervised and corrected the project. E.V and F.R: corrected the formal English. L.G and G.I: reviewed the pertinent literature. A.A and J.M: analyzed and validated the data.

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