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Gastric Cancer Presenting as Isolated Ascites: A Diagnostic Challenge

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ABSTRACT

Malignant ascites is a rare first manifestation of gastric carcinoma and is usually associated with symptoms which include early satiety, abdominal pain and deteriorating clinical state. The authors describe the case of a male patient presenting with malignant ascites of rapid onset which was the sole presentation of gastric cancer, highlighting the importance of upper gastric endoscopy even in the absence of gastrointestinal symptoms.

LEARNING POINTS

- Malignant ascites is present in 10% of cancer patients and is associated with a poor prognosis.
- Gastric cancer causes malignant ascites in 18% of cases but is rarely the first symptom.
- As the absence of lesions on a full body CT scan does not exclude gastric cancer, gastrointestinal endoscopy is still the best diagnostic test.

KEYWORDS

Gastric cancer, ascites, upper endoscopy, poor prognosis

INTRODUCTION

Ascites is the accumulation of fluid in the peritoneal cavity, and is associated with multiple pathologies, most frequently chronic liver disease. Malignant ascites may result directly from the malignant process or may be secondary to an unrelated comorbidity. It is associated with poor prognosis and contributes to dyspnoea, early satiety, fatigue and abdominal pain.

CASE DESCRIPTION

A 72-year-old Caucasian man was admitted with lower extremity oedema, weight gain and a progressive increase in his abdominal perimeter over 2 weeks. He denied fever, loss of appetite, nausea, vomiting, diarrhoea or obstipation. He had a history of hypertension, diabetes mellitus, dyslipidaemia, ischaemic heart disease, cerebrovascular disease and heavy smoking (50 pack-years), which had ceased 3 years previously.

Physical examination revealed jugular vein distention at 45° and hepatojugular reflux, abolished breath sounds in both pulmonary bases, ascites and bilateral lower extremity oedema, without signs or symptoms of chronic liver disease. Laboratory results showed discrete normocytic anaemia (Hb 11 g/dl), leucocytosis (11.25×10^9/l) with neutrophilia (8.03×10^9/l) and C-reactive protein 5.6 mg/dl; serum creatinine 1.2 mg/dl, urea 72 mg/dl, total protein 5.3 g/dl, albumin 2.8 g/dl and NT pro-BNP 1295 pg/ml, and proteinuria 126 mg/24 h;

European Journal of Case Reports in Internal Medicine

negative serologies for HIV, hepatitis B and C; increased NSE and Cyfra 21-1; carcinoembryonic antigen (CEA), alpha-fetoprotein (AFP) and CA 19.9 within the reference values; and normal thyroid function, transaminases, INR and alkaline phosphatase.

Diagnostic paracentesis revealed a turbid yellow liquid with a serum ascites albumin gradient (SAAG) of 1.1 g/dl with total proteins 3.9 mg/dl, LDH 216 U/l, pancreatic amylase 15 U/l and adenosine deaminase (ADA) 7.4 U/l. The liquid was negative for neoplastic cells.

Full body computed tomography (CT) revealed a 9 mm solid nodule with irregular contours in the upper lobe of the right lung, bilateral pleural effusion, a small homogeneous liver without individualized nodules, and a large amount of ascites, without other alterations. Transthoracic echocardiography (TE) revealed segmental cardiomyopathy with ejection fraction at the lower limit of normal.

Given the small size of the pulmonary nodule, it was unlikely to have caused the ascites so a biopsy was not carried out. The most probable cause of the ascites appeared to be decompensated heart failure. Diuretic therapy was increased but ineffective, so repeated paracentesis was required for symptom relief due to a progressively larger volume of ascites. Upper digestive endoscopy (UDE) revealed extensive gastric neoplasia. A gastric biopsy was performed revealing gastric adenocarcinoma.

DISCUSSION

In 10% of cases, ascites can present as a complication of malignancy, most frequently ovarian (37%), pancreatic (21%) and gastric (18%) cancer[1]. Diagnostic paracentesis is required to distinguish benign from malignant ascites. Ascitic fluid generally shows a high concentration of proteins, elevated LDH and low SAAG. A positive cytological examination is diagnostic of malignancy, although a negative result does not preclude the diagnosis[2,3]. In this case, the typical characteristics were not present even after repeated biochemical and cytological evaluation of the ascitic fluid. Additionally, a SAAG greater than or equal to 1.1 g/dl suggests portal hypertension which was considered due to the congestive heart failure. However, failure to improve with targeted therapy indicated another diagnosis.

Radiological studies are also instrumental. CT allows the detection of even small amounts of ascitic fluid and provides information difficult to obtain on ultrasonography[3]. A contrast-enhanced CT scan may demonstrate peritoneal lining enhancement or reveal gastric wall thickening in patients with carcinomatosis or inflammatory peritonitis, but these findings were not present in this case. Exploratory laparoscopy may be required when ascites of undetermined origin is present[4]. In this case, before performing an exploratory laparoscopy, we opted to carry out a UDE which revealed extensive gastric neoplasia.

Gastric cancer is one of the most common malignant diseases worldwide; the main risk factors include male gender, non-white race and older age. Hosseini et al. reported that the first symptom was gastric pain in 44.4% of cases, dysphagia in 20.6%, vomiting in 17.5%, anorexia in 11.1%, nausea in 4.8% and cachexia in 1.6%[5]. A literature review revealed no reports of ascites as the first manifestation of gastric cancer, although it is the first detected sign of intra-abdominal malignancy in 50% of patients with peritoneal carcinomatosis[6].

Maeda et al.[7] reported malignant ascites as a late manifestation of gastric cancer, often accompanied by a deteriorated clinical state. Despite the prominent ascites in our patient, the absence of other symptoms or clinical deterioration contributed to the diagnostic challenge.

In conclusion, this case highlights the need for a systematic approach to ascites, especially when there are multiple risk factors, which makes diagnosis more challenging. Furthermore, even in the absence of gastrointestinal symptoms or gastric lesions on CT scanning, gastric cancer should be considered as a cause of the ascites.

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