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Case Report **Oncology**

Alpha-Fetoprotein Producing Gastric Cancer: A Case Report

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Abstract

Background: Alpha-feto-protein producing gastric adenocarcinoma is a rare and aggressive subtype of gastric cancer, associated with poor prognosis. Case Presentation: We report the case of a 66-year-old female with a history of hypertension and hypothyroidism who presented with severe anemia and abdominal pain. Initial imaging revealed a gastric lesion. Serum Alfa-Fetoprotein (AFP) was requested due to a suspicious lesion seen on initial liver imaging, and it was markedly elevated (>9000 ng/mL), raising suspicion for AFP-producing gastric cancer versus liver infarction due to venous thrombosis. Endoscopic biopsy of the gastric lesion confirmed Enteroblastic gastric adenocarcinoma. Subsequent MRI abdomen demonstrated hypermetabolic activity in the gastric lesion and in the abdominal lymph nodes without distant metastasis. Given her frailty and reluctance to undergo intravenous chemotherapy, she was offered oral chemotherapy (Capecitabine). ***Conclusion***: Here, we present a case of AFP- producing gastric adenocarcinoma, a rare tumor that has not previously been reported from the Middle Eastern region, to the best of our current knowledge.

Keywords: Alpha-feto-protein, gastric adenocarcinoma, gastric cancer, hypertension, abdominal pain.

INTRODUCTION

Gastric cancer remains a major global health problem, ranking as the fifth most common malignancy and the fourth leading cause of death worldwide. The prognosis is poor, with an overall five-year survival rate is generally below 30%. Alpha-fetoprotein (AFP), a glycoprotein normally produced by the fetal liver and yolk sac, is widely used as a tumor marker in hepatocellular carcinoma and germ cell tumors. AFP-producing gastric adenocarcinoma has increasingly been recognized as a biologically distinct subtype, accounting for approximately 1.3% to 10% of gastric cancers. Management of AFP-producing gastric cancer poses further challenges. Standard therapies include systemic chemotherapy regimens, while other treatments such as immunotherapy and targeted agents are still under investigations.

CASE REPORT

66-year-old female with a history of hypertension and hypothyroidism who presented to our hospital with symptoms of severe anemia. She reported worsening generalized fatigue, shortness of breath on exertion, and intermittent abdominal pain. Laboratory testing confirmed a hemoglobin of 42 g/L, necessitating transfusion with four units of packed red blood cells. On examination, she was hemodynamically stable, afebrile, and not in acute distress. Cardiopulmonary and abdominal examinations were significant for epigastric tenderness. The patient was consented to undergo EGD (Esophagogastroduodenoscopy) and biopsy of the gastric mass.

Imaging and Pathology Findings

A contrast-enhanced CT of the abdomen & pelvis confirmed irregular, hyper enhancing thickening of the gastric antrum, measuring approximately 2.3 cm. Initial imaging of liver identified a focus of infarction due to venous thrombosis, which lead to requesting serum AFP. This raised the suspicion of Liver cancer. However, further liver imaging with MRI ruled out any significant liver lesion. Subsequently, patient underwent EGD, which revealed a circumferential hard, ulcerated mass extending from distal of stomach body to the antrum. Multiple biopsies were obtained.

Histopathological examination of the gastric biopsy showed a moderately differentiated adenocarcinoma with tubuloglandular pattern, pronounced nuclear pleomorphism, brisk mitotic activity and luminal necrosis. Tumor cells show cytoplasmic positivity for AFP and nuclear staining for SALL4.

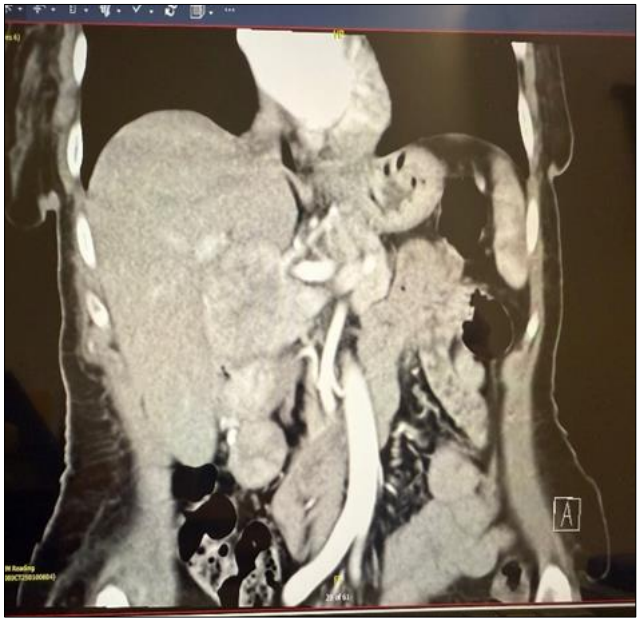

Fig. 1: CT Abdomen Showed hepatic vein thrombosis

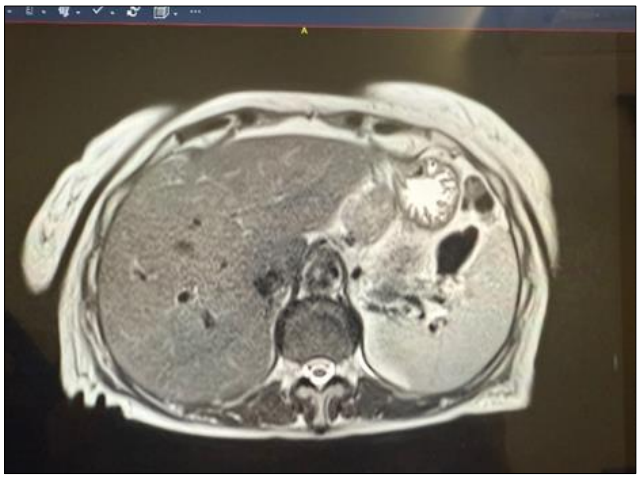

Fig. 2: Abdomen MRI Showed Gastric Mass but no significant liver lesions

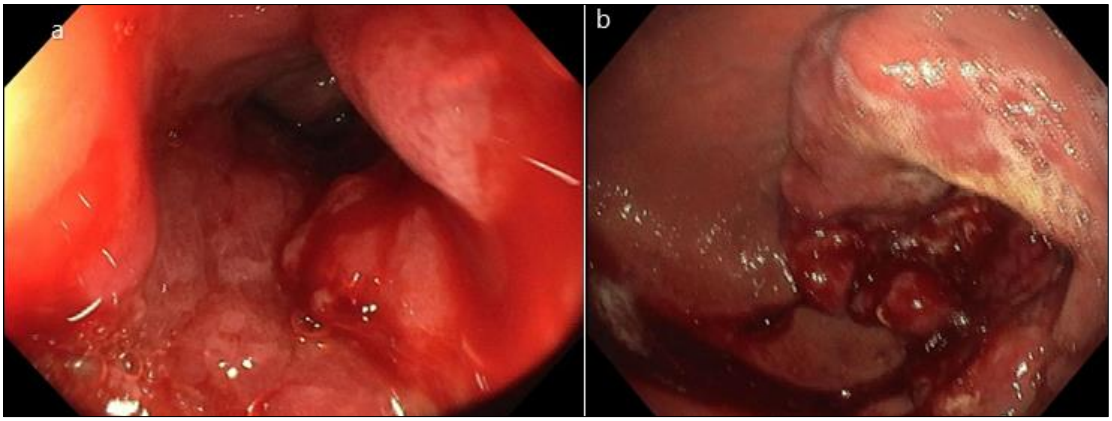

Fig. 3: EGD found that the distal gastric body a circumference hard, ulcerated mass

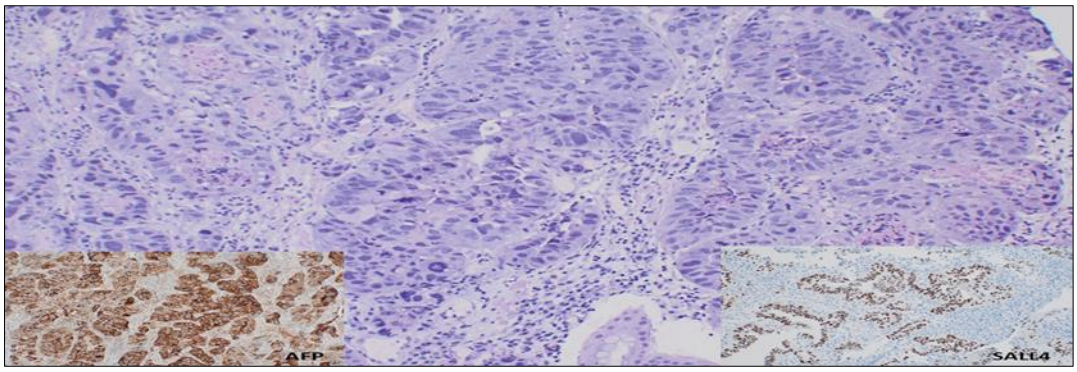

Fig. 4: Moderately differentiated adenocarcinoma showing tubuloglandular pattern with pronounced nuclear pleomorphism, brisk mitotic activity and luminal necrosis. Tumor cells are positive for AFP and SALL4

Multidisciplinary Team Discussion and Treatment Planning

The case was reviewed during the gastrointestinal multidisciplinary team meeting. Based on the available imaging, pathology, and clinical findings, the tumor was classified as advanced, unresectable gastric adenocarcinoma with regional nodal involvement. There was no evidence of hepatic metastasis. Given the advanced stage of the disease, the recommendation was either palliative chemotherapy or best supportive care.

The patient was counseled regarding her diagnosis and treatment options during her oncology clinic visit. Standard systemic chemotherapy with intravenous FOLFOX (oxaliplatin, leucovorin, and 5-fluorouracil) every two weeks for six months was offered, with explanation of potential adverse effects. However, the patient expressed strong apprehension regarding intravenous chemotherapy and declined this option. Instead, she opted for an oral regimen with Capecitabine.

DISCUSSION

Gastric cancer is fifth most prevalent cancer worldwide and the fourth leading cause of cancer related death globally. Prognosis remains poor, with five-year survival rates below 30%. AFP-producing gastric cancer is an uncommon but highly aggressive subtype. It's reported incidence ranges from 1.3% to 10% of all gastric cancers. These tumors are characterized by the production of serum AFP; a glycoprotein typically associated with hepatocellular carcinoma and yolk sac tumors. In such case, a rare medical phenomenon occurs involves the growth of liver cells within the stomach due to abnormal embryogenesis. This is known as "ectopic hepatic differentiation" or, more broadly, as the formation of organs or tissue outside their usual location. This condition typically arises from aberrant development of pluripotent embryonic cells, leading to the presence of hepatic tissue in the gastrointestinal tract.

CONCLUSION

We present a case of AFP producing gastric adenocarcinoma a rare and highly aggressive form of cancer. To our knowledge this is the first such case reported from Middle Eastern region. While the prognosis remains poor, shared decision-making and individualized treatment strategies may optimize both quality of life and patient satisfaction.

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