Case report

A Rare Case of Primary Squamous Cell Carcinoma of the Stomach

ABSTRACT

Primary squamous cell carcinoma is a rare malignant neoplasm of the stomach. Limited knowledge is available regarding its clinical presentation, imaging features, tumor markers, and management of the condition. A 47-year-old male patient presented with abdominal pain and distension of 15 days duration. On clinical examination, a firm mass was palpable in the abdomen, which moved with respiration. On imaging, there was a large extraluminal mass in the lesser omentum arising from the posterior wall of the body and antro-pyloric regions of the stomach with encasement of the celiac trunk and left gastric artery. The preliminary radiological diagnosis was a malignant gastrointestinal stromal tumor (GIST). In contrast, the immunohistochemical diagnosis was squamous cell carcinoma (immunopositive for P63 and cytokeratin). On PET-CT, the possibility of an unknown primary was ruled out. On review of the literature, the imaging findings of our case are similar to previous case reports on primary squamous cell carcinoma of the stomach. It has a poor prognosis as the initial presentation is at an advanced stage, and no standard regimen of chemotherapeutic agents is available for successful treatment. Therefore, knowledge of clinical and radiological features of primary squamous cell carcinoma of the stomach is vital for early diagnosis and successful treatment.

Keywords: Carcinoma, Squamous cell, Stomach, CECT, P63, Cytokeratin, GIST.

1. INTRODUCTION

Primary squamous cell carcinoma of the stomach is a rare malignant neoplasm. Limited knowledge is available regarding its clinical presentation, imaging features, tumor markers, and management of the condition. In this report, we take the opportunity to describe the above features of a proven case of primary squamous cell carcinoma of stomach. It has a poor prognosis as the initial presentation is at an advanced stage, and no standard regimen of chemotherapeutic agents is available for successful treatment. Therefore, knowledge of clinical and radiological features of primary squamous cell carcinoma of the stomach is vital for early diagnosis and successful treatment.

2. PRESENTATION OF CASE

2.1 Clinical details:

An adult male in his 40s presented with dull aching, non-radiating pain in the abdomen for about 15 days. About five years back, he had a history of blood in the vomitus, which was treated conservatively. There were no other significant associated symptoms of the upper and lower gastrointestinal tract. On physical examination, a solitary globular and firm abdominal mass measuring about 10x8 cm was present in the epigastric and umbilical region, which moved with respiration.

2.2 Laboratory examination:

The laboratory findings were deranged with elevated ESR (90 mm/hr), CA 19-9 (56.7 U/ml), alpha-fetoprotein (361 ng/ml), aspartate transaminase (74 U/L), serum globulin (4.2 g/dL), alkaline phosphatase (141 U/L) and hyponatremia. CA 19-9 and alpha-fetoprotein were found to be elevated.

2.3 Imaging findings:

Contrast-enhanced computed tomography (CECT) revealed a 14x14.7cm sized, well-defined, lobulated, heterogeneously enhancing lesion in the lesser sac. (Figure 1) The mass showed a small calcific focus and multiple necrotic areas within. It was seen encasing the left gastric artery. The lesion was not separately visualized from the lesser curvature and posterior wall of the stomach. It was also not separately visualized from the body and tail of the pancreas; however, there was no splaying of the pancreatic parenchyma. (Figures 1 and 2) The fat planes with left and caudate lobes of the liver and common hepatic artery were obliterated. The feeding arteries of the lesion were the left gastric artery and a few branches of the splenic artery. (Figure 3)

The left lobe of the liver showed multiple heterogeneously enhancing lesions. (Figure 1) Celiac, periportal, and para-aortic lymph nodes were enlarged. The lung parenchyma showed three small nodular lesions on both sides, measuring less than 1 cm. Based on the imaging features, a primary malignant mass of the stomach was diagnosed with the possibility of a gastrointestinal stromal tumor (GIST).

Trans-abdominal and endoscopic ultrasound revealed a large heterogenous mass (hypoechoic compared to the liver echogenicity) in the paragastrium. Esophageal varices were noticed on endoscopic ultrasound.

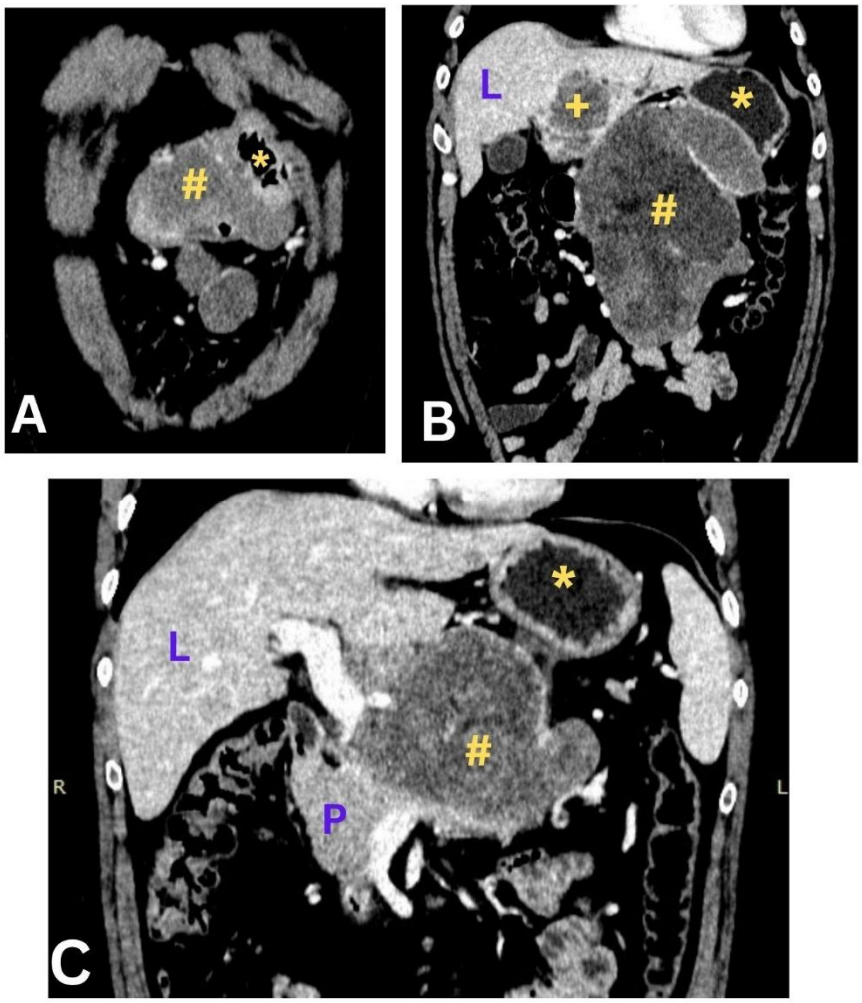

Figure 1 – CECT abdomen and thorax in venous phase. A, B, and C are sequential coronal sections from anterior to posterior. A well-defined, lobulated, heterogeneously enhancing lesion (#) in the lesser sac is seen along the posterior wall of the stomach (*), and obliterated fat planes with the pancreas (P) and the liver (L). Heterogeneously enhancing lesions (+) are seen in the left lobe of the liver, likely secondary lesions from the primary squamous cell carcinoma of the stomach.

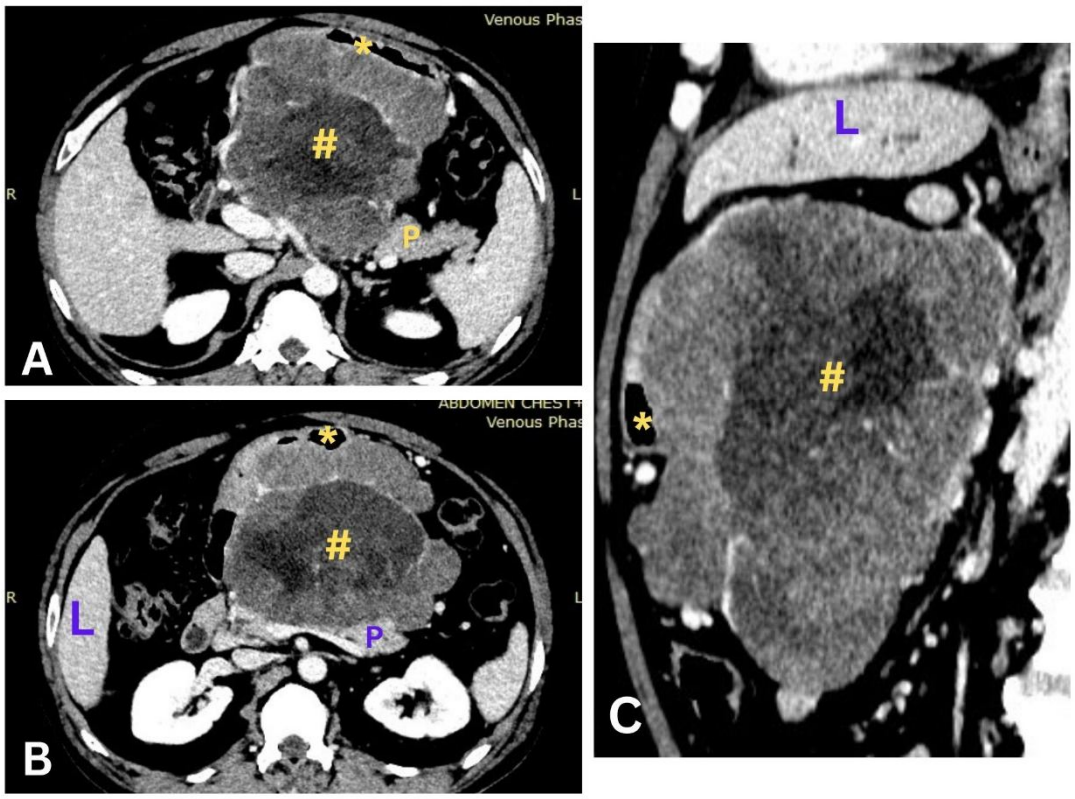

Figure 2 – CECT abdomen and thorax in venous phase. A and B are axial sections showing the lesion (#) abutting the posterior wall of the stomach (*) anteriorly and the pancreas (P) posteriorly. C is the sagittal section of the upper abdomen showing the lesion (#) arising from the posterior wall of the stomach (*). L – Liver.

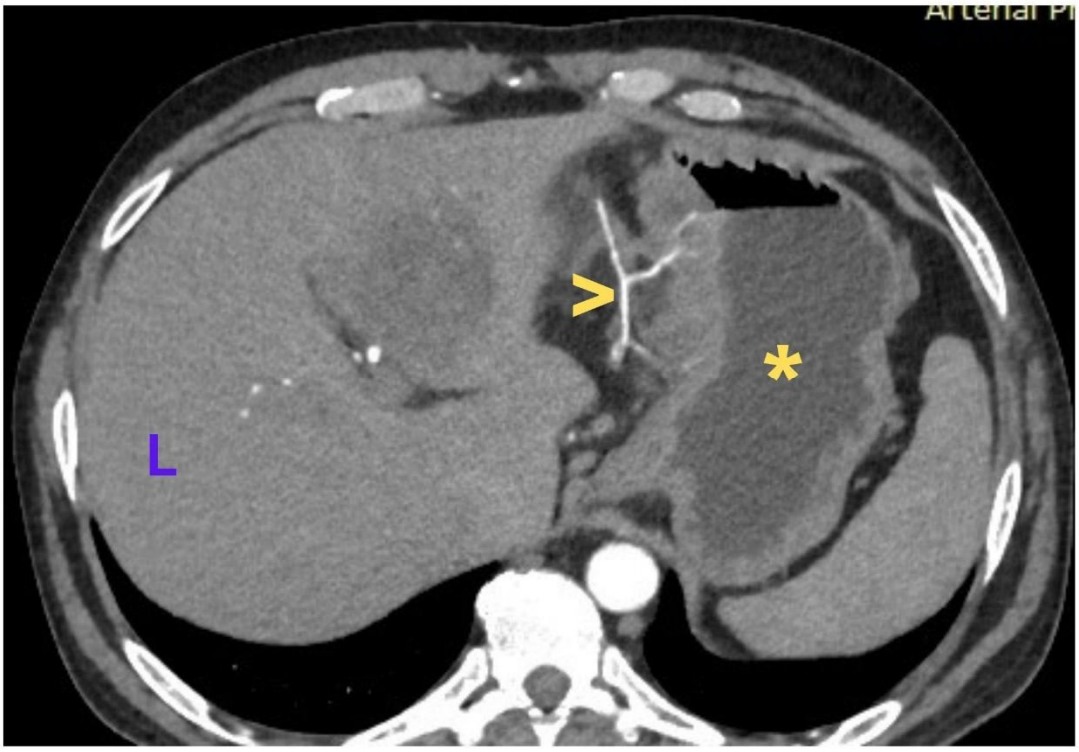

Figure 3 – CECT abdomen in arterial phase. The major arterial supply to the lesion was left gastric artery (>). * - stomach lumen. L – Liver.

2.4 Histopathology:

The tissue from the paragastric mass was composed of cells arranged in sheets. Individual cells were large, with abundant cytoplasm and a large vesicular nucleus. There were also pleomorphic and bizarre giant cells. Immunohistochemistry showed the tumor cells were immunopositive for P63 and cytokeratin. Based on this tissue sampling, the final diagnosis of Poorly differentiated squamous cell carcinoma was made.

2.5 Nuclear medicine findings:

FDG PET-CT revealed a large hypermetabolic exophytic heterogeneously enhancing mass lesion in the epigastric region arising from body and antro-pyloric regions of the stomach with wall thickening. The liver showed hypermetabolic metastases in both lobes. No other focal areas of FDG uptake in the body ruled out secondary squamous cell carcinoma of the stomach.

3. DISCUSSION

Squamous cell carcinoma of the stomach is a very rare primary malignancy with incidence thought to be around 0.04-0.07% of all gastric tumors. It is common in the 6th decade of life with male preponderance. Squamous metaplasia and smoking are positively attributed to the etiology of this tumor; however, their association is yet to be proven. (1) Imaging features of less than 10 cases have been described in the literature so far. Since CECT is a primary imaging modality of choice for assessing gastric or paragastric lesions, it is essential to be familiar with the CT features of squamous cell carcinoma to consider it a differential diagnosis, which will further shorten the management process.

The lesion of interest in our patient was extraluminal and intraperitoneal in location between the liver, stomach, and pancreas. Even though the lesion involves the structures in and around the lesser sac, it was thought to originate from the stomach due to the following reasons: (a) the presence of a major component of the lesion along the gastric wall, which was not separately seen from the lesion, (b) the origin of the feeding arteries, and (c) no parenchymal splaying of pancreas and liver. Local infiltration, necrosis within the lesion, and liver and lung lesions pointed toward the malignant nature of the lesion. The squamous cell carcinoma of the stomach was not considered in the imaging diagnosis because of its location (SCC involved the proximal stomach in previously reported cases) and the younger age of the patient. The

exophytic features of squamous cell carcinoma were also described by González-Sánchez et al. in their study (1), who had noticed a sizeable exophytic mass in the gastric fundus and body with conglomerated lymph nodes at the level of hepatogastric ligament indenting the left lobe of the liver. Another study by Gao et al. and Wu et al. described a similar vascular encasement of the celiac trunk by the lesion arising from the posterior wall of the stomach 2,3). Mhairi Little et al. mentioned the antrum involvement and extensive local infiltration in their report. Uncommon features observed in the present patient were extensive involvement of stomach sparing the proximal segment, younger age, and no endophytic component.

In the present case, elevated alpha-fetoprotein and CA 19-9 can be explained by the involvement of the liver parenchyma, biliary tract, and pancreas. González-Sánchez et al. (1) had observed increase in CA 19-9 and carcinoembryonic antigen.

Since the initial presentation was in the advanced stage and there was no standard line of chemotherapeutic agents for this tumor, palliative chemotherapy was started for him. The patient had expired after the first cycle of palliative chemotherapy.

4. CONCLUSION

The difficulty in imaging diagnosis of Primary Squamous cell carcinoma of the stomach is because of the variable imaging features mimicking other common malignant diseases and the rarity of the condition. In the present case, the imaging features definitely helped to locate the gastric origin of the mass and the malignant nature of the lesion. However, the exophytic nature, lobulated surface, and antro-pyloric origin of the lesion pointed more toward GIST. Hence, familiarizing with the imaging features of squamous cell carcinoma of the stomach will help in considering this condition in the differential diagnosis.

CONSENT (WHERE EVER APPLICABLE)

"All authors declare that written informed consent was obtained from the next of kin to the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editorial office/Chief Editor/Editorial Board members of this journal."

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DEFINITIONS, ACRONYMS, ABBREVIATIONS

GIST - Gastrointestinal stromal tumor
P63 – Tumor protein 63
PET-CT - Positron emission tomography-computed tomography
CECT – Contrast-enhanced computed tomography
ESR – Erythrocyte sedimentation rate
CA 19-9 – Carbohydrate/cancer antigen 19-9
FDG - F-18 fluorodeoxyglucose
CT – Computed tomography