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Primary gastric squamous cell carcinoma: A diagnostic dilemma

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ABSTRACT

Primary gastric squamous cell carcinoma (SCC) is an extremely rare entity with very few cases reported worldwide. We present a case of a large locally advanced gastric mass with liver metastasis, with no involvement of the gastric mucosa. Clinical presentation, serum markers, imaging, endoscopy, and histopathology, created a dilemma in its diagnosis. However, immunohistochemistry helped in the diagnosis. This case serves as a reminder to consider primary gastric SCC as a differential while evaluating a gastric mass.

Introduction

Primary gastric squamous cell carcinoma (PGSCC) is extremely rare, with very few case reports seen in the literature, accounting for 0.2% of all primary gastric cancers (1). The pathogenesis of PGSCC remains unclear, and the optimal treatment strategy is controversial. We describe a case of PGSCC presenting as a large exophytic mass with metastasis, with no involvement of the gastric mucosa.

Case Presentation

A 47-year-old male with a history of significant daily alcohol intake, presented with vague upper abdominal pain and fullness and early satiety for three 3 months. He reported no vomiting, hematemesis, melena, weight loss, or fever. There were no medical comorbidities. His physical examination revealed an ill-defined, smooth, non-tender mass of around 10x12 cm in the epigastric region, with variable consistency and not moving with respiration. Blood tests showed anemia (hemoglobin 8 g/dL) and hypoalbuminemia (2.3 g/dL).

Contrast-enhanced computed tomography (CECT) showed a 14x18.7 cm sized, lobulated, heterogeneous enhancing lesion in the lesser sac, not separately visualized from the lesser curvature of the stomach with loss of fat planes with the left lobe of the liver, duodenum, body of pancreas, common hepatic artery, portal vein, splenic artery, and splenic vein. Multiple enlarged, peri-gastric, celiac, periportal, and para-aortic lymph nodes, and heterogeneously enhancing nodular lesions in the left lobe of the liver were detected (Figure 1A). CA 19.9 was 56.69 U/mL (<27 U/mL), CEA was 1.20 ng/mL (≤4.7 ng/dL) and alpha-fetoprotein was 361 ng/mL (≤7 ng/mL). Gastroscopy revealed

no involvement of the mucosa but luminal narrowing in the body of the stomach (Figure 1B). Endoscopic ultrasonography suggested a large paragastric mass with necrotic areas and the involved layers of the stomach could not be delineated (Figure 1C). An endoscopic ultrasonography-guided fine-needle biopsy was sent for cytology and histopathological examination.

Cytology and histopathology sections showed sheets of large pleomorphic cells with a high N: C ratio, abundant eosinophilic cytoplasm with a round to oval vesicular nuclei with occasional cells showing prominent nucleoli. Many bizarre forms, tumor giant cells, a high mitotic count, and atypical mitosis were also seen. Immunohistochemistry revealed positivity for cytokeratin (CK) and P63 (Figure 2). All other markers such as LCA, CK7, CK 20, CDX2, DOG1, CD117, synaptophysin, chromogranin, beta-catenin, heppar 1, arginase, HMB45, and HER2 were negative, thus ruling out other possible primaries. A diagnosis of poorly differentiated SCC was rendered. Due to its rarity, before diagnosing a primary from the stomach, we wanted to rule out other primary sites. Hence, positron emission tomography (PET) scan was performed which showed a hypermetabolic exophytic mass arising from the body and antro-pyloric region of the stomach with metastasis in both lobes of the liver and compression of the pancreas and duodenum (Figure 1D). Palliative chemotherapy was planned by the medical oncology team. After one cycle of gemcitabine and carboplatin, the patient was discharged. Before his 2nd cycle of chemotherapy, he succumbed to his illness.

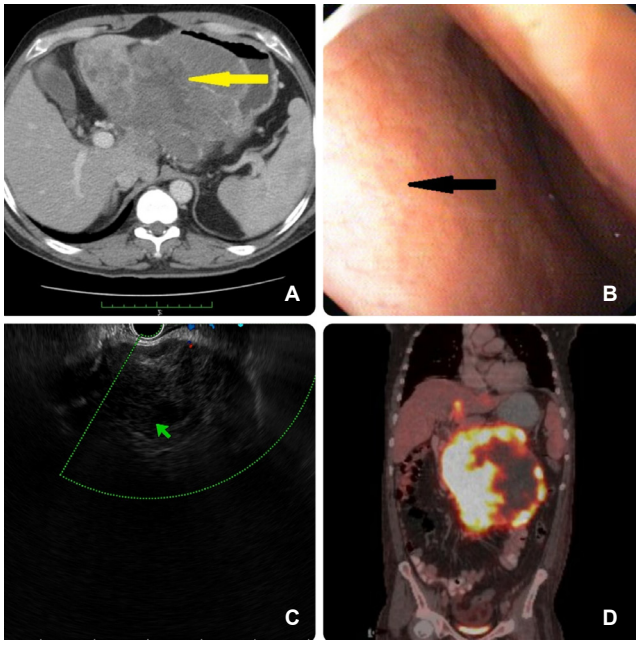

Figure 1. A) CECT image showing a large lobulated mass in the lesser sac, adjacent to the stomach. **B)** Endoscopic image showing a large mass causing luminal narrowing with normal mucosa. **C)** Endoscopic ultrasonography showing a large para gastric mass. **D)** PET/CT image showing hypermetabolic, large, exophytic growth from the stomach, and liver metastasis with no other lesions

CECT: Contrast-enhanced computed tomography, PET/CT: Positron emission tomography/computed tomography

Discussion

Gastric carcinoma is the fifth most common malignancy worldwide and the fourth leading cause of cancer death. There are different histological types, among which adenocarcinoma is the commonest (90%) (1). However, PGSCC is the rarest type with an incidence of 0.04 to 0.07% (2).

The pathogenesis of this is not well known; therefore, several hypotheses have been proposed, such as the presence of totipotent cells, squamous differentiation of pre-existing adenocarcinoma, presence of ectopic squamous cell nests, squamous metaplasia of the glandular epithelium, secondary to chronic mucosal damage, SCC from the vascular endothelium, and Epstein Barr virus infection (3). The reported cases show male predominance and higher prevalence in the sixth decade of life (1,3-5). Most of these cases had a history of smoking and alcohol intake (4,6). The clinical presentation is not specific and shares similarities with other gastric malignancies. Typical symtoms are non-specific abdominal pain and discomfort, vomiting, hematemesis, melena, weight loss, bloating, and early satiety (4).

Certain studies have shown anemia (66.7%), hypoalbuminemia (42.9%), and elevated cancer antigen 19-9 (33.3%) (3). Variable presentations such as submucosal mass, polypoid growth, ulcerated necrotic growth and exophytic growth have been noted (2,4,7,8). In our case, endoscopy looked like a submucosal growth, leading to a misdiagnosis of either gastrointestinal stromal tumor (GIST), gastric schwannoma, or leiomyoma. Using CECT and PET, which showed an infiltrative malignant tumor with metastasis, benign and slow-growing tumors like gastric schwannoma and leiomyoma (9) were ruled out. In the next step, differential diagnoses of a primary gastric tumor with metastasis, malignant GIST, hepatocellular carcinoma, and pancreatic lesion with metastasis were considered. Histopathology revealed features of poorly

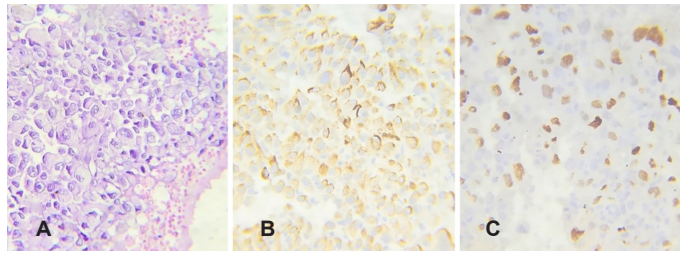

Figure 2. Immunomorphological features of poorly differentiated SCC of the stomach with neoplastic poorly differentiated cells displaying pleomorphic features (**A**, hematoxylin-eosin stain, x400). The neoplastic cells are immunoreactive for pan-cytokeratin (cytoplasmic and membranous) (**B**, x400) and P63 (nuclear) (**C**, x400) (immunoperoxidase stain, HRP polymer method)

SCC: Squamous cell carcinoma

differentiated carcinoma, which is the most common subtype (46.5%) of all gastric SCCs (5). The positivity of immune markers such as CK and P63 indicated gastric SCC. Since previous studies have shown strong staining for P63 has a specificity of 99% and sensitivity of 98% for SCC (3), we ruled out other pathologies using histopathology and immunohistochemistry.

Diagnostic criteria for gastric SCC, described in 1967, indicate that the tumor should not be located at the cardia and extend to the esophagus without evidence of SCC in another part of the body (10). Later in 2011, the Japanese Gastric Cancer Association suggested new criteria, recommending that all tumor cells should be SCC cells without any gland cancer cells and that SCC must originate from the gastric mucosa (11).

Due to its rarity, no standard treatment protocol exists for gastric SCC. Surgical resection is the choice for the local disease. Adjuvant and neo-adjuvant chemotherapy and radiotherapy have also been used in managing such cases (6). Since our patient had an advanced-stage disease, we planned palliative chemotherapy with gemcitabine and carboplatin. Different combinations of paclitaxel, carboplatin, docetaxel, fluorouracil, oxaliplatin, gemcitabine, and pirarubicin have been tried (3,4). However, there is no consensus on a particular regimen. Our patient succumbed to his illness within two months of diagnosis, before the completion of the treatment. Gastric SCC has a poor prognosis with a median survival of about eight months (1,5), probably due to its locally aggressive behavior, diagnosis at an advanced stage, poorly differentiated tumor grade, and early metastasis (3,4).

Conclusion

PGSCC is a rare type of gastric cancer with unclear pathogenesis, variable presentations, aggressive behavior, no standard treatment protocol and poor prognosis. Hence, clinical suspicion is crucial for early diagnosis and management. More so, increased awareness is important in the correct evaluation of gastric tumors.

Ethics

Informed Consent: Written consent was obtained from the patient's wife for reporting the case report, as the patient succumbed to his illness.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: S.P., A.K., C.D., J.S., Concept: C.D., J.S., Design: C.D., J.S., Data Collection or Processing: S.P., A.K., Analysis or Interpretation: S.P., A.K., Literature Search: S.P., A.K., Writing: S.P., A.K., C.D., J.S.

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References

1. Dong C, Jiang M, Tan Y, et al. The clinicopathological features and prognostic factors of gastric squamous cell carcinoma. Medicine (Baltimore). 2016;95:e4720.
2. Guzman Rojas P, Parikh J, Vishnubhotla P, Oharriz JJ. Primary Gastric Squamous Cell Carcinoma. Cureus. 2018;10:e2389.
3. Chen Y, Zhu H, Xu F, et al. Clinicopathological characteristics, treatment, and prognosis of 21 patients with primary gastric squamous cell carcinoma. Gastroenterol Res Pract. 2016;2016:3062547.
4. Beattie M, Mansour R, Thigpin D, Haus C. Metastatic primary gastric squamous cell carcinoma: an uncommon presentation of a rare malignancy. Case Rep Gastrointest Med. 2019;2019:5305023.
5. Akce M, Jiang R, Alese OB, et al. Gastric squamous cell carcinoma and gastric adenosquamous carcinoma, clinical features and outcomes of rare clinical entities: a National Cancer Database (NCDB) analysis. J Gastrointest Oncol. 2019;10:85-94.
6. Wakabayashi H, Matsutani T, Fujita I, et al. A rare case of primary squamous cell carcinoma of the stomach and a review of the 56 cases reported in Japan. J Gastric Cancer. 2014;14:58-62.
7. Gao L, Tang X, Qu H, et al. Primary gastric squamous cell carcinoma presenting as a large submucosal mass: A case report and literature review. Medicine (Baltimore). 2020;99:e22125.
8. Lee JH, Yang KY, Kim BH, et al. A case of exophytic squamous cell carcinoma of the stomach. Korean J Gastrointest Endosc. 2006;33:357-360.
9. Mulita F, Perri T, Liolis E, Tchabashvili L. Gastric leiomyoma or gastric schwannoma: a diagnostic dilemma and the role of laparoscopic surgery. BMJ Case Rep. 2022;15:e247199.
10. Parks RE. Squamous neoplasms of the stomach. Am J Roentgenol Radium Ther Nucl Med. 1967;101:447-449.
11. Japanese Gastric Cancer Association. Japanese classification of gastric carcinoma: 3rd English edition. Gastric Cancer. 2011;14:101-112.