Received: 22 December 2020 | Revised: 20 May 2021 | Accepted: 4 June 2021

DOI: 10.1002/ccr3.4495

CASE REPORT

Clinical Case Reports Open Access WILEY

Primary malignant melanoma of the gastric antrum: A case report

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Funding information
The article processing charges for this manuscript were provided by the East Carolina University Department of Pathology and Laboratory Medicine

Abstract

Primary melanoma of the antrum is a rare and aggressive disease. Diagnosis requires a correlation between the patient's history, tumor histopathology, and immunohistochemistry. Surgery and mutation-targeted treatments may improve overall survival.

KEYWORDS

antrum, gastric, melanoma, mucosal

1 | INTRODUCTION

Extra-cutaneous melanoma is an unusual, aggressive variant of malignant melanoma. We present a case of a 77-year-old male with a primary gastric antral melanoma. Esophagogastroduodenoscopy (EGD) biopsy demonstrated infiltrative sheets of atypical cells with pleomorphic nuclei. Tumor cells were positive for melanocytic markers and negative for epithelial and lymphoma markers.

Malignant melanoma is still one of the most lethal forms of malignancy, with a rapidly rising incidence. The annual incidence of cutaneous melanoma in some populations is close to 4%–6%.[1] On the other hand, extra-cutaneous melanoma is an unusual, rapidly growing variant of malignant melanoma that most commonly involves eyes, head, neck, and leptomeninges and rarely presents mucosal melanoma.[2] Unlike cutaneous melanoma, extra-cutaneous melanoma is more prevalent in females, generally in the seventh decade, and is twice as common in Caucasian populations than African Americans.[2]

Here, we present a case report of a 77-year-old male with a rare primary gastric antral melanoma. Our patient presented with epigastric pain, anemia, and weight loss of 1 month's duration. Imaging revealed gastric wall thickening and a large ulcerated fungating mass occupying the entirety of lesser curvature. Thorough dermatological and radiographic assessment did not reveal a primary cutaneous lesion. The tumor was resected entirely with an uneventful postoperative course.

2 | CASE HISTORY

A 77-year-old male presented with a 4-week history of abdominal pain, anorexia, weakness, weight loss, and progressive anemia. His past medical history was significant for recurrent pancreatitis, hypertension, hypertriglyceridemia, and an abdominal aortic aneurysm. Physical examination revealed pallor and mild epigastric tenderness. The CT scan of the chest, abdomen, and pelvis was unremarkable except for diffuse thickening of the posterior wall of the stomach.

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Esophagogastroduodenoscopy revealed a centrally ulcerated, congested, fungating gastric mass arising from the lesser curvature of the stomach, extending from the antrum to just proximal to the pylorus. Microscopic examination showed extensive infiltration of the gastric mucosa by haphazardly arranged, atypical melanocytes in nests and single cells (Figure 1A,B). The atypical cells had large, bizarre, vesicular nuclei with occasional prominent nucleoli, and scant, pale, eosinophilic cytoplasm (Figure 1C). These cells were positive for Melan A (Figure 1D), S-100 and negative for AE 1/3, and CD20 (Figure 1E,F). After a careful dermatological and radiographic assessment, no skin lesion was identified. Subtotal gastrectomy, gastrojejunostomy, and peri-gastric lymphadenectomy were performed. Intra-operative findings include a large fungating gastric mass with no evidence of carcinomatosis or liver involvement. However, multiple enlarged celiac lymph nodes were found. On gross examination, the mass was ill-circumscribed, measuring up to eleven centimeters, and invaded the entire gastric wall with impending perforation. Microscopic examination of the excision specimen was consistent with the biopsy interpretation, no celiac lymph node involvement was identified, and complete excision was achieved.

3 | DISCUSSION

While melanocytes are known to be mainly present in the epidermis, other tissues such as ocular tissue, mucosal membranes, and leptomeninges can naturally harbor melanocytes, which enhance long-term antimicrobial function and contribute to these tissues' hemostasis.[3] In rare instances, primary malignant melanoma can arise from the mucosa of the gastrointestinal tract, such as the esophagus,[4] anorectal region,[5] with few cases reported in the gastric body.[6]

To date, 44 cases of primary gastric melanoma have been identified, the median age for the patients was 64 years old.[7] As primary gastric melanoma has a non-specific clinical picture, they frequently impose a significant diagnostic challenge, sometimes presenting as a peptic ulcer with hematemesis, melena, anemia, weight loss, and fatigue.[8] This diagnostic challenge was evidenced in our patient by the large tumor size and the extensive infiltration of the entire gastric antral wall predisposing to near perforation, which by itself would increase the chance of tumor spread. Apart from endoscopically black pigmentation reported in one case,[9] our patient's endoscopic lesion does not seem to differ grossly from gastric adenocarcinoma.

There are not enough data in the literature regarding the radiological features of primary gastrointestinal melanoma. However, the imaging features of primary anorectal melanoma, which can have some similarities with primary gastric melanoma, depend on combining imaging features with the histological subtype. For instance, conventional anorectal melanoma is hyperintense on T1-weighted MRI and has a mixed-signal intensity on T2-weighted images. In contrast, the amelanotic melanoma subtypes tend to be hypointense on T1 and hyperintense on T2-weighted images.[3]

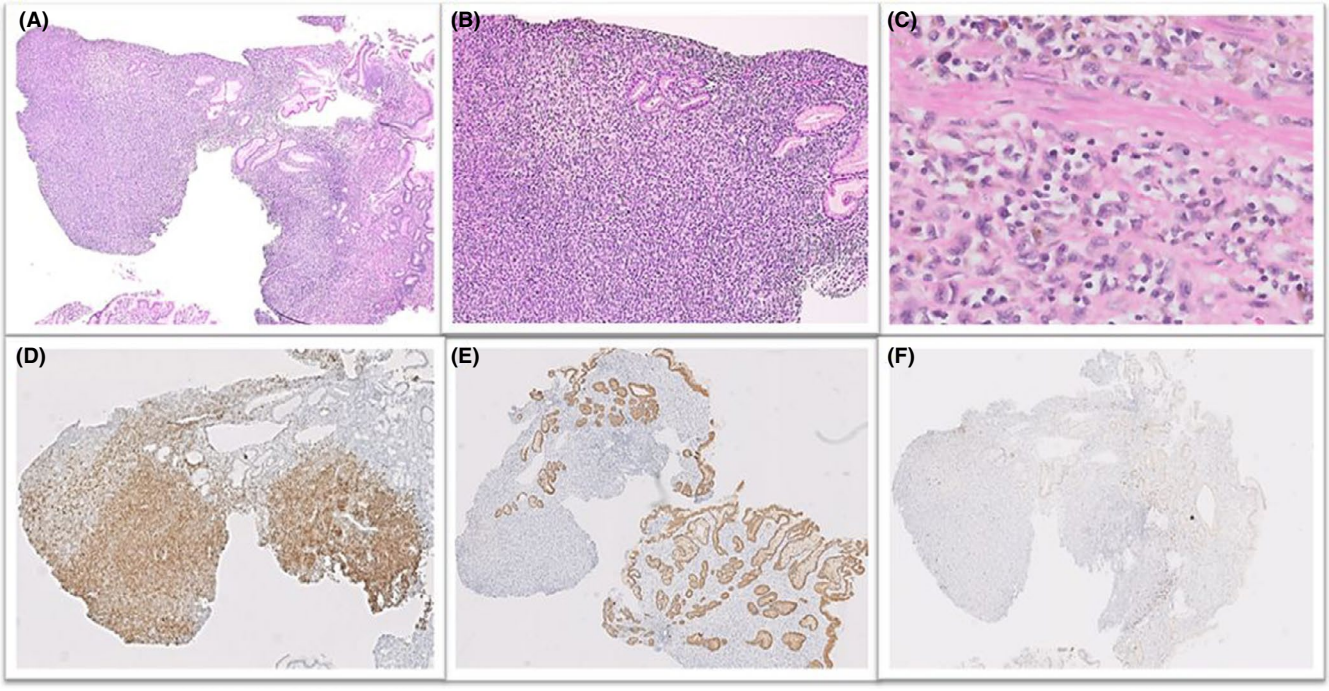

FIGURE 1 (A, B, and C) H&E at 4×, 10×, and 40× show infiltration of the antral mucosa by atypical cells with large irregular vesicular nuclei and prominent nucleoli. (D, E, and F) H&E at 4×: Neoplastic cells are positive for Melan A (D) and negative for AE 1/3 (E), and CD20 (F)

Unfortunately, gastroesophageal melanoma is associated with a grim prognosis compared to other extra-cutaneous melanomas, such as oral and genital melanoma.[10] However, our patient did not demonstrate any poor prognostic indicators such as lymph node involvement or distant metastasis, which are associated with shortened survival. While our patient's neoplasm was entirely excised, complete resection of mucosal melanoma with adequate margins is sometimes challenging to achieve.[11] In addition, studies show that radiotherapy may provide local control of the disease in these cases, help control the gastrointestinal bleeding, and improve the overall survival.[12] Some mucosal melanoma subtypes may also respond to immunotherapy treatments such as nivolumab (α-PD1), mutations-targeted therapy of combined BRAF and MEK inhibition.[13] Further studies are needed to determine adjuvant therapy's value after complete surgical resection.

4 | CONCLUSION

In conclusion, primary gastric melanoma is an uncommon and aggressive form of mucosal melanoma, generally presenting with peptic ulcers-like symptoms. EGD findings may be inconclusive or at times, misleading. Definitive diagnosis requires histopathologic and immunohistochemical evaluation along with clinical correlation. Careful assessment is always required to exclude the primary cutaneous lesion's presence. Mutational analysis using IHC for atypical BRAF and NAS can be helpful for using targeted treatment such as anti-BRAF inhibitors, which may significantly extend patients' survival and improve the overall prognosis.

ACKNOWLEDGMENTS

The authors would like to thank Dr. John Fallon, chair of the East Carolina University Department of Pathology and Laboratory Medicine, for his support for this manuscript, including securing funding for publication. Published with written consent of the patient.

CONFLICT OF INTEREST

None declared.

AUTHOR CONTRIBUTIONS

AIY and AM: Manuscript writing. AIY, AM, AHR, and KP: Reviewing and proofreading the manuscript. KP: Supervision and oversight.

ETHICAL APPROVAL

This manuscript is in accordance with the IRB policy of East Carolina University Department of Pathology and Laboratory Medicine.

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How to cite this article: Younes AI, Mohamed A, Rizvi AH, Prenshaw K. Primary malignant melanoma of the gastric antrum: A case report. *Clin Case Rep*. 2021;9:e04495. https://doi.org/10.1002/ccr3.4495