

Primary Malignant Melanoma of the Stomach: A Rare Neoplasm

Abstract

The gastrointestinal tract (GIT) is a rare site of primary malignant melanoma. Most of the melanomas diagnosed in the GIT are secondary to cutaneous melanomas. Very few cases of primary melanoma of the stomach have been reported in the literature. We report a rare case of primary malignant melanoma of the stomach in a 60-year-old female patient who presented with nonspecific symptoms. Imaging revealed multiple liver metastases, and on subsequent evaluation, upper gastrointestinal endoscopy (UGIE) showed a lesion in the stomach. Biopsy from the lesion in the stomach was suggestive of melanoma. After excluding other sites of melanoma, a diagnosis of primary malignant melanoma of the stomach with liver metastasis was made. Primary malignant melanoma of the stomach is an exceedingly rare neoplasm. UGIE and biopsy remain the mainstay of diagnosis. Most of the patients present with advanced stage disease, and the prognosis remains dismal. The response to chemotherapy as well as targeted therapy is not well documented in the literature.

Keywords: Chemotherapy, malignant melanoma, prognosis, stomach

Introduction

Malignant melanoma arises from melanocytes and is most commonly cutaneous in origin. The most common etiology associated with cutaneous melanomas is exposure to ultraviolet radiation. Primary mucosal melanomas are rare and occur most commonly in the oropharynx, followed by the anal canal and rectum.^[1,2] Since there are no melanocytes in the stomach wall, it is a rare site of malignant melanoma, and the pathophysiology of primary gastric melanoma still needs to be ascertained. One of the possible mechanisms of origin that has been suggested is from the ectopic melanocytes, which migrate to the digestive tract during embryogenesis.^[3]

In the stomach, the most common sites reported are the body and the fundus, followed by the antrum. Lesser curvature is less commonly involved by malignant melanoma.^[4] The primary modality of treatment is surgery with clear resection margins.^[1] The prognosis of mucosal melanomas is poorer as compared to cutaneous melanomas. This may be due to delayed diagnosis because of the lack

of early signs and symptoms and their propensity for early metastasis.^[5,6] We, hereby, report a case of primary malignant melanoma of the stomach who presented with liver metastasis.

Case Report

A 60-year-old female presented with complaints of pain abdomen for the past 6–8 months. The pain was insidious in onset, moderate in intensity, and gradually progressive. It was associated with nausea, vomiting, and loss of weight. There was no history of any upper gastrointestinal bleed or jaundice. She attained menopause 15 years back and was nonsmoker and nonalcoholic. There was no past history of any surgery, radiation, or chemotherapy. Furthermore, the patient was nondiabetic and nonhypertensive. There was no history of any malignant condition in the family members. On general physical examination, there was no significant finding. On abdominal examination, hepatomegaly was present. Contrast-enhanced computed tomography (CECT) of the abdomen showed hepatomegaly with multiple enhancing, hyperdense lesions in both lobes of the liver suggesting the possibility of metastasis. CECT of the thorax was normal. Upper gastrointestinal endoscopy (UGIE) revealed

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multiple, black, flat pigmented spots in the fundus and body of the stomach. Biopsy from lesion in the stomach was suggestive of malignant melanoma [Figure 1]. The tumor cells were markedly pleomorphic and comprised of vesicular chromatin, conspicuous nucleoli, and moderate amount of cytoplasm with intracytoplasmic melanin pigment. Immunohistochemical staining showed diffuse positivity of tumor cells for S100 and strong cytoplasmic positivity for melanoma marker HMB 45 [Figure 2]. Fine-needle aspiration cytology from liver lesions showed features of metastatic malignant melanoma. The patient was re-examined; however, she had no cutaneous lesions. Fundus examination was also normal. There was no history of any surgery in the past. Hence, the diagnosis of primary malignant melanoma of the stomach was made. The patient was given option

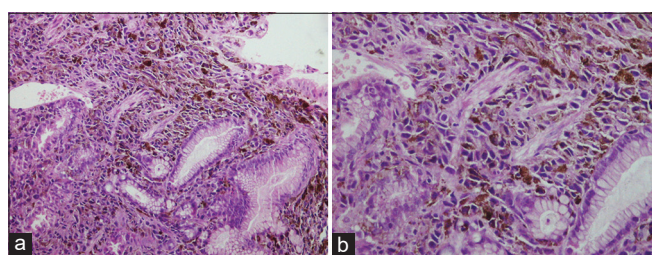


Figure 1: Gastric biopsy showing tumor with features of malignant melanoma characterized by cells arranged in sheets in the lamina propria (a, H and E, ×100) and the tumor cells are oval to spindle with hyperchromatic nuclei and prominent intracytoplasmic brown–black melanin pigment (b, H and E, ×400)

of immunotherapy but she refused because of cost issues. The patient was started on chemotherapy with injection cisplatin and dacarbazine as the patient could not afford immunotherapy. However, after three cycles, the patient deteriorated and presented with icterus with total bilirubin of 12 mg/dL. She was planned for percutaneous transhepatic biliary drainage. However, before the procedure could be done, the patient died of progressive disease.

Discussion

Primary malignant melanoma of the stomach is a rare neoplasm. Only 19 cases of primary gastric melanomas have been previously reported.^[4,7-24] As depicted in Table 1, these patients were managed primarily with surgery. Only three of these patients received radiotherapy as a means of palliation. Majority of gastrointestinal melanomas

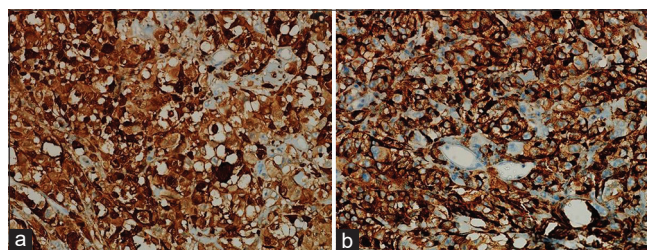


Figure 2: Immunohistochemical staining demonstrated that there is diffuse nucleocytoplasmic positivity in tumor cells for S100 (a, ×400) and strong cytoplasmic positivity for melanoma marker HMB 45 (b, ×400)

Table 1: Review of cases reported in the literature

References	Age/sex	Site	Management	Follow-up	Status	Association
Liang <i>et al.</i> ^[8]	59/male	Cardia and fundus of the stomach	The patient refused surgical intervention	6 months	Died of progressive disease	
Alazmi <i>et al.</i> ^[9]	58/male	Stomach	Partial gastrectomy plus splenectomy and adjuvant interferon	2 years postsurgery		
Noraidah and Jismi ^[10]	74/male	Proximal stomach	Proximal gastrectomy, splenectomy, and limited small bowel resection	Defaulted	Not available	
Jelincic <i>et al.</i> ^[11]	54/male	Stomach – greater curvature	Subtotal gastrectomy, splenectomy, and appendectomy	3 years	Cerebral and retroauricular subcutaneous metastasis, followed by intra-abdominal tumor dissemination	Regional lymph node metastasis, metastasis to the appendix at presentation
Lagoudianakis <i>et al.</i> ^[12]	58/male	Gastric antrum	Subtotal gastrectomy with splenectomy	16 months	Disease free	
Castro <i>et al.</i> ^[13]	60/male	Stomach	Partial gastrectomy	Expired due to postoperative complications	Died	Dermatomyositis
Yuan-Mou Yang <i>et al.</i> ^[14]	53/male	Gastroesophageal junction	Esophagogastrectomy regional lymphadenectomy with distal pancreatectomy, splenectomy, and transverse colectomy	11 months, the patient refused any adjuvant treatment, postoperative course complicated with small bowel infarction	Died	
Ravi ^[15]	50/male	Body of the stomach	Palliative resection	Nil	Lost to follow-up	

Contd....

Table 1: Contd...

References	Age/sex	Site	Management	Follow-up	Status	Association
Yamamura <i>et al.</i> ^[16]	73/male	The posterior wall of the stomach	Distal gastrectomy	1 year, metastasis to the subcutaneous tissue of back at 9 months	Died 1 year after gastrectomy	
Grilliot <i>et al.</i> ^[17]	69/male	Gastroesophageal junction	Palliative radiotherapy	Not available	Not known	
Khaliq <i>et al.</i> ^[4]	50/female	Fundus of the stomach	Combination chemotherapy – 4 cycles at 3 weekly interval	Not mentioned	Asymptomatic	Metastasis to the left axillary and peripancreatic lymph nodes at presentation
Kim <i>et al.</i> ^[18]	59/male	Fundus of the stomach	Total gastrectomy, vertebroplasty, followed by palliative chemoradiotherapy	Metastasis at 3 months, followed by vertebroplasty and 4 months of chemoradiotherapy	Not mentioned	Metastasis to spine L3 and L5, 3 months after diagnosis
Slater <i>et al.</i> ^[19]	87/male	The greater curvature of the stomach	Two courses of Palliative radiotherapy at 4-month interval	Not available	Asymptomatic	
Song <i>et al.</i> ^[20]	50/female	The lesser curvature of the stomach	Gastrectomy and D2 lymph node dissection	4 months	No recurrence	
Augustyn <i>et al.</i> ^[21]	64/male	The greater curvature of the stomach	Subtotal gastrectomy with lymph node dissection	18 months	Small bowel metastasis 18 months after surgery	
Wang <i>et al.</i> ^[7]	65/male	Esophagogastric junction	Distal esophagectomy and proximal gastrectomy	2 months	Died	Died of diffuse metastatic disease
Zhou <i>et al.</i> ^[22]	63/male	Stomach	Proximal stomach resection	10 months	10-month relapse-free survival	Left parietal lobe metastasis at presentation
Callaghan <i>et al.</i> ^[23]	76/male	Proximal stomach	Open sleeve gastrectomy	2 months	Died of disease progression within few months	V600R mutation in the BRAF gene
Phillips <i>et al.</i> ^[24]	66/female	Near the gastroesophageal junction and another located close to the antrum	Near-total gastrectomy	13 months	No recurrence	

are secondary with primary disease in the skin,^[25,26] and most of the lesions are diagnosed at autopsy.^[27] In the gastrointestinal tract (GIT), the esophagus and anal canal are the common sites for primary malignant melanoma. The presence of a melanocytic lesion and surgical removal of melanoma elsewhere in the body has to be ruled out before reaching a diagnosis of primary melanoma. The diagnosis of primary melanoma can be made if there is no other site elsewhere in the body and no history of surgical removal of melanoma or atypical melanocytic lesion.^[9,28]

Although our patient had no history of upper gastrointestinal bleed, endoscopy was performed in search of primary disease, and it revealed flat, pigmented lesions in the stomach. This raised clinical suspicion of malignant melanoma.

Risk factors for mucosal melanomas have not been defined yet, and exposure to ultraviolet light is not implicated.^[24] Surgery remains the mainstay of treatment. Usually, primary malignant melanomas of the GIT present with metastatic disease at the onset. At the time of initial presentation, distant metastasis has been reported in 30%–

40% of patients.^[29] The prognosis remains poor and the median overall survival is 5 months.^[7,12]

There is no definite consensus on adjuvant treatment after surgery. The role of radiation is mainly in palliative settings to relieve the disease symptoms. Chemotherapy based on dacarbazine and cisplatin has been tried, however success rates and outcomes for primary mucosal melanomas have not been reported. Mucosal melanomas usually are not associated with BRAF/NRAS mutations unlike cutaneous melanomas and only rare case reports have been published showing V600R mutation at exon 15 of the BRAF gene in a patient with primary gastric melanoma.^[23] Hence, anti-BRAF therapy is usually not an option for this subset of patients.^[30]

Our case is unique as the patient presented with liver metastasis with clinical and radiological occult primary. UGIE showed black-colored lesions in the stomach, which raised the suspicion of melanoma. The patient was started on chemotherapy, however she died of progressive disease.

Conclusion

Primary malignant melanoma of the stomach is a rare entity. Surgery remains the main treatment modality. Due to the delay in diagnosis and aggressive nature of disease with rapid dissemination to lymph nodes and visceral organs, prognosis remains dismal. Most of the patients present with advanced stage metastatic disease with poor response to chemotherapy.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the legal guardian has given his consent for the patient's images and other clinical information to be reported in the journal. The guardian understands that the patient's name and initial will not be published, and due efforts will be made to conceal patient identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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