

Metastatic Melanoma Invading the Minor Duodenal Papilla in a Patient With Pancreas Divisum Causing Acute Recurrent Pancreatitis: A Case Report

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Abstract

Metastasis to the gastrointestinal (GI) tract should always be a consideration when melanoma, particularly metastatic disease, is diagnosed. While metastasis to the small intestine is common, given its rich blood supply, metastasis to the pancreatic ducts is extremely rare. In patients with pancreatic divisum, disease spread to the minor papilla can greatly increase the chance of developing pancreatitis due to the potential for increased pancreatic intraductal pressure. We present one unique case of metastatic melanoma to the minor duodenal papilla causing pancreatitis.

Categories: Gastroenterology, Internal Medicine, Oncology

Keywords: recurrent pancreatitis, ercp, endoscopic ultrasound (eus), endoscopic approach, ampulla, pancreas divisum, pancreatitis, melanoma

Introduction

Melanoma arises from the malignant transformation of specialized pigment-producing cells called melanocytes. Derived from neural crest cells, these cells are primarily found in the skin; however, they can also manifest in other parts of the body where neural crest cells migrate, such as the gastrointestinal (GI) tract and brain [1]. This type of cancer is highly aggressive, ranking as the third most common cutaneous malignancy and the most lethal among its counterparts. Prompt detection and treatment are crucial, as it has the potential for high mortality rates [2]. Fortunately, early identification offers a positive prognosis, with stage 0 cases showing an impressive 97% five-year survival rate. However, the survival rate for patients with metastasis is less than 20% after five years [1].

Metastasis most frequently affects the skin and subcutaneous tissue, followed by the lungs, liver, bones, and brain. Among carcinomas, malignant melanoma is the most common to metastasize to the GI tract. The small bowel is particularly susceptible (75% of all GI metastasis), followed by the colon (25% of all GI metastasis), liver (20% of all GI metastasis), and stomach (16% of all GI metastasis) [3,4]. Metastatic spread to the biliary system is rare, with only a limited number of reported cases [5,6]. Notably, no documented cases of melanoma metastasizing to the minor duodenal papilla have been reported. This report presents a unique case of metastatic melanoma affecting the minor duodenal papilla.

This case report was previously submitted for presentation as a meeting abstract at the 2020 ACG Annual Scientific Meeting on October 23, 2020 [7].

Case Presentation

A 54-year-old male presented a third time to the Emergency Department with severe abdominal pain, lipase of 1654 U/L, and mildly elevated liver function tests. A computed tomography (CT) scan showed a metastatic process involving the entire pancreas, liver, and lungs, and also worsening pancreatic duct dilation (7 mm) compared to the previous CT scan. His past medical history is significant for melanoma of the right thumb status post amputation in 2008, tobacco abuse, and approximately 20 pounds of unintentional weight loss in three months. Three months earlier, when the metastatic disease was first detected, oncology was consulted and recommended a biopsy of a right axillary palpable lymph node which returned as metastatic melanoma v-raf murine sarcoma viral oncogene homolog B1 (BRAF) V600E negative (Figures 1, 2). He also had a magnetic resonance imaging (MRI) of the brain which showed multifocal intracranial metastases and completed whole brain radiation therapy with 30 Grays (Gy) in 10 fractions.

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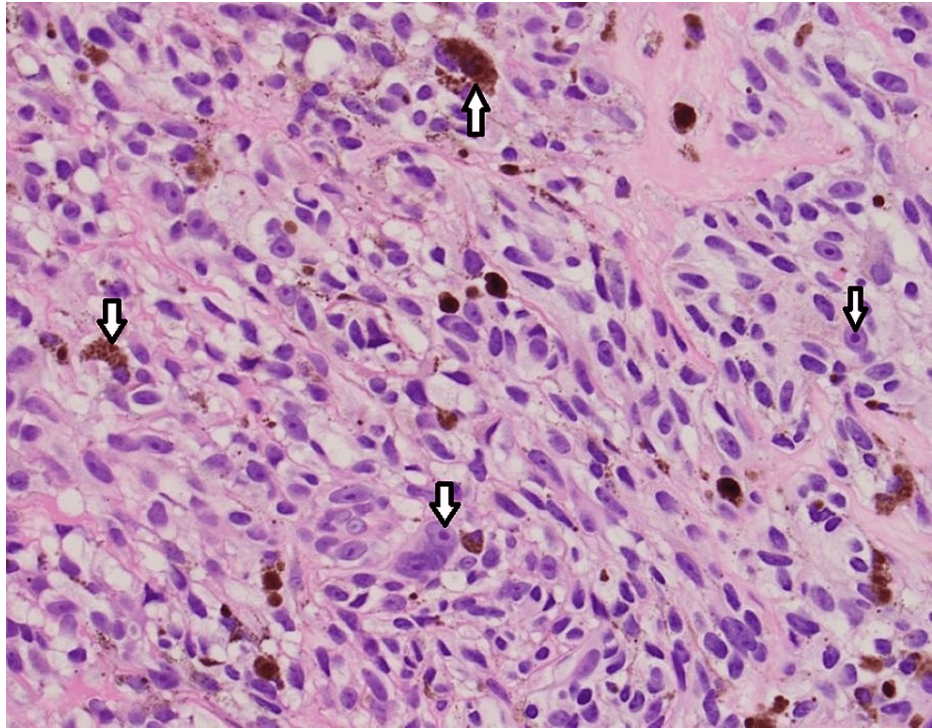


FIGURE 1: Tumor cells with scattered brown pigmentation. The tumor cells have large (so-called cherry red) nucleoli.

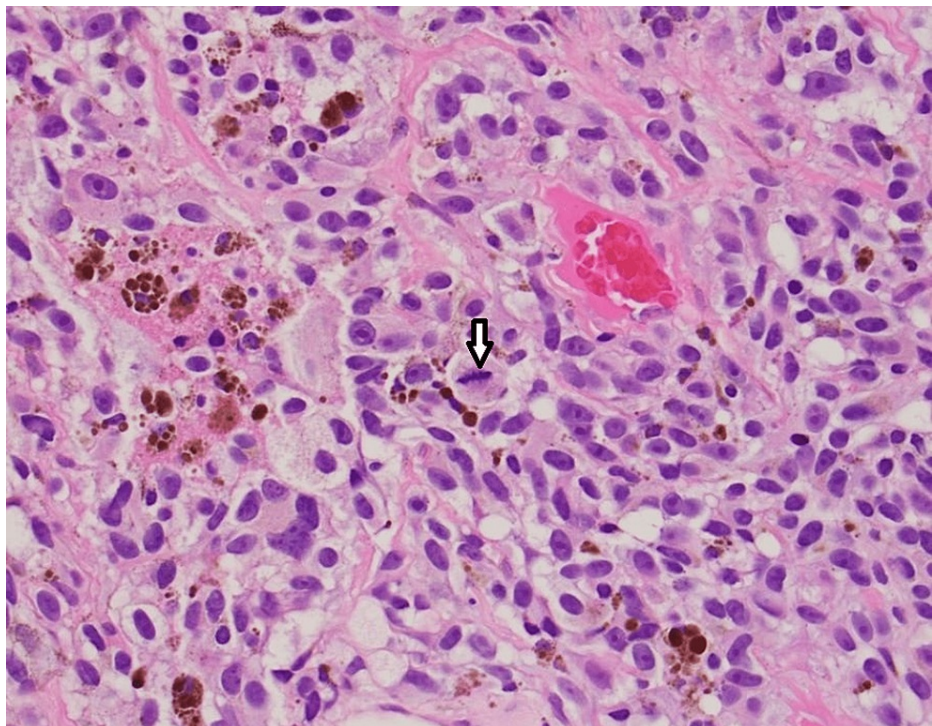


FIGURE 2: Tumor cells with a prominent mitotic figure in the center.

During the current admission, gastroenterology was consulted for acute recurrent pancreatitis, with one previous episode. They recommended endoscopic ultrasonography (EUS) and endoscopic retrograde cholangiopancreatography (ERCP). EUS detected multiple hypoechoic round and oval masses within the pancreatic and liver parenchyma suggesting metastasis. The EUS also revealed the pancreas divisum (PD), with the pancreatic duct measuring 5 mm in diameter. On the ERCP, the major papilla and the main biliary

duct were normal. However, on the endoscopic view, many 3 to 10 mm black and flat infiltrative masses were detected in the first and second portions of the duodenum, suggestive of duodenal metastasis (Figures 3, 4). One of the flat masses was found in the minor papilla (Figure 5). The dorsal pancreatic duct could not be cannulated with the 3-4-5 tapered cannula and guidewire assistance. The patient improved with supportive care and was discharged in stable condition with a follow-up arranged with oncology for palliative treatment.

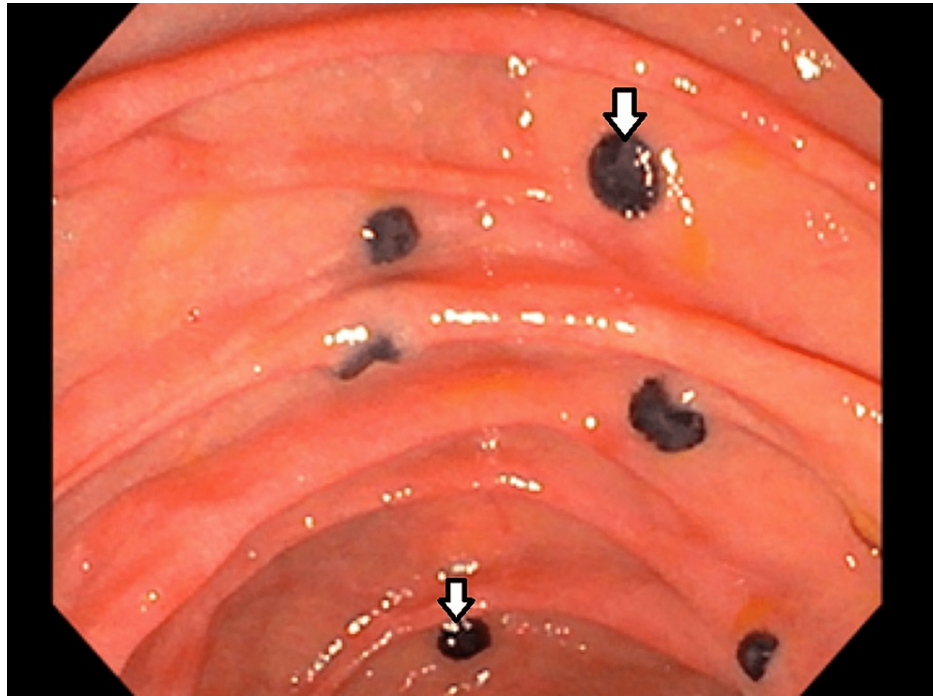


FIGURE 3: Flat black 3-4mm mass seen in duodenum representing metastatic melanoma.

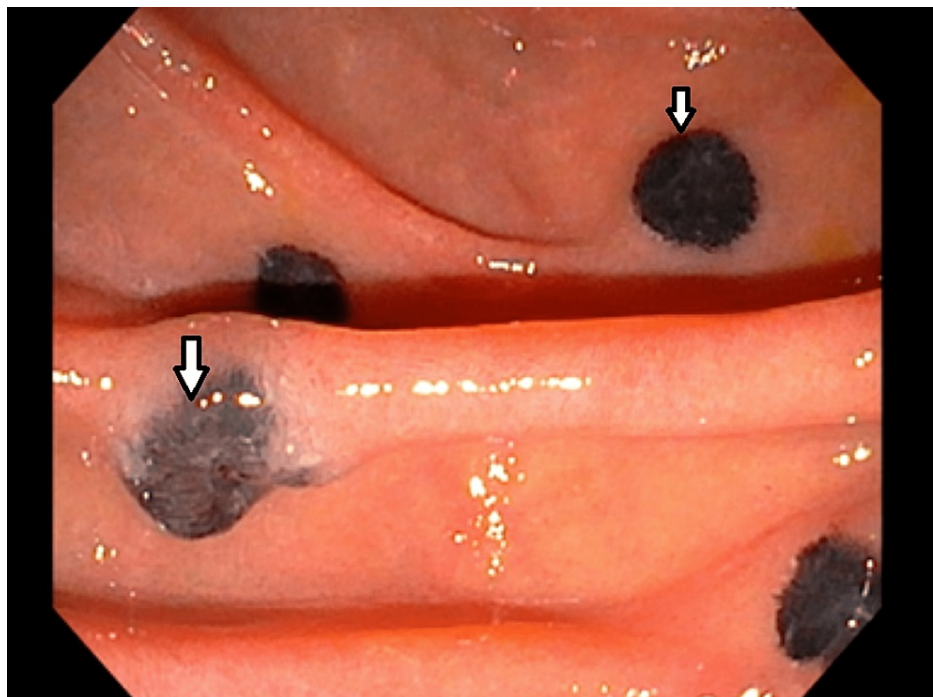


FIGURE 4: Close-up view of duodenal metastasis

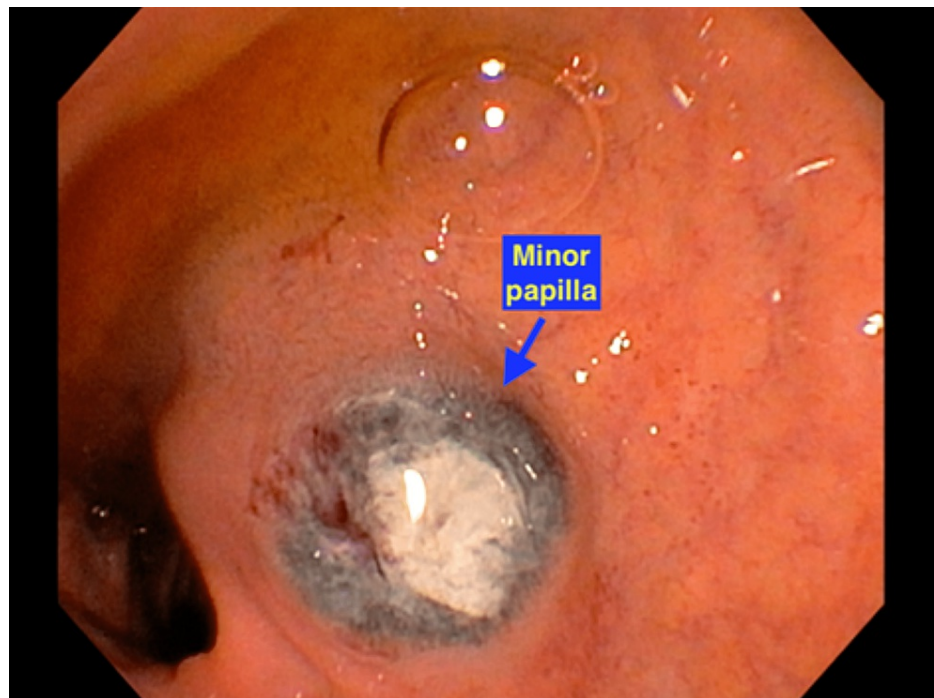


FIGURE 5: Melanotic lesion at the minor papilla

Discussion

Metastatic melanoma metastasizes to the GI tract between 1% and 4% of patients with diagnosed metastatic malignant melanoma [8]. These are commonly found ante mortem and most often time occurs in the small intestine likely because of its highly vascular nature. This patient had multiple metastases visualized in the duodenum, a common site of tumor occurrence. Uncommon sites of metastasis include the esophagus, gallbladder, and biliary tree, with some cases having tumor cells with melanin found in bile [8]. This patient had multiple visualized small bowel tumors on ERCP; however, he did not have any signs or symptoms of GI bleeding, of note as this is a frequent presenting symptom of tumor spread [9]. Metastatic disease can, in some cases, be severe enough to cause small bowel perforation as reported in one case by Tsilimparis et al. [10]. There have also been reported cases of melanoma spreading to the pancreas, including one instance of primary anorectal melanoma [11]. No cases of melanoma metastasizing to the minor papilla causing acute recurrent pancreatitis, as in this case report, were found in the literature. The patient also has a PD, previously undiagnosed and seen on EUS, which likely predisposed him to the development of acute pancreatitis [12].

PD is the most common pancreatic developmental anatomic variant with a prevalence of up to 11% in Western populations and is usually asymptomatic [12]. These patients have a failure of the dorsal and ventral pancreatic buds fusing and thus result in a majority of the pancreas draining through the dorsal duct of Santorini through the minor papilla. The abnormal fusion causes abnormal drainage of the majority of the pancreatic juice into the naturally narrowed minor papilla, causing the elevation of the intraductal pressure in some patients [13,14]. Among other causes of acute pancreatitis, stenosis of the minor papilla can be coexistent in PD [15]. Acute recurrent pancreatitis can be related to PD in up to 30% of cases [16]. Experimental studies in canine models demonstrated that the functional obstruction of the minor papilla at the peak stage of secretion and total ligation of the ventral duct, like PD, can be an etiological factor for pancreatitis [17].

Conclusions

This patient had no prior episodes of pancreatitis, exocrine or endocrine insufficiency, and no abdominal pain prior to his metastatic melanoma diagnosis, making the melanotic lesion the likely culprit in this case for acute pancreatitis. The patient presented with a dilated pancreatic duct; however, many patients with PD have a dilated pancreatic duct and remain asymptomatic. Therefore, it is hypothesized that the duodenum melanotic lesion caused some obstruction at the minor papilla and may have aggravated the already increased ductal pressure with PD leading to recurrent pancreatitis in this patient.

Additional Information

Disclosures

Human subjects: Consent was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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