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Int J Hepatobiliary Pancreat Dis 2020;10:100091Z04MC2020.
www.ijhpd.com

CASE REPORT PEER REVIEWED | OPEN ACCESS

A rare cause of hemobilia: Metastatic melanoma of the gallbladder

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ABSTRACT

Introduction: Gallbladder melanoma is an extremely rare entity, even more so in living patients, as many remain asymptomatic. Patients usually present with symptoms resembling acute cholecystitis, however here we present a case of metastatic melanoma of the gallbladder presenting with hemobilia.

Case Report: An 82-year-old lady with a history of skin cancer excisions, including melanoma, many years ago, presented with anemia of unknown origin. A computed tomography (CT) scan was performed, demonstrating a gallbladder mass and hemobilia. She successfully underwent open cholecystectomy, partial liver resection, and lymph node dissection, which on histopathology, demonstrated metastatic melanoma. She remains disease free eight months later.

Conclusion: Although melanoma of the gallbladder is rare, in patients with a past history of melanoma, a high index of suspicion should be maintained if there are concerning signs, such as anemia, without a clear cause. With early identification and surgical intervention, a patient's survival rate can be optimized.

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Received: 01 August 2020
Accepted: 04 November 2020
Published: 03 December 2020

Keywords: Gallbladder, Hemobilia, Melanoma, Metastasis

How to cite this article

Chandrananth ML, Cullinan M. A rare cause of hemobilia: Metastatic melanoma of the gallbladder. Int J Hepatobiliary Pancreat Dis 2020;10:100091Z04MC2020.

Article ID: 100091Z04MC2020

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doi: 10.5348/100091Z04MC2020CI

INTRODUCTION

Melanoma is a cancer arising from melanocytes—dendritic cells in the basal layer of skin—and is responsible for most skin cancer-related deaths [1]. The most common gastrointestinal manifestations of melanoma are in the small bowel, large bowel, and stomach [2]. Metastasis to the gallbladder is exceedingly rare, particularly in live patients as many are asymptomatic. Interestingly, however, of all metastatic gallbladder tumors, more than 50% are actually melanomatous in origin [3]. Symptomatic patients with gallbladder melanoma usually present with symptoms suggestive of cholecystitis, however here we describe a case of a patient who presented with hemobilia.

CASE REPORT

An 82-year-old female presented with persistently low hemoglobin, despite multiple blood transfusions. She had no melena, hematemesis, abdominal pain, or vomiting. Her initial hemoglobin was 68 g/L and gastroscopy, colonoscopy, and PillCam were normal. Four months later, she presented with hemoglobin of 77 g/L, and received two units packed red blood cells (units PRBC) and one

iron infusion, incrementing to 98 g/L. Hemoglobin then dropped again to 86 g/L and she received another two units PRBC. The patient underwent repeat gastroscopy due to ongoing anemia, which revealed bleeding into her biliary tract. She subsequently underwent computed tomography (CT) scan, demonstrating a gallbladder mass and hemobilia. The gallbladder mass was confirmed on magnetic resonance cholangiopancreatography (MRCP), which did not invade into any adjacent structures. A CT staging chest was also performed, which was clear. The patient proceeded to surgical management one week later for a presumed gallbladder malignancy. She had a past medical history significant for multiple skin cancer excisions over 10 years prior, including two melanoma in situ lesions and one melanoma, all of which were surgically resected with clear margins.

The patient underwent open radical cholecystectomy, partial liver resection, and porta hepatis lymph node dissection. The surgical technique involved entry into the abdomen via a reverse L-shape incision, followed by segment 4B/5 liver resection with en bloc cholecystectomy. The cystic artery and duct were dissected and ligated. A radical porta hepatis lymph node clearance was performed by dissecting out the bile duct, portal vein, right, and left hepatic arteries.

Macroscopic inspection of the specimen revealed an 80 × 46 × 34 mm pale mass in the gallbladder lumen with no invasion into the liver (Figure 1). One cystic duct node, seven porta hepatic nodes, and one common hepatic node were removed. On microscopic examination the lesion involved mucosa, muscle wall, and subserosa. Histopathology demonstrated a high grade undifferentiated tumor, consistent with metastatic melanoma, involving the cystic duct lymph node (1/1, 15 mm). The operative specimen was strongly positive for melanoma markers S-100 and Melanin-A. None of the porta hepatic (0/7) or hepatic nodes (0/1) had evidence of tumor involvement. The nodes also contained macrophages filled with hemosidirin, possibly relating to hemobilia.

Figure 1: Cross section of metastatic gallbladder melanoma and liver segment 4B/5.

The patient had an uncomplicated post-operative course and was discharged to rehabilitation one week following surgery. She was reviewed eight months following the operation and was progressing well on Nivolumab immunotherapy, completing six cycles in total.

DISCUSSION

More than 90% of gallbladder melanomas are undiagnosed in the living [1], making our case extremely rare. In a 25-year study published in 1964, authors examined the autopsy results of patients and found that 15% of patients had metastatic deposits in the gallbladder but only seven in the gallbladder mucosa, demonstrating the rarity of this metastatic site [4].

The existence of primary gallbladder melanoma has also been under debate. Many authors suggest that gallbladder melanoma is metastatic but given that melanocytes can exist in the gallbladder mucosa; it is technically possible to develop primary gallbladder melanoma [5]. Primary gallbladder melanoma must be a solitary polypoid or papillary mucosal lesion, which demonstrates junctional activity and all primary sites of melanoma must be excluded [6]. However, cutaneous melanomas can regress, so some gallbladder manifestations may be incorrectly labeled as primary lesions. Ours is a case of metastatic melanoma due to the previous history of melanoma, however other cases may not be so straightforward.

Gallbladder melanoma is commonly asymptomatic but patients can present with symptoms mimicking cholecystitis [3]. Hemobilia is an extremely rare symptom of gallbladder melanoma, with only a handful of reported cases [7–9]. Hemobilia is bleeding in the biliary tract, most commonly caused by medical procedures, trauma and malignancy, and classically presents with right upper quadrant pain, jaundice, and upper gastrointestinal tract bleeding, though not all patients will exhibit all three symptoms [10]. In one case the patient had metastatic melanoma of the common bile duct (CBD), causing jaundice, right upper quadrant pain, and a positive fecal occult blood test [7]. Another patient who had been extensively investigated for anemia and blood-positive stools was found to have gallbladder metastatic melanoma, identified through serial enlargement of a presumed gallstone on CT [8]. Likewise, a third case demonstrated multiple gastrointestinal deposits and bleeding in the CBD [9]. Given the few reported cases of gallbladder melanoma causing hemobilia, ours is an exceptional circumstance.

Gallbladder melanoma is usually managed with a combination of surgery and adjuvant therapy. Although not always curative, patients who have undergone surgical resection have reported survival rates up to five

years [3]. Some authors have also described laparoscopic cholecystectomy, which, although minimally invasive, does not allow for thorough examination for occult metastatic deposits in other abdominal organs [2]. By performing a partial liver resection and lymph node dissection we were also able to exclude locally advanced disease, and our patient is still alive eight months post-resection.

CONCLUSION

In conclusion, metastatic melanoma of the gallbladder is rare, with those presenting with hemobilia even rarer. It warrants consideration in patients with a past history of melanoma who are persistently anemic without a clear cause of bleeding, which can lead to prompt diagnosis and treatment.

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Author Contributions

Meera L Chandrananth – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Mark Cullinan – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Guarantor of Submission

The corresponding author is the guarantor of submission.

Source of Support

None.

Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.