CASE REPORT

Rare case of small intestine bleeding

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SUMMARY

We present a case of a healthy 59-year-old woman who presented for a capsule endoscopy to evaluate melaena and iron deficiency anaemia. She had previously undergone an oesophagogastroduodenoscopy and colonoscopy at an outside institution which were unremarkable. Capsule endoscopy showed an ulcerated, bleeding lesion likely in the duodenum. Differential diagnosis included adenocarcinoma, carcinoid tumour, lymphoma, gastrointestinal stromal tumour and metastatic disease. A push enteroscopy was performed after which showed an ulcerated mass in the third portion of the duodenum. Biopsies confirmed adenocarcinoma. Computed tomography of the abdomen showed no signs of distant metastasis and the patient was referred to surgery for evaluation. The patient underwent a pancreaticoduodenectomy, with resection of the mass and negative lymph nodes in all nine that were removed (T3N0). The patient was classified as stage II duodenal adenocarcinoma. Duodenal adenocarcinoma is a rare but clinically significant cause of small bowel bleeding.

BACKGROUND

Small intestinal bleeding accounts for a fraction (5%–10%) of all gastrointestinal (GI) bleeding, either overt or occult.¹ An even smaller number of cases can be attributed to tumours or neoplasms, especially in patients greater than 40 years of age.^{2,3} Despite the small intestine accounting for 90% of the luminal surface in the digestive tract, adenocarcinoma of the small bowel is a rare GI malignancy (1%–2% of all GI malignancies).³

These tumours can often be asymptomatic until they are advanced or invasive, and thus are associated with poor outcomes.⁴ Given the rarity of this cancer, there are no specific guidelines for treatment. In cases where surgical resection is possible, surgery is preferred.

Adjuvant chemotherapy, immunotherapy and chemoradiation are also therapeutic considerations.

CASE PRESENTATION

An otherwise healthy 59-year-old woman presented as an outside referral for a capsule endoscopy to further evaluate a history of melaena and iron deficiency anaemia. She denied additional symptoms other than fatigue. Prior to her referral, outside oesophagogastroduodenoscopy and colonoscopy failed to reveal the source of her anaemia, revealing only mild gastritis.

INVESTIGATIONS

Our initial evaluation included capsule endoscopy. Early small intestinal images demonstrated a large, actively bleeding, ulcerated lesion, most likely located in the duodenum (figure 1). Subsequent push enteroscopy confirmed a 3 cm, circumferential mass in the third portion of the duodenum (figure 2). Pathology from the biopsies obtained showed invasive moderately differentiated adenocarcinoma. Computed tomography (CT) of the chest, abdomen and pelvis revealed duodenal wall thickening, corresponding to endoscopic evaluation; however, there was no evidence of metastatic disease (figure 3).

DIFFERENTIAL DIAGNOSIS

Based on the endoscopic appearance of the mass, the differential for this ulcerated mass in the small intestine includes adenocarcinoma, lymphoma, carcinoid tumour, GI stromal tumour and metastatic disease. The diagnosis was made by biopsy.

TREATMENT

After a referral to surgical oncology, she underwent a pancreaticoduodenectomy (classic Whipple). The surgical specimen confirmed invasive moderately differentiated adenocarcinoma, and all nine excised lymph nodes were negative for malignancy (T3N0). The patient was classified as stage II duodenal adenocarcinoma and referred to medical oncology. Adjuvant chemotherapy was considered; however, the oncology team opted for serial imaging (CT scan) to monitor for recurrence.

OUTCOME AND FOLLOW-UP

At nine months, there has been no radiographic evidence of recurrence, and there are currently no plans for further treatment.

DISCUSSION

The pathogenesis of duodenal adenocarcinoma is not entirely clear, but it is likely the result of several pathogenic mechanisms also described in other GI malignancies.

Evidence supports chromosomal changes or p53 mutations in the development of more aggressive small intestinal adenocarcinomas. More subtle alterations are implicated in those tumours with favourable outcomes.⁵

Contrasted imaging may suggest a lesion, but direct visualisation and biopsy with endoscopy is the preferred modality of diagnosis. Often, longer endoscopes (enteroscopy) or capsule endoscopy may be required to view lesions in the distal duodenum;

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Figure 1 Capsule endoscopy images showing (A) an ulcerated duodenal lesion and (B) an area of active bleeding.

however, it should be noted that capsule endoscopy can also be falsely negative. When the suspicion is high from an imaging study and capsule endoscopy is negative, the device assisted endoscopy should be considered.^{4,6} Once the diagnosis is established, staging is per the tumour, node, metastases staging system (American Joint Committee on Cancer). The 5-year survival for small intestinal adenocarcinoma ranges from 4% to 65%, depending on the stage, according to the National Cancer Database.⁷ Yet other studies have shown the 5 year survival for stage I to be as high as 95%.⁸ Tumour site has been implicated in survival odds with duodenal tumours having worse 5 year outcomes.⁹

When a viable option, surgical resection is the treatment of choice. Pancreaticoduodenectomy is necessary for all tumours involving the first or second portion of the duodenum, but, depending on surgeon preference, can be performed for tumours in the third or fourth segment of the duodenum as well. Small retrospective studies have not shown a mortality benefit for pancreaticoduodenectomy compared with more limited surgeries when clear margins are obtained.¹⁰ Lymphadenectomy is an important part of the surgical process, as there is a positive association between outcomes and the number of lymph nodes retrieved.⁸

Adjuvant chemotherapy, most often with oxaliplatin, fluorouracil and leucovorin (FOLFOX), is recommended for lymph node positive disease; however, there is insufficient evidence to make systematic recommendations.^{11,12} There is some evidence to support neoadjuvant chemotherapy in patients with lymph node positive disease, yet no agreed on criteria exist for selecting patients for this approach, given the small sample sizes.^{13,14} In unresectable disease, patients who received palliative chemotherapy had a 10–15 month survival compared with a 3–4 month survival in patient where no chemotherapy was administered.¹⁵

Newer targeted therapies have recently been studied in the treatment of advanced small intestinal adenocarcinoma. For example, bevacizumab, a monoclonal antibody targeting vascular endothelial growth factor, has been investigated in combination with capecitabine and oxaliplatin (CAPOX) in patients with advanced disease. Unfortunately, bevacizumab plus CAPOX has not shown a significant difference in progression-free survival at 6 months.¹⁶

Figure 2 Push enteroscopy findings of an ulcerated mass arising in the third portion of the duodenum (A and B).

Figure 3 A coronal CT scan with an arrow demonstrating thickened duodenal walls, suspicious for malignancy.

Additionally, clinical trials are under way evaluating pembrolizumab, an immune checkpoint inhibitor that targets PD-1 receptor. This agent has United States Food and Drug Administration (USFDA) approval for the treatment of multiple different advanced solid tumours, including small intestinal adenocarcinoma that are deficient in mismatch repair gene or have high levels of microsatellite instability.

After surgical resection or chemotherapy, patients are typically monitored with serial abdominal imaging. While this is generally practised, there are no guidelines for post-treatment surveillance.⁴

Learning points

- ▶ Small intestinal adenocarcinoma has a varied presentation often with only iron deficiency as a presenting sign. Patients also can present with late manifestations such as obstruction.
- ▶ Because of this, duodenal adenocarcinoma is most often in an advanced stage at the time of diagnosis.
- ▶ Direct endoscopic evaluation is the preferred diagnostic modality but some cases may require radiographic evaluation for detection. Capsule endoscopy is often useful, especially with tumours beyond the duodenum.
- ▶ There are no consensus guidelines on the management of small bowel adenocarcinoma.
- ▶ Surgical resection±adjuvant chemotherapy is the preferred treatment; however, new chemotherapeutic agents have shown promise.

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