EJCRIM
European Journal
of Case Reports
in Internal Medicine

MASSIVE DUODENAL ANGIOLIPOMA: A RARE CASE WITH SEVERE HAEMORRHAGE

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Received: 18/03/2025
Accepted: 31/03/2025
Published: 24/04/2025

Conflicts of Interests: The Authors declare that there are no competing interests.
Patient Consent: Written informed consent was obtained before treatment. Written informed consent was obtained from the patient to publish the details of their medical case and any accompanying images.
Acknowledgments: The authors gratefully acknowledge the Thai Nguyen General Hospital and Institute of Gastroenterology and Hepatology medical professionals and Military Central Hospital 108, Hanoi, for granting permission to include their patients in this research study.
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How to cite this article: Duc Dong H, Nguyen TV, Mai TB. Massive duodenal angiolipoma: a rare case with severe haemorrhage. *EJCRIM* 2025;**12**:doi:10.12890/2025_005303

ABSTRACT

Introduction: Duodenal angiolipoma is an exceptionally rare and often misdiagnosed clinical entity, characterized by a benign proliferation of adipose and vascular tissues. When large, these lesions pose a significant diagnostic challenge, frequently mimicking malignancy during endoscopic evaluation, especially in cases of severe gastrointestinal haemorrhage. Rapid recognition and decisive management are critical, requiring hemodynamic stabilization, advanced diagnostic tools, and expert intervention to prevent life-threatening complications.

Case description: We present the case of a 71-year-old female who arrived at the emergency department with acute upper gastrointestinal haemorrhage and hemodynamic instability. Immediate resuscitation, including haemostatic pharmacotherapy and blood transfusion, was initiated. Subsequent endoscopic evaluation, enhanced by endoscopic ultrasound, revealed a 2 × 3 cm duodenal lesion with a high-risk vascular structure. To prevent further haemorrhage, the tumour was swiftly ligated with an endoloop and excised via polypectomy. Histopathological analysis confirmed duodenal angiolipoma, characterized by mature adipose tissue interwoven with proliferative vascular elements. Following intervention, the patient recovered rapidly, with no recurrence of haemorrhage, and was discharged in stable condition.

Conclusion: Massive duodenal angiolipomas causing severe haemorrhage to require appropriate medical haemostasis and resuscitation. Timely recognition and diagnosis via endoscopic ultrasound are vital. Endoscopic resection is a safe and effective treatment that prevents recurring bleeding in this case.

KEYWORDS

Duodenal angiolipoma, severe gastrointestinal bleeding, endoscopic resection

LEARNING POINTS

- Duodenal angiolipomas are rare benign tumours that can mimic malignancies and cause life-threatening gastrointestinal bleeding.
- Endoscopic ultrasound and computed tomography scan are essential for differentiating these tumours from malignant lesions and guiding treatment.
- Endoscopic resection is a safe, minimally invasive option for duodenal angiolipoma to prevent recurrent bleeding, especially in resource-limited settings.

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INTRODUCTION

Angiolipomas are well-recognized benign tumours, most commonly found in the subcutaneous tissue and rarely occurring in the gastrointestinal (GI) tract. When present in the GI tract, they can be found in locations such as the oesophagus, stomach, duodenum, small intestine, colon, and rectus[1]. Angiolipomas in the paranasal sinus, lumbar spine, arm, hand, and back have also been reported. Severe haemorrhage due to massive angiolipoma in the duodenum is exceedingly rare, making this case particularly noteworthy[2]. Duodenal angiolipomas often present with nonspecific symptoms, including abdominal pain or GI haemorrhage, which can be life-threatening if not promptly diagnosed and treated[3]. In this report, we describe a unique case of duodenal angiolipoma causing life-threatening upper GI haemorrhage in a patient from the mountainous region of northern Vietnam. This case underscores the critical need for awareness and timely diagnosis of rare GI haemorrhage causes, particularly in resource-limited settings.

CASE DESCRIPTION

A 71-year-old woman from the suburbs of Thai Nguyen City, a northern mountainous region of Vietnam, presented to the emergency department of Thai Nguyen General Hospital with a chief complaint of bloody stools persisting for 3 days. She had no history of hematemesis, significant medical conditions, or long-term medication use. Additional symptoms included dull epigastric pain, fatigue, dizziness, and shortness of breath.

On examination, she appeared pale with ashen skin and mucous membranes. Her vital signs indicated hypovolemic shock, with a blood pressure of 85/60 mmHg and a heart rate of 115 beats per minute. Laboratory tests revealed severe anaemia, with a red blood cell count of 1.69 $\times 10^{12}$/l and haemoglobin of 5.3 g/dl, necessitating an urgent blood transfusion.

An upper GI endoscopy revealed an actively bleeding 2 cm tumour in the second part of the duodenum *(Fig. 1)*. Initial haemostatic measures, including the placement of two haemostatic clips, were only partially effective. Persistent bleeding suggested an additional haemorrhagic focus on the tumour's opposite side, which was not visible during endoscopy. The patient was managed with intravenous proton pump inhibitors at 8 mg/hour and received a total transfusion of 1.5 litres of blood over the day.

Due to the ongoing haemorrhage and the need for specialized intervention, she was transferred to Military Central Hospital 108 in Hanoi. Further diagnostic evaluations, including abdominal computed tomography (CT) scan and endoscopic ultrasound, revealed a well-vascularized tumour without deep invasion beyond the duodenal mucosa *(Fig. 2)*. Endoscopic resection was performed using an endoloop to secure the pedunculated tumour, followed by snare excision and post-resection clipping of the stalk *(Fig. 3)*. Histopathological examination confirmed the diagnosis of angiolipoma, characterized by mature adipose tissue

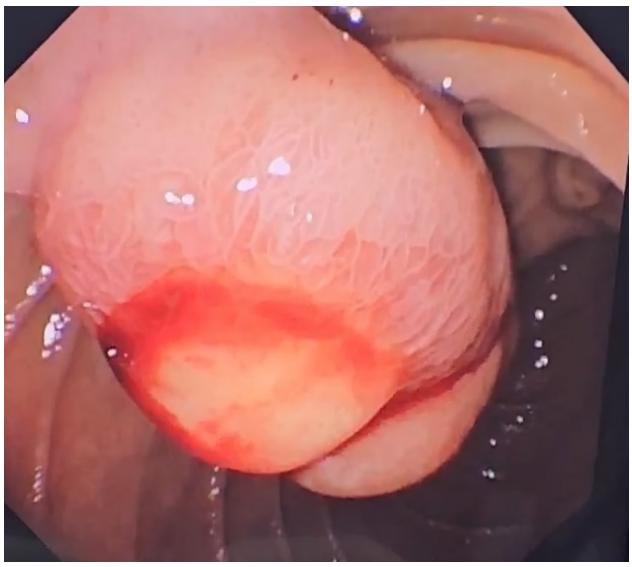


Figure 1. Endoscopic images reveal a pedunculated tumor located in the second part of the duodenum. The tumour's mucosal surface is hyperplastic, and in the middle, there is an area not covered by mucosa. Blood is still flowing from the tumor surface.

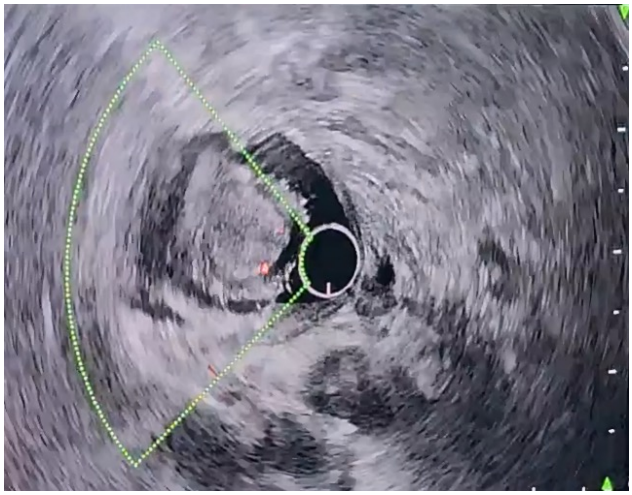


Figure 2. An endoscopic ultrasound image of the tumor shows that there are no blood vessels inside the tumor, only blood vessels surrounding part of the tumour surface; the tumour has not invaded the submucosal layer of the duodenum.

interspersed with proliferating blood vessels *(Fig. 4)*. The significant vascularization explained the severity of the haemorrhage. Following complete resection, the patient had no further bleeding and was discharged in stable condition.

DISCUSSION

Angiolipomas are benign adipocytic tumours that primarily occur in the subcutaneous tissue but are seldom found in the GI tract[2,4]. Duodenal angiolipomas are considered to be extremely rare, with only a few reported cases in the literature *(Table 1)*. This is the first case reported from the mountainous region of northern Vietnam. The patient presented with severe GI haemorrhage, a rare but significant complication of angiolipomas due to their vascular nature. Upper GI haemorrhage from angiolipomas requires prompt diagnosis and management, as delay can lead to life-



Figure 3. Gross appearance of the duodenal submucosal mass, mucosal surface, submucosal mass measuring 3 × 2 × 2 cm, yellow cross-section, three blocks cut to have enough hematoxylin and eosin stained tissue.

threatening consequences[5]. While endoscopy is often the first-line diagnostic tool, endoscopic resection is an effective treatment when the invasiveness of the tumour and the vascular characteristics of the tumour stalk are known[6]. Histopathological examination is essential for definitive diagnosis. In this case, the lesion consisted of mature adipose tissue and blood vessels, confirming the diagnosis of angiolipoma. Complete endoscopic resection results in an excellent prognosis, with a low risk of local complications[7,8]. Duodenal angiolipomas are composed of fatty tissue and an abnormal network of blood vessels. In this case, the vascular component of the tumour caused severe haemorrhage. As part of the GI tract, the duodenum has a rich blood supply, and any vascular anomaly, especially in the form of a tumour, can lead to significant haemorrhage[2]. The vascular fragility of angiolipomas can lead to an increased risk of haemorrhage, particularly when coupled with ulceration of the overlying mucosa or the rupture of blood vessels within the tumour[9]. This case is the first documented instance of duodenal angiolipoma causing severe GI haemorrhage in the northern mountainous region of Vietnam. The diagnosis of a duodenal angiolipoma in a remote area such as the Northern

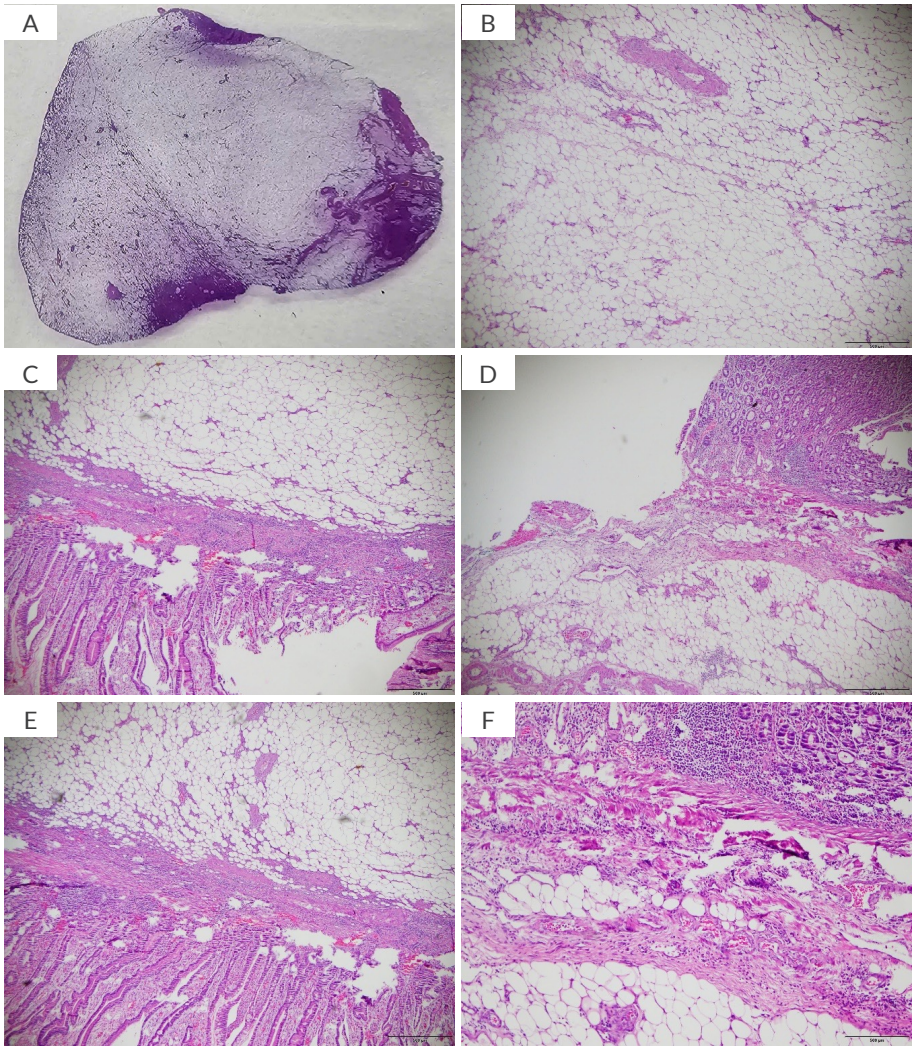


Figure 4. A) Histopathological image of angiolipoma. B-F) On the sections taken from the duodenal mucosa, the covering epithelium showed benign morphology. Under the mucosa, the tumor tissue had many lobes, the lobes were made of mature fat cells, no malignant cells were seen. Red arrow: large vessel; orange arrow: small vessel; blue arrow: mature adipose tissue; yellow arrow: duodenal mucosa.

Reference	Year of publication	Sex/age	Site	Size (cm)	Symptoms	Diagnostic methods	Therapy	Postoperative histopathology
Sun et al.[1]	2020	F/75	Duodenum	2.3	Chronic bleeding	ES	EP	A completely excised submucous angiolipoma of about 23 mm with a large central vessel
Jung et al.[8]	2004	F/60	Duodenal bulb	0.4 × 3.5	Dysphagia	ES, EUS	EP	Tumor composed of mature adipose tissue and small vessels with fibrin thrombi within the vascular channels
Vara-Luiz et al.[2]	2023	F/67	Third portion of duodenum	N/A	Upper gastrointestinal bleeding	ES	EP	Duodenal angiolipoma
Mohl et al.[7]	2004	M/66	Descending part of duodenum	1	Acute upper gastrointestinal bleeding	ES	SP	Submucous angiolipoma

Abbreviations: M, male; F, female; EUS: endoscopic ultrasound, ES: endoscopy, EP: endoscopic polypectomy, SP: snare polypectomy.

Table 1. Cases of duodenal angiolipoma reported in the literature.

Mountain region of Vietnam presents specific challenges: 1) Misleading initial symptoms: the symptoms of GI haemorrhage might initially be attributed to more common conditions like peptic ulcers or GI cancers, especially given the rarity of duodenal angiolipomas; 2) Limited access to advanced medical facilities: in remote areas, the availability of diagnostic tools such as endoscopic ultrasound might be limited. Endoscopic ultrasound is critical in this situation because it helps diagnose the condition of blood vessels in the tumour and the extent of tumour invasion to which layer of the duodenal wall, thereby helping to provide a more appropriate treatment method[8].

Management of a massive duodenal angiolipoma with severe haemorrhage requires both urgent interventions to control haemorrhage and definitive treatment of the tumour. The following outlines the potential approach to therapy:

- *Stabilization:* blood transfusion and fluid resuscitation are essential to stabilize the patient in cases of massive haemorrhage. Monitoring vital signs and stabilizing the patient's blood pressure and haemoglobin levels is crucial before proceeding with definitive treatment;
- *Endoscopic haemostasis:* in cases of active haemorrhage, endoscopic techniques are often the first choice for haemostasis. Methods such as epinephrine injection or clipping can be used to stop the haemorrhage from the vascular component of the tumour[7]. However, given the large size of the tumour and the duodenal location, endoscopy might provide only temporary stop haemorrhage;
- *Surgical intervention:* surgical excision is the definitive treatment for angiolipoma[1,10]. Surgery in the duodenum is complex due to its anatomical proximity to critical structures like the pancreas, bile ducts, and major blood vessels. In this case, we consulted a surgeon. However, due to the patient's significant blood loss, the tumour's challenging location, and its unknown nature, surgery was deemed unfeasible.

The patient lives in the northern mountainous region of Vietnam, which presents some unique challenges: limited healthcare resources, such as the absence of endoscopic ultrasound machines and insufficient knowledge about the disease, result in initial management focused on controlling haemorrhage and maintaining blood flow before transferring the patient to a better-equipped hospital. This leads to delayed definitive treatment and an increased risk of complications[7,8]. Cultural and economic factors also play a role, as patients in rural areas have limited awareness of the disease. For example, despite experiencing black stools, the patient only sought hospital care on the third day.

The patient's prognosis was influenced by several factors: before endoscopic ultrasound and snare resection, the prognosis was unfavourable due to significant blood loss, inoperability, and uncertainty regarding the nature and condition of the tumour complications. Following endoscopic ultrasound, we were able to assess the depth of the lesion and the tumour's blood supply, enabling us to perform snare resection confidently. Subsequently, a clip was applied to the tumour stalk to prevent any haemorrhage complications[7].

- *Post-intervention follow-up:* while undergoing treatment at Military Central Hospital 108, the patient underwent an abdominal CT scan and colonoscopy, which revealed no additional tumours. However, ongoing monitoring for potential recurrence is necessary, although this may be challenging due to the patient's residence being distant from the hospital.

CONCLUSION

This case illustrates that large duodenal angiolipomas causing severe bleeding to require appropriate medical haemostasis and resuscitation. Timely and accurate detection and diagnosis via endoscopic ultrasound are crucial. Endoscopic resection is both a safe and effective treatment to prevent recurrent bleeding in this case.

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