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WORD COUNT 2009
TIME SUBMITTED 27-JAN-2024 04:20PM
PAPER ID 106458954

Name of Journal: *World Journal of Gastrointestinal Surgery*
Manuscript NO: 90077
Manuscript Type: CASE REPORT

Ileal collision tumor associated with gastrointestinal bleeding: A case report and review of literature

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Abstract

BACKGROUND

Collision tumors involving the small intestine, specifically the combination of a hamartomatous tumor and a lipoma, are extremely rare. To our knowledge, no previous case report has described a collision tumor composed of two benign tumors of different origins in the small intestine.

CASE SUMMARY

Here, we present the case of an 82-year-old woman who presented with hemorrhagic shock and was found to have a mass measuring approximately 50 mm × 32 mm × 30 mm in the terminal ileum. Based on computed tomography scan findings, the mass was initially suspected to be a lipoma. A subsequent colonoscopy revealed a pedunculated submucosal elevation consisting of two distinct parts with a visible demarcation line. A biopsy of the upper portion suggested a juvenile polyp (JP). Owing to the patient's advanced age, multiple comorbidities, and poor surgical tolerance, a modified endoscopic submucosal dissection was performed. Histopathological examination of the excised mucosal mass revealed a lipoma at the base and a JP at the top, demonstrating evidence of rupture and associated bleeding. The patient's overall health remained satisfactory, with no recurrence of hematochezia during the six-month follow-up period.

CONCLUSION

This case report provides new evidence for the understanding of gastrointestinal collision tumors, emphasizing their diverse clinical presentations and histopathological characteristics. It also offers diagnostic and therapeutic insights as well as an approach for managing benign collision tumors.

Key Words: Collision tumor; Gastrointestinal bleeding; Hamartomatous tumor; Lipoma; Modified endoscopic submucosal dissection; Case report

Wu YQ, Wang HY, Shao MM, Xu L, Jiang XY, Guo SJ. Ileal collision tumor associated with gastrointestinal bleeding: A case report and review of literature. *World J Gastrointest Surg* 2023; In press

Core Tip: Small intestinal collision tumors, specifically those comprising hamartomatous tumors with lipomas, are rare. Most available literature on gastrointestinal collision tumors describes cases with malignant tumor components, and most of these patients are treated surgically. In this report, we present a rare case in which a collision tumor composed of two benign tumors of different origins in the small intestine was accidentally discovered because of hemorrhage-induced hypovolemic shock. Considering the patient's advanced age, multiple comorbidities, and poor surgical tolerance, we performed a modified endoscopic submucosal dissection procedure. This case demonstrates an approach for managing benign collision tumors in the small intestine.

INTRODUCTION

Juvenile polyps (JPs) are commonly classified as hamartomatous polyps and are frequently implicated as a cause of hematochezia. They are typically found in the rectum and sigmoid colon but have been rarely documented in the small intestine[1-3]. Collision tumors, a subtype of mixed tumors, have two distinct components[4]. They are relatively uncommon in pathology, with reported occurrences in various locations, such as the skull, gastroesophageal junction, rectum, and uterus[5]. Small intestinal collision tumors are most frequently observed in the ampulla of Vater[6-9], while documented cases of ileal collision tumors are exceptionally rare[10]. To date, no prior reports have been found on collision tumors predominantly involving JPs that present as hemorrhages. In this report, we present a unique case of hemorrhagic shock in a patient with a collision tumor composed of a JP and lipoma in the small intestine, which was

successfully managed using a modified endoscopic submucosal dissection (ESD) technique.

CASE PRESENTATION

Chief complaints

An 82-year-old woman presented with a one-day history of dark red bloody diarrhea.

History of present illness

The symptoms appeared one day prior to presentation, with the patient experiencing 10 episodes of dark red bloody diarrhea. She reported feeling dizzy and fatigued but denied experiencing any abdominal pain or bloating.

History of past illness

The patient had a medical history of hypertension, atrial fibrillation, and chronic heart failure (NYHA Classification IV). The patient was administered oral dabigatran anticoagulation therapy.

Personal and family history

She had no family history of gastrointestinal tumors or psychological or genetic disorders.

Physical examination

Upon admission, the patient appeared apathetic. Physical examination revealed a hypotensive state with a blood pressure of 79/45 mmHg, heart rate of 142 beats/min, and normal body temperature.

Laboratory examinations

Laboratory analysis revealed decreased levels of red blood cells and hemoglobin (8.5 g/dL), along with an elevated ultrasensitive C-reactive protein level of 17.61 mg/L.

Coagulation parameters were found to be abnormal, including a prolonged prothrombin time of 18.9 s, activated partial thromboplastin time of 51.4 s, reduced prothrombin activity of 51%, increased international normalized ratio of 1.55, and a fibrinogen level of 4.6 g/L. The patient's serum potassium level was 3.05 mmol/L, and hepatic and renal functions were within the normal range.

Imaging examinations

Ultrasound examination revealed a well-defined hypoechoic mass measuring 50 mm × 32 mm × 30 mm at the terminal ileum of the right lower abdomen, suggesting a possible lipoma. Contrast-enhanced computed tomography confirmed the presence of a lipoma with partial intestinal invagination into the ascending colon, indicating the possibility of intestinal intussusception (Figure 1).

Further diagnostic work-up

The preliminary clinical diagnosis was hemorrhagic shock. Anticoagulant medication was temporarily discontinued. As the hemoglobin level did not meet the clinical transfusion threshold, she received a comprehensive treatment approach that included fluid resuscitation, combination therapy with proton pump inhibitors and somatostatin to promote hemostasis, correction of coagulation abnormalities, and provision of nutritional support. Subsequent colonoscopy revealed a submucosal elevation 6 cm from the ileocecal valve consisting of two distinct parts with clear demarcation and varying texture upon palpation (softer at the base) (Figure 2). Narrow-band imaging indicated a type II opening (stellate) of the glandular portion at the top of the lesion and a type I opening (consistent with the surrounding mucosa) at the lower end. A specimen was obtained from the upper surface of the lesion for biopsy, and histopathological results indicated a diagnosis consistent with JP.

FINAL DIAGNOSIS

Based on the patient's medical history and pathological examination, the final diagnosis was determined to be a collision tumor consisting of a hamartomatous tumor with a concurrent lipoma in the small intestine

TREATMENT

Because of persistent bloody stools and the exclusion of other potential sources of gastrointestinal bleeding through procedures, such as gastroscopy, a multidisciplinary team consultation (MDT) considered the possibility of mechanical stimulation-induced bleeding from a collision tumor located 6 cm away from the ileocecal valve. Considering the patient's advanced age and multiple comorbidities, which rendered her unsuitable for surgery, the recommended treatment approach was ESD. Following informed consent, a modified ESD procedure was successfully performed with the assistance of a snare device for *en bloc* resection. This ensured complete removal of the lesion measuring approximately 60 mm × 40 mm, with no significant adverse events (Figure 3).

OUTCOME AND FOLLOW-UP

Histopathological examination of the endoscopic biopsy specimen confirmed the presence of a collision tumor (lipoma combined with JP) exhibiting signs of angiodysplasia and surface bleeding (Figure 4). The patient recovered smoothly following surgery, with no recurrence of bloody stools. Three days after the operation, the patient’s hemoglobin level increased by 10 g/L, and she did not report any other concerns. Throughout the six-month follow-up period, the patient's overall health remained satisfactory and there were no instances of hematochezia recurrence.

DISCUSSION

This case was accidentally discovered because of hemorrhage-induced hypovolemic shock. To our knowledge, this is the first reported case of a collision tumor comprising two benign tumors of different origins in the small intestine. JPs belong to the category

of hamartomatous polyps, which are more common in children and account for over 90% of pediatric polyps, but are relatively rare in adults[11,12]. JPs usually presents with nonspecific signs and symptoms, including abdominal pain, bloody stools, prolapse, and diarrhea[13]. Because of the highly vascular nature, gastrointestinal bleeding is a common symptom associated with JPs[14]. Previous studies have reported more common collisions between serrated polyps and traditional adenomas[15] and rare collision tumors formed by inflammatory fibroid polyps with adenocarcinoma or gastrointestinal stromal tumors[16,17]. Notably, no cases of collision tumors of the small bowel associated with JPs have been reported.

Compared to solitary JPs, lipomas are not rare in the gastrointestinal tract, with an incidence ranging from 0.035% to 4.4%[18]. Among them, the colon accounts for 65%-75%, followed by the small intestine (20%-25%), stomach, and esophagus. As the second most common benign tumor of the small intestine, lipomas are typically located in the ileum (50%) and rarely in the jejunum[19]. Symptomatically, lipomas in the small intestine mainly present as abdominal pain, followed by nausea and vomiting. Approximately 33.3% of patients may experience gastrointestinal bleeding due to lipoma ulceration. Other symptoms include anemia, abdominal distention, constipation, and unintentional weight loss[20]. Furthermore, disruption of the epithelial covering of the surface of lipomas may also contribute to bleeding. The definition of atypical lipomas was proposed by Snover[21], and later, Virgilio *et al*[22] classified "atypical" lipomas into three types based on malignant changes in the covering epithelium and suggested that in atypical lipomas, mucosal ischemia and inflammatory reactions may lead to mucosal hyperplasia and the development of hyperplastic polyps, as well as the proliferation and adenomatous transformation of the overlying mucosa. Sporadic cases of lipomas have been reported to exhibit proliferative and ulcerative epithelium[23-26].

In clinical practice, both lipomas and JPs can result in the occurrence of hematochezia. However, in the present case of identified submucosal elevation, the top portion was pathologically confirmed to be JP, which led to the patient's current episode of hematochezia. Therefore, we speculate that, in this case, the occurrence of a small

intestinal lipoma may have preceded the development of a hamartomatous polyp with an overlay of epithelium on its surface due to frictional irritation. This may have led to the formation of a collision tumor, ultimately resulting in the rupture and bleeding of the top portion of the JP.

In the treatment of collision tumors, as reported in existing literature, most cases involving gastrointestinal collision tumors contain malignant tumor components. Therefore, surgery is the primary treatment for most patients, and some patients may opt for adjuvant or neoadjuvant therapy[5]. However, in cases in which two benign tumors are combined, the treatment options for lipomas and JPs include surgery, laparoscopy, and endoscopy. Previously, the European Society of Gastrointestinal Endoscopy did not recommend the routine use of ESD for duodenal or small bowel lesions, mainly because of its higher incidence of perforation (15% to 37.5%) than that of EMR[27].

Notably, in recent years, there have been increasing number of cases of ESD for the treatment of small intestinal lesions. Morimoto reported the successful peeling of a giant (5 cm) ileal lipoma using endoscopic unroofing and submucosal dissection[28]. Noda *et al*[29] and Muramoto *et al*[30] separately reported cases of ESD for lipomas measuring approximately 4 cm in the terminal ileum. Farkas *et al*[20] summarized different treatment strategies in 147 cases and found that although traditional surgery remains the main choice, endoscopic and laparoscopic techniques have great potential for future use in reducing the use of invasive surgeries, as there were no statistically significant differences in hospitalization time and lipoma size among the different treatment strategy choices. Furthermore, Chen *et al*[31] recently reported two cases of balloon-assisted ESD for deep intestinal lipomas that showed good clinical feasibility. Considering that the location of collision tumor (terminal ileum), the higher surgical risk for an elderly patient with comorbidities and the feasibility of a successful colonic endoscopic resection[32], our MDT unanimously approved the use of ESD for treatment. We successfully performed ESD to remove a large collision tumor without any

postoperative adverse events, providing a new case reference for ESD treatment of small intestinal tumors.

CONCLUSION

This report presents an exceptionally rare case of a collision tumor consisting of a combination of lipomas and hamartomatous polyps. The patient presented with hematochezia and hemorrhagic shock caused by bleeding from an apical JP located in the terminal ileum. This case provides novel insights into the clinical manifestations and histopathological patterns of collision tumors while also offering valuable diagnostic and therapeutic considerations for managing benign collision tumors.

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