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Application of capsule endoscopy in the management of small intestine angioectasias-case report

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Abstract: Angioectasias lesions are multiple and involve a wide range, gast rointestinal bleeding can occur repeatedly or stop spontaneously, mostly in the colon. We report the real-life case of gastrointestinal bleeding in the small intestine. Small intestinal angioectasias (SBAEs) is a common cause of obscure gastrointestinal bleeding (OGIB). Due to the limited means for small intestine examination, the source cannot be found and missed diagnosis, resulting in delayed treatment. The application of capsule endoscopy not only greatly improves the diagnosis yield but also helps clinicians to formulate the next treatment plan. It is recommended to perform capsule endoscopy for those patients with gastrointestinal bleeding who cannot be identified after conventional gastroenteroscopy.

Keywords: Obscure gastrointestinal bleeding; Angiectasias of the small intestine; Management.

1. Introduction

Bleeding from the small intestine remains a relatively uncommon event. Since the application of capsule endoscopy, the diagnosis yield of obsure gastrointestinal bleeding(OGIB) has been greatly improved, which can provide information for the next treatment plan.The accuracy parameters for video capsule endoscopy (VCE) are uncertain because there is no standard comparative method, VCE is recommend as the first-line investigation for obscure gastrointestinal bleeding .VCE should be perfected when the clinician is confronted with a patient who has been admitted to the hospital repeatedly for gastrointestinal bleeding and is unable to identify the bleeding Source by conventional endoscopy.

The optimal treatment for patients with suspected small intestinal bleeding and negative CE results is controversial.Although most articles recommend that endoscopic therapy is relatively safe and reliable, due to its high rebleeding rate, surgical combined with intraoperative small intestinal endoscopy should be performed in time when the condition deteriorates, although it is second-line treatment.

2. Case Report

A 49-year-old male was admitted to our hospital. The patient complained he has been pale , languid and weak for over a decade ,which gotten worse in the last two weeks. He had no underlying medical history. Physical examination: Vital signs were stable, consciousness was clear, anemia appearance, cardiopulmonary and abdominal physical examination was not special. The patient was admitted to another hospital on October 9, 2021 due to the same cause. The blood routine examination of the other hospital showed "ferritin: 2.1ng/ml, iron 1.8umol/L, reticulocyte: 2.18%, haemoglobin concentration – 4.9 g/dL". Abdominal computed tomography (as shown in Figure 1) showed liver enlargement, hemangioma, liver cyst, and splenomegacy in S8 segment of liver, without intestinal abnormalities. The esophagogastroduodenoscopy was performed, the results showed "1. Gastric and duodenal telangiectasia; 2. Chronic superficial gastritis; 3. Barrett esophagus? 4. Multiple polyps in the colon ", without revealing any active source of bleeding. other hospitals were given symptomatic and supportive treatment such as iron supplementation, but no accurate diagnosis was given. Later, the patient came to our hospital for further diagnosis and treatment, and checked "haemoglobin concentration 6.4 g/dL, hematocrit 24.26%, mean erythrocyte hemoglobin concentration 282.0g/L, thalassemia gene, acid hemolysis test, anti-human globulin test, acid hemolysis test, and ENA spectrum were negative ". Lesions considered for obsure gastrointestinal bleeding (OGIB) are more diffuse and often occur in the small intestine, capsule endoscopy (CE) maybe help to clarify the diagnosis so we finish it. The CE results were shown: "1. Scattered telangiectasia erythema is seen in the mucosa of the small intestine(as shown in Figure 2); 2.there is a localized ulceration in the small intestine". After admission, symptomatic and supportive treatment such as acid suppression and stomach protection, iron supplementation etc. "Laparoscopic abdominal exploration + partial small bowel resection" was performed on October 26, 2019. Intraoperative endoscopy (IOE) (as shown in Figure 3) showed multiple small intestinal telangiectasia lesions with spider-like changes. The lesions started from about 10cm away from the Treus ligament, and lesions were observed every 7-8cm, and the lesions continued for about 1.1m. In addition to the above densely distributed lesions, other scattered lesions were seen in the distal small intestine. Considering the wide and complex scope of the patient's lesions, after consultation with hematological surgery department, gastrointestinal surgery department and endoscopists, the small intestine segments with concentrated lesions were removed by open surgery (as shown in Figure 4), and the remaining small intestine was retained and left untreated to prevent postoperative complications such as short bowel syndrome. Pathology results confirmed (as shown in Figure 5): (jejunum) Microscopically, some areas of small intestinal mucosa were eroded, and the submucosa showed significantly dilated and congested blood vessels. Combined with the clinical, consistent with (jejunal) vasodilatation the patient's flatus and defecation returned to normal and was discharged 11 days later. One month later, hemoglobin and other indicators

returned to the normal range.

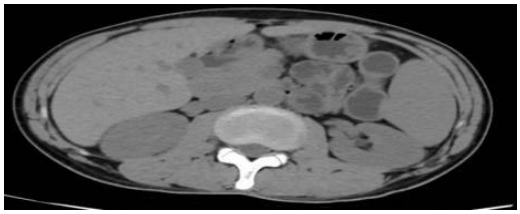

Figure1. Abdominal ct showed no abnormal tumor

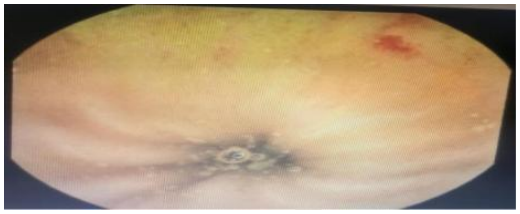

Figure 2. Erythema of small intestinal telangiectasia as it appeared at the capsule endoscopy

Figure 3. Erythema of small intestinal telangiectasia as it appeared at the Intraoperative endoscopy

Figure 4. Macroscopic appearance of the lesions, once resested the intestinal tract

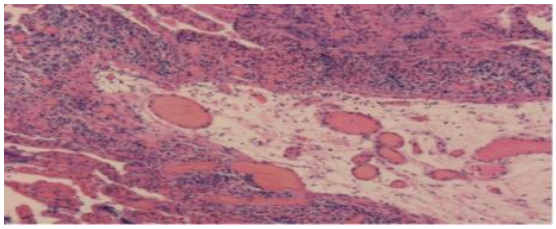

Figure 5. Erythema of small intestinal telangiectasia as it appeared at the microscopic examination with an h and e dye (×10)

3. Discussion

Obscure gastrointestinal bleeding (OGIB) has been defined as gastrointestinal bleeding from an unidentified source that although esophagogastro-duodenoscopy or colonoscopy have been perfected, accounting for approximately 5-10% of all cases .Small bowel angioectasias (SBAEs) are the main cause of OGIB [1,7], 90% of patients often have spontaneous hemostasis, while more than 60% have rebleeding, patients are often repeatedly admitted to hospital for treatment due to gastrointestinal bleeding.

For patients considering potential small intestinal bleeding, CE is recommended as the first-line test for OGIB as a noninvasive test after excluding upper and lower gastrointestinal bleeding[1,2].For patients with previous inflammatory bowel disease, history of major abdominal surgery, and suspected intestinal obstruction, MRI or CT should be completed to exclude intestinal stenosis and adhesions, which reduces the CE retention rate from 21% to 1.4%. The course of the disease that this patient has been prolonged for more than 10 years, and there is no obvious abnormality in abdominal ct. Gastroscopy suggests AE in the stomach and duodenum, while colonoscopy does not suggest AE, which is inconsistent with previous studies suggesting that AE tends to occur in the right cecum and colon.The lesions of SBAEs are mostly scattered in, which can repeatedly bleed and spontaneously stop bleeding. Even small AE can cause active bleeding and moderate to severe anemia.It is also sometimes difficult for endoscopists to distinguish the true source of bleeding from other incidental lesions.

At present, whether for patients with the negative result of CE need to be treated or not is controversial. The high negative predictive value of CE means treatment is not necessary, the rate of rebleeding increased over time during longer follow-up[13,14],SBAEs are the main causes[13,15]. The CE examination should be repeated in patients with a transition from occult to overt bleeding and a decrease in hemoglobin of more than 4 g/dl. CE positive patients with definite lesions under CE without diagnosis and treatment have a high rebleeding rate[3,16] and should be treated immediately.

SBAEs can be treated with conservative therapy, drug therapy, endoscopic therapy and surgery, and endoscopic hemostasis is the commonly used . Endoscopic hemostasis is effective for colonic AE, but it is controversial for SBAE. Although endoscopic treatment can stabilize hemoglobin levels, reduce transfusion requirements, and improve quality of life, the rebleeding rate reached 50%, postoperative bleeding rate is lower than the previous method. The surgical method is determined by the clinician. For lesions that cannot be touched by routine gastroenteroscopy, CE provides the surgical approach for the next operation, and the combination of intraoperative endoscopy for localization is the key to the success of the operation. After the introduction of CE, the surgical success rate and mortality rate were improved compared with those before the introduction of CE, but the postoperative complications were still as high as 31%.However, patients should still be operated actively if they have life-threatening bleeding, failure of other hemostatic techniques, hemodynamic instability , deterioration of the condition, recurrent bleeding and intestinal segments that cannot be reached by endoscopy [20,21,22]. In this case, the patient was discharged on the 11th day after surgery. Although the indicators returned to normal one month later, the patient had no obvious discomfort. It is unknown whether the gastrointestinal bleeding would occur again in the long-term follow-up, so the SBAEs patients should be followed up for a longer time.

4. Conclusion

Small intestine bleeding was a difficult problem in the diagnosis and treatment. The introduction of CE greatly improved diagnostic accuracy. There is no consensus on the best treatment for SBAEs. Since the efficacy of endoscopic hemostasis on SBAEs is controversial, surgical exploration can be considered when extensive telangiectasia-like erythema can be seen under CE and the patient does not have many underlying cardiopulmonary diseases.

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