Case Report

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Appendix bleeding with painless bloody diarrhea: A case report and literature review

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Abstract: Appendix bleeding is an uncommon clinical phenomenon. In this article, we reported a case of appendix bleeding with painless bloody diarrhea. With the analysis of clinical features, clinical examination, experimental test and literature review, we diagnosed that the appendix bleeding might be caused by granulomatous appendicitis. This successfully cured case might be a reference for later diagnosis and treatment of appendix bleeding with painless bloody diarrhea.

Keywords: Appendix bleeding; Granulomatous appendicitis; Painless bloody diarrhea

1 Introduction

It's well known that lower gastrointestinal (GI) bleeding generally refers to bleeding from the colon and anorectum, also including bleeding from the small intestine (from the level of major duodenal papilla till the distal ileum). In most patients, the lower GI bleeding stops spontaneously and does not recur, but some cases of lower GI bleeding may be life-threatening [1]. Therefore, it’s worthy to investigate the rare case of lower GI bleeding to guide for clinical practice. In this study, we reported a case of appendix bleeding with painless bloody diarrhea. Through the analysis of clinical features, contrast-enhanced CT findings, angiography findings, colonoscopy findings, surgical outcomes, pathological tissue, patient follow-up and literature review, we believed that granulomatous appendicitis may be the cause of appendix bleeding.

2 Case report

A 24-year-old male patient came to our department for a 5-hour dark red stool. On admission, the patient had an acute ill looking appearance without mental disorder or resting tachycardia. The results of blood pressure test and chest examination were normal. The abdomen was soft with normal bowel sounds. The abdomen can be touched without tenderness and there was no organomegaly in abdomen. The patient had neither fever nor abdominal pain and he denied any history of gastrointestinal diseases or medicine taking. But reddish bloody stools occurred once in 3 hours, approximately 100-200 ml of blood each time.

On admission, laboratory evaluation revealed a white blood cell count of 6.16*10^9/L, hemoglobin of 138g/L, and platelet count of 111*10^9/L. Prothrombin time was 12.5 seconds with international normalized ratio of 1.08, activated partial thromboplastin time was 28.8 seconds. The liver and renal function, electrolyte were normal, and C-Reactive Protein was 2.9mg/L. 8 hours after admission, the hemoglobin level dropped from 138g/L to 90 g/L, so emergency gastroscope was administered. However, the result of gastroscope showed no specific lesion in esophagus, stomach and duodenum.

24 hours after admission, although intravenous proton pump inhibitors (Esomeprazole, 80mg bolus followed by 8mg/hour); somatostatin (0.25mg bolus followed by 0.25mg/hour) and thrombin three or four times/day; additionally with vitamin, glucose and potassium chloride were administered, the frequency of rectal bleeding increased to once in 2 hours. So contrast-enhanced CT and angiography were performed on the abdomen and superior mesenteric artery to find the source of bleeding. But no lesion was found (Fig. 1).

In order to find the cause of bleeding, colonoscopy was subsequently performed. We saw a large amount of fresh blood filling in the enteric cavity even in the terminal...
ileum through colonoscopy. When the colonoscope got back from ileum to ileocecal junction, we found the color of blood got fresher. So irrigation was performed within the ileocecal junction. After the blood was washed away, oozing bright blood flowed from the appendiceal orifice immediately (Fig. 2).

On the third day from admission, an emergency appendectomy was arranged. On operation, a normal appearance of appendix filled with blood was revealed, but no edema or abscess. In the operation, a colonoscopy with repetitive irrigation was performed. A large amount of blood clot and edema mucosa was revealed, but absent of longitudinal pattern of ulceration or cobble-stone appearance of mucosa.

After appendectomy, the patient was not experiencing bloody stools or other discomfort. Then discharged.

The HE staining of the appendix found a number of inflammatory cells and non-caseating granulomas (Fig. 3).

One year after the appendectomy, a follow-up survey was made. The patient denied abdominal pain, diarrhea and any discomfort.

Ethics approval and consent to participate: Patient provided informed consent and this report was approved by the Chongqing Hospital of Traditional Chinese Medicine Ethics Committee.

3 Discussion

By searching the PubMed/MEDLINE database, the relevant publications from January 1977 to May 2018 were identified by using the following searching term “appendix bleeding” or “appendix hemorrhage”. All the publication included were in English, while those in other language were excluded. By searching the database, 17 articles were included as the following (Table 1).

From the table, we could see the factors of appendix bleeding included inflammation, angiodysplasia, diverticulum, granulomatous appendicitis, tumor and damage of the appendix mucosa which were according with the previous description [2, 3]. Fifteen of these reports were of painless bloody diarrhea.

In our case report, the young patient presented with bloody diarrhea without any other positive symptom or examination result, except his hemoglobin declined from 138g/L to 90 g/L. From the data above, normal gastrointestinal endothelium was revealed by gastroscope and colonoscopy, also with no vascular anomaly found by selective angiography, then angiodysplasia was ruled out. Besides, the normal number of platelet count, coagulation and fibrinolysis excluded the possibility of spontaneous hemorrhage result from thrombocytopenia, disseminated intravascular and defibrination[4]. Furthermore, negative result of contrast-enhanced CT scan excluded the diagnosis of appendicitis or tumor (Fig. 1 and 2). As a result, the cause of appendix mucosa damage and granulomatous appendicitis were under consideration. While the morphology and histology of appendix after surgery gave some clues for us. The characteristics of chronic inflammatory lesions including clusters of epithelioid histiocyte accompanied by multinucleated giant cells and lymphocytes as well as plasmatic cells were the hint of granulomas (Fig. 3).
Table 1: The information of the 17 articles published about appendix bleeding.

| Year | Age/gender | C/C                  | Clinical impression                | Ref. |
|------|------------|----------------------|-----------------------------------|------|
| 2017 | 46/M       | Abdominal pain       | Appendicitis                      | [8]  |
| 2017 | 33/M       | abdominal pain       | Diverticulitis                    | [9]  |
| 2016 | 72/M       | hematochezia         | Angiodysplasia                    | [10] |
| 2016 | 22/M       | rectal bleeding      | Granulomatous appendicitis        | [11] |
| 2015 | 68/M       | hematochezia         | Appendiceal Dieulafoy lesion      | [12] |
| 2014 | 44/M       | hemorrhage           | Diverticulitis                    | [7]  |
| 2014 | 51/M       | chief complaint      | Dieulafoy lesion                  | [13] |
| 2013 | 71/M       | melena               | Appendix ulcer                    | [14] |
| 2013 | 41/M       | melena               | Atypical florid vascular proliferations | [15] |
| 2012 | 59/F       | rectal bleeding      | Aortoenteric fistula              | [16] |
| 2011 | 25/M       | hematochezia         | Focal erosion of appendix mucosa  | [17] |
| 2010 | 42/M       | hematochezia         | Appendiceal mucosal erosion       | [18] |
| 2007 | 56/M       | hematochezia         | Gastrointestinal stromal tumor    | [19] |
| 2001 | 76/F       | bleeding             | Angiodysplasia                    | [20] |
| 1985 | 32/F       | rectal bleeding      | Ulcerated appendiceal stump       | [21] |
| 1980 | 48/M       | bleeding             | Diverticular hemorrhage           | [22] |
| 1977 | 14/M       | bloody stool         | Appendix abscess                  | [23] |

M: male, F: female, C/C: chief complaint, Ref: reference

Figure 3: The histology of the appendix after surgery. (A) Inflammatory cells infiltrating. (B) A large number of red blood cells could be seen. (C) Ulcer, inflammatory cells and granulomas were visible. (D-F) Scattered noncaseating granulomas could be seen.
As far as we know, this was the second case which revealed painless bloody diarrhea because of granulomatous appendicitis. Granulomatous appendicitis was a rare case of disease manifested with inflammatory lesion caused by fungi infection, yersinia pseudotuberculosis, mycobacterium tuberculosis, parasites, Crohn’s disease (CD), foreign body reactions, and sarcoidosis [3]. The exact cause of this case was obscure because it was used to be reported as a manifestation of CD [5, 6]. However the diagnosis of CD was very difficult even if several months after the start of the symptoms, not to mention the characteristics of CD in its early phase and its long-term natural history [5, 6].

Recently, it has been believed that granulomatous appendicitis was the subacute appendicitis managed conservatively [7]. In this study appendectomy successfully cured the bleeding and the patient was recovery based on a follow-up survey which showed no abdominal pain, no diarrhea or any discomfort. It was a successful case to make the diagnosis and differentiate diagnosis based on colonoscopy, contrast-enhanced CT scan and selective angiography.

4 Conclusion

In summary, we presented a case of lower GI bleeding caused by granulomatous appendicitis based on the analysis of clinical features, contrast-enhanced CT findings, angiography findings, colonoscopy findings, surgical outcomes, pathological tissue, patient follow-up and literature review. It suggested us that although granulomatous appendicitis was rare, it should be under consideration for the cause of lower GI bleeding. This successfully cured case might be a reference for later diagnosis and treatment of appendix bleeding with painless bloody diarrhea.

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