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Colonoscopy-induced acute appendicitis: A case report

Song XL *et al*. Colonoscopy-induced acute appendicitis

Abstract

BACKGROUND

Colonoscopy is widely used for examination, diagnosis, and treatment because of its low incidence of associated complications. Post-colonoscopy appendicitis (PCA) is very rare and is easily misdiagnosed as electrocoagulation syndrome or colon perforation. Therefore, clinicians should pay close attention to this complication.

CASE SUMMARY

A 47-year-old female patient underwent colonoscopy for a systematic physical examination, and the procedure was uneventful with normal endoscopic and histologic findings. However, the bowel preparation was suboptimal (Boston 2-3-2). After the examination, the patient experienced pain in the lower abdomen, which progressively worsened. Computed tomography of the lower abdomen and pelvis revealed appendiceal calcular obstruction and appendicitis. As the patient refused surgery, she was managed with antibiotics and recovered well.

CONCLUSION

In the current literature, the definition of PCA remains unclear. However, abdominal pain after colonoscopy, should be differentiated from acute appendicitis.

Key Words: Colonoscopy; Complications; Appendicitis; Differential diagnosis; Case report

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Core Tip: Abdominal pain is a common symptom after colonoscopy; this symptom is generally considered to be caused by perforation or electrocoagulation syndrome, and acute appendicitis is often ignored as a differential diagnosis. This case report aims to

improve clinicians' awareness of possible appendicitis after colonoscopy. The causal relationship between colonoscopy and acute appendicitis remains unclear; however, whether or not it is defined as a complication, abdominal pain associated with colonoscopy, particularly in the right lower abdomen, should be differentiated.

INTRODUCTION

Colonoscopy is a common clinical examination, involving an endoscopic analysis of the entire colon, that aids in diagnosis and treatment. Colonoscopy is widely applied owing to its safety. However, although rare, serious complications, such as pain, bleeding, inflammation, perforation, cardiopulmonary complications, and death, may occur after colonoscopy.

Abdominal pain is a common symptom of colonoscopy. Mild abdominal pain is considered normal, and acute appendicitis, a relatively rare condition, is often ignored as a possible cause. Indeed, a previous study reported that the incidence of acute appendicitis was approximately 0.038%[1]. However, considering that non-specific abdominal pain symptoms and minor appendicitis are easily overlooked, the recorded incidence of acute appendicitis may have been underestimated.

Recently, the number of patients undergoing colonoscopy continues is increasing, and more cases of appendicitis occurring after colonoscopy have consequently been reported. Since the first reported case in 1988, over 50 cases have been reported in the literature[2,3]. Many cases of perforation or gangrene, for which surgery is the primary treatment, have been reported[4-7]. Herein, we report the case of a woman who developed non-perforated appendicitis 10 h after undergoing colonoscopy and was treated with antibiotics immediately after a definite diagnosis. This treatment yielded satisfactory results. This article aims to attract clinical attention to appendicitis occurring after colonoscopy. Early identification and timely treatment are of paramount importance to avoid serious consequences and improve prognosis.

CASE PRESENTATION

Chief complaints

The patient complained of abdominal pain after undergoing colonoscopy. Appendicitis was diagnosed 10 h later.

History of present illness

The patient underwent a colonoscopy for health management, and the procedure was uneventful without any pathological biopsy. However, the state of intestinal cleanliness was poor (Boston 2-3-2), and clumps were observed in the feces. Ten hours after the examination, the patient experienced progressive pain in the right lower abdomen and was admitted to the gastroenterology department.

History of past illness

The patient's past medical history was unremarkable.

Personal and family history

The patient denied any possibility of family history-related conditions.

Physical examination

The findings from physical examination were as follows: Body temperature (37.6 °C); blood pressure (132/75 mmHg); and heart rate (85 beats/min). The tenderness of the right lower abdomen was evident, without total abdominal pain, Murphy (-), Mc (+).

Laboratory examinations

The white blood cell count, neutrophil count, and C-reactive protein level were 9.54 × 10^9 cells/L, 11.8 × 10^9 cells/L (N%: 90.4%), and 25.3 mg/L, respectively.

Imaging examinations

A computed tomography (CT) scan of the lower abdomen and pelvis revealed a dilated and inflamed appendix with fecoliths (Figure 1A).

FINAL DIAGNOSIS

The final diagnosis was post-colonoscopy acute appendicitis.

TREATMENT

The patient refused surgery and was administered antibiotics. After 3 d of treatment, the pelvic CT revealed inflammation in the appendix, and the appendicolith had disappeared (Figure 1B). Five days later, the patient was discharged in good physical condition.

OUTCOME AND FOLLOW-UP

The patient was followed up for 1 year, and no symptoms of appendicitis recurred.

DISCUSSION

Colonoscopy is widely used to examine, diagnose, and treat intestinal diseases. It is associated with fewer serious complications, of which bleeding and perforation are the most common. The incidence rate of complications ranges from 0.2% to 3%[8-10]. In recent years, more rare complications have been reported, including splenic and mesenteric vein embolisms. Post-colonoscopy appendicitis (PCA) is a rare complication.

Further, some scholars believe that PCA is a coincidence rather than a complication. Since the first reported case of PCA in 1988, the number of similar cases have increased over the past 20 years; to date, over 50 similar cases have been reported[2,3]. Interestingly, the number of cases reported in the past decade has increased fourfold compared to the previous decade[2], suggesting that this complication has gained increasing awareness among physicians.

Currently, no consensus on the definition, pathogenic factors, or pathogenesis of PCA have been established. Shaw *et al*[11] proposed that PCA should be defined as appendicitis occurring within 72 h of colonoscopy. Currently, there are several hypotheses regarding the pathogenesis of PCA: (1) Air pressure trauma caused by over-inflation[9]; (2) Obstruction and/or inflammation caused by stool pressing on the

appendix[12]; (3) Direct trauma caused by unintentional intubation of the appendix tube[13]; (4) Exacerbation of existing subclinical diseases[14]; and (5) Stimulation of residual glutaraldehyde in the endoscope on the mucosa[13].

In the present case, appendicitis may not have been caused by a single factor. Owing to the impact of intestinal air pressure, fecal calculus in the intestinal cavity rushes into the appendix. Meanwhile, rising airway pressure makes it difficult for the airway to roll out, thereby causing appendicitis. In this case, this assumption was based on the fact that the patient's intestinal cleanliness was unremarkable.

The diagnosis of PCA presents certain challenges, particularly because its initial clinical manifestations are generally nonspecific. Therefore, misdiagnosis of intestinal perforation or polypectomy syndrome is common. In the early stages of the disease, changes in the biochemical examination results were not evident. However, CT excluded lesions in other organs and intestinal perforations as early as possible. CT scanning has high sensitivity and specificity for detecting acute appendicitis[15]. Plain abdominal film and ultrasound examinations may not be significantly useful in the early diagnosis and treatment of this disease[16-21]. Therefore, CT has become the primary diagnostic modality for PCA in clinical settings. The duration of PCA from symptom onset to diagnosis varied from several hours to 10 d. A recent study demonstrated that patients undergoing colonoscopy are prone to developing appendicitis within a week[22]. Therefore, patients experiencing abdominal pain after an examination should be cautious and skeptical of their diagnosis.

Based on previous treatment of PCA, laparoscopy is the first choice for the reports. Over the past 15 years, the success rate of laparoscopy has reached approximately 89.5%[3]. However, when complicated with extensive peritonitis, open surgery remains a more safe, rapid, and effective treatment modality[23,24]. However, in recent years, nonsurgical treatments have received increasing attention. Furthermore, owing to an improved understanding of PCA, this disease can now commonly be diagnosed at an early stage. Non-surgical treatment is feasible for appendicitis without perforation, gangrene, and suppuration and suppuration[3].

CONCLUSION

Although PCA is rare, the number of reported cases has increased in recent years. Owing to its nonspecific clinical symptoms, and some mild inflammatory reactions may subside independently; therefore, the actual incidence of this disease may be underestimated. However, PCA should be considered in the differential diagnosis of patients with abdominal pain after colonoscopy, especially when intestinal cleanliness is poor.

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