Reactive Lymphoid Hyperplasia with a Lipomatous Component Associated with Fecal Compaction in an Appendiceal Orifice

Masaya Iwamuro 1,2, Yoshinari Kawai 1, Katsuyoshi Takata 3, Yoshio Miyabe 1, Hiroyuki Okada 4 and Kazuhide Yamamoto 2

Abstract

A 69-year-old man underwent endoscopic mucosal resection of a solitary polyp located in the cecum. After the procedure, a fecal mass and appendiceal orifice appeared under the cut surface. A diagnosis of reactive lymphoid hyperplasia was made based on the results of an immunostaining analysis, which revealed a segregated population of T cells and B cells in multiple lymphoid follicles. The aggregation of adipocytes forming a lipomatous area and granulation tissue was also observed. We speculate that the compaction of the fecal mass in the appendix triggered mucosal inflammation, resulting in the formation of the polyp, which concealed both the feces and appendiceal orifice.

Key words: reactive lymphoid hyperplasia, appendix, colonic polyps

(Intern Med 53: 1049-1053, 2014)
(DOI: 10.2169/internalmedicine.53.1635)

Introduction

Fecal impaction in the appendix is reported to occur in less than 3% of asymptomatic individuals and is more frequently observed in association with appendicitis (1-3). It is widely accepted that impacted feces can cause obstruction of the appendiceal lumen, with stasis of its contents and subsequent bacterial overgrowth and inflammation, which eventually lead to appendicitis (4). Other complications related to fecal impaction in the appendix are rare.

We recently treated a patient with a solitary polyp in the cecum. An endoscopically resected specimen of the polyp showed unique pathological features: the polyp was primarily composed of multiple lymphoid follicles in addition to granulation tissue and adipocytes. Proliferated lymphoid cells in the polyp were polyclonal and non-neoplastic. Tingible body macrophages were also found in the follicles. Therefore, a diagnosis of reactive lymphoid hyperplasia in the cecum was made. Interestingly, a fecal mass and appendiceal orifice appeared under the cut surface following endoscopic resection of the polyp. We speculated that compaction of the feces in the appendix triggered mucosal inflammation, thus resulting in the formation of the polyp, which then concealed both the fecal mass and appendiceal orifice. The pathogenesis of the polyp is discussed below.

Case Report

A 69-year-old man underwent computed tomography scanning for the follow-up of a superior mesenteric arterial aneurysm. The aneurysm remained unchanged; however, a tumorous lesion was incidentally detected in the cecum (Fig. 1). The lesion contained a focal calcified area, which was considered to be a fecal mass. The patient was asymptomatic. He had no previous history of gastrointestinal or hematopoietic diseases, although he was taking nifedipine for hypertension. A physical examination revealed no abnormalities, and there was no evidence of hepatosplenomegaly or peripheral lymphadenopathy. All laboratory findings were...
Figure 1. CT scanning image of the patient. A solitary tumorous lesion was incidentally detected in the cecum (A&B, arrows). A focal calcified area was observed in the tumor. A CT scanning image obtained after resection of the polyp revealed an appendiceal orifice in the same region (C, arrowhead); there was no diverticulum. We thus suspected that the polyp had been located above the appendiceal orifice.

Figure 2. Colonoscopic images. A multinodular polyp was observed in the cecum under white light observation (A) and after indigo-carmine contrast spraying (B). Narrow-band imaging revealed an intact crypt pattern (C). Following endoscopic mucosal resection of the polyp, a fecal mass (D, arrow) and appendiceal orifice (D, arrowhead) appeared under the cut surface.

within the normal ranges. Colonoscopy revealed a multinodular polyp measuring approximately 15 mm in diameter in the cecum (Fig. 2A, B). Closer observation with narrow-band imaging showed a normal crypt pattern, without any
Figure 3. Pathological images. A formalin-fixed resected specimen is shown (A). Multiple lymphoid follicles and granulation tissue were observed in the specimen (B, Hematoxylin and Eosin staining). Aggregated adipocytes resembling a lipomatous area were also detected. Tingible body macrophages were included in the follicles, suggesting a reactive inflammatory process (C, D).

Discussion

In this case report, a unique polyp was identified in the cecum. Pathologically, the polyp contained multiple lymphoid follicles, granulation tissue and adipocytes. The presence of tingible body macrophages and the results of several immunostaining examinations indicated that the lymphoid follicles were formed by the benign, reactive proliferation of lymphocytes, rather than the neoplastic expansion of lymphoid cells, such as that observed in patients with lymphoma. Another characteristic feature of this case was that the polyp was located above a fecal mass that was compacted in the appendix. Based on these features, we speculate that the polyp was formed by a reactive, hyperplastic process following mucosal inflammation due to the compaction of the fecal mass in the appendix, after which the polyp adventitiously concealed both the feces and appendiceal orifice.

Hardened lumps of feces of varying size within the intestines are generally called fecaliths or fecalomas. Fecaliths have been found in the normal appendix, with a reported incidence of less than 3%. In contrast, fecaliths are more prevalent among patients with appendicitis (1). It is widely accepted that fecalith cause obstruction of the appendiceal lumen and subsequent appendicitis (2-4). Moreover, the presence of an appendiceal fecalith (i.e., an appendicolith) is associated with an earlier and higher rate of perforation. Alaedeen et al. (2) reported that, in their study, fecaliths were found in 31% (121/388) of pediatric patients who underwent appendectomy, and the patients with fecaliths exhibited a significantly higher risk of perforation than the patients without fecaliths (57% vs. 36%, p<0.01). Among the patients who were assigned to receive interval appendectomy, appendiceal perforation occurred sooner in the presence of fecaliths (91 hours vs. 150 hours, p<0.05). The authors noted that the appendix can become susceptible to
Figure 4. Hematoxylin and Eosin staining (A) and immunostainings (B-E). Immunostaining revealed a segregated population of T cells (B) and B cells (C) in the lymphoid follicles. BCL2 (D) was negative in the CD10-positive follicles (E). Based on these findings, the patient was diagnosed with reactive lymphoid hyperplasia in the cecum.

Figure 5. Schematic diagrams regarding the possible pathogenesis of the polyp in the present case. Generally, the majority of fecal masses trapped in the appendix are related to appendicitis, although some are innocuous (A). In this patient, the compacted feces in the appendiceal orifice likely triggered mucosal inflammation, leading to benign reactive lymphoid hyperplasia and mucosal hyperplasia (B). This hyperplastic process may have resulted in the formation of a polyp, which then covered the feces and appendiceal orifice (C).

rupture due to ischemia and/or erosion in the appendiceal mucosa as a result of swelling and edema caused by luminal obstruction induced by fecaliths. Other studies have described complications related to appendiceal fecaliths, including torsion of the vermiform appendix (5, 6), intussusception (7) and right iliac fossa pain in the absence of obvious inflammation (8). To the best of our knowledge, the polyp formation described in this report has not been previously reported.

Lymphoid hyperplasia can occur in any part of the gut; however, it is most extensive in the terminal ileum and cecum (9, 10). The term “lymphoid hyperplasia” was first introduced in 1970 by Capitanio & Lirkpatrick to describe numerous lymphoid follicles with an average diameter of 2...
mm (9, 11, 12). Typical endoscopic findings of lymphoid hyperplasia include multiple nodular, closely spaced, yellowish-white polyps measuring 1-2 mm in diameter (9). On the other hand, tumorous lesions of various sizes can occur following the development of lymphoid hyperplasia, as a sequel to marked proliferation of inflammatory cells, although this is a rare pathologic condition, especially in the proximal colon (13, 14). In the present case, the compacted feces in the appendiceal orifice likely triggered mucosal inflammation (Fig. 5A, B), which induced the benign reactive hyperplastic process. This hyperplastic process may have resulted in the formation of the polyp, which then covered the feces and appendiceal orifice (Fig. 5C).

The inclusion of adipocytes in the polyp is another unique histological feature of the present case. A literature search produced only one article describing such polyps. Terada described a polyp in the Bauhin’s valve composed of mucosal and submucosal hyperplastic lymphoid tissue, edematous mucosa and adipocytes (15). An inflammatory process of unknown cause was considered to be the etiology of the polyp. Although the polyp reported by Terada bore no relation to the appendix or a fecal mass, and unfortunately no photographic images were available in the article, it shares pathological characteristics with our case. The proliferation of adipocytes is sometimes observed in the colon, typically leading to the formation of a solitary submucosal tumor, a so-called lipoma (16, 17). Colonic lipomas are primarily found on the right side of the colon and cecum (18). Also-called lipoma (16, 17). Colonic lipomas are primarily found on the right side of the colon and cecum (18). Although the distinct origin of the adipocytes in Terada’s and the present case is uncertain, we speculate that pre-existing lipomatous tissue was incidentally involved in each polyp or that adipocytes proliferated due to the inflammatory or hyperplastic process.

In summary, we experienced a unique case of reactive lymphoid hyperplasia in the cecum. In addition to reactive lymphoid hyperplasia, a lipomatous area was observed in the polypoid lesion. The formation of the polyp was likely initiated by inflammation due to compaction of the fecal mass in the appendix. This is the first report to provide a set of macroscopic and microscopic photographs of such a unique polyp.

The authors state that they have no Conflict of Interest (COI).

References