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Case Report

A Case Report: An Elderly Right-Sided Colon Cancer Patient with Acute Appendicitis

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SUMMARY

Acute appendicitis, the major cause of which is obstruction of the appendiceal lumen due to lymphoid hyperplasia. Although acute appendicitis is not common among elderly individuals, appendicitis resulting from appendiceal lumen obstruction due to right-sided colon cancer should always remain a concern in the elderly. Here we report a case involving an 85-year-old female patient presenting clinical features of appendicitis who was ultimately diagnosed with proximal ascending colon cancer and underwent right hemicolectomy. Preoperative computed tomography scanning offered a rapid and reliable image for diagnosis, and the result revealed the highly suspected right-sided colon cancer causing obstruction and acute appendicitis. Thus, right hemicolectomy with lymph node dissection was performed. The pathology report revealed poorly differentiated adenocarcinoma of the proximal ascending colon with a stage of pT3N1a. The appendiceal base was involved by tumor. In this case, appendectomy may increase the risk for poor healing of the appendiceal base and peritoneal seeding, which has been related to poor oncologic outcomes. Accordingly, one-stage curative surgery has been a safe and feasible treatment for right-sided colon cancer concurrent appendicitis.

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1. Introduction

Acute appendicitis, the major cause of which is obstruction of the appendiceal lumen due to lymphoid hyperplasia or fecalith. Appendicitis has an incidence that is highest in the second to third decade of life and is not common among elderly individuals. Meanwhile, colorectal cancer was the cancer with the highest incidence rate and was the one of the leading cause of cancer death in Taiwan, according to the previous study and the report released by the Health Promotion Administration of Taiwan.^{1,2} Previous studies have documented the correlation between acute appendicitis and colorectal cancer. Accordingly, Lai et al. analyzed 1873 patients with acute appendicitis and reported a 38.5-fold higher odds ratio for the incidence of colon cancer among those over 40 years old compared to the general population.³ Shinet et al. showed that patients over 45 years old who were diagnosed with appendicitis had a 6.3-fold higher standardized risk ratio for colorectal cancer.⁴ Moreover, Lai et al. suggested colonoscopy 6 weeks after appendectomy for the follow-up management of patients with appendicitis suspected to have colorectal cancer.³ Accordingly, right-sided colon cancer concurrent appendicitis should always remain a concern among elderly individuals. The prognosis of advanced colon cancer has remained poor, with early diagnosis being the key factor therein.⁵ Moreover, the initial clinical manifestation and radiographic features of acute appendicitis could perhaps resemble those of colorectal cancer.^{3,6} How-

ever, to the best of our knowledge, no study has described an effective operation for elderly patients with appendicitis and concurrent colorectal cancer. Here, we report a case involving an 85-year-old female patient presenting clinical features of appendicitis who was ultimately diagnosed with proximal ascending colon cancer and underwent right hemicolectomy.

2. Case report

An 85-year-old female patient presented to the emergency department with fever and right lower quadrant abdominal pain for 2 days. Underlying diseases of this patient included hypertension, type II diabetes mellitus, and hyperlipidemia. She complained of epigastric area pain migrating to the right lower abdomen. Her symptoms included nausea, poor appetite, abdomen distension, and fever up to 38.5 °C. She had no stool passage for 3 days. Physical examination showed tenderness at Mcburney's point and distended abdomen. Leukocytosis (WBC: $10.6 \times 10^3/\mu\text{L}$) and C-reactive protein (CRP) elevation (CRP: 20.036 mg/dL) were also observed. Computed tomography (CT) scanning revealed a dilated appendix (1.5 cm in the largest diameter) with wall thickening, increased contrast enhancement, and peri-appendiceal fat stranding (Figure 1). Irregular thickening of the proximal ascending colon wall causing cecum dilatation (largest diameter of 10 cm) was also seen on CT imaging (Figure 1 and Figure 2). Thus, right-sided colon cancer causing obstruction and acute appendicitis was highly suspected. After discussions with the patient and family, curative right hemicolectomy with lymph node dissection was performed. The pathology report revealed a full circumferential ulcerative tumor in the proximal ascending colon. The

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Figure 1. Axial view of abdominal computed tomography scanning with contrast medium. Appendiceal dilatation up to 1.5 cm (arrow) with wall thickening and enhancement were noted. Perifocal fat stranding and nearby fluid accumulation in the appendix were evident. Cecal swelling up to 10 cm was also noted (double-headed arrow).

tumor was 13 × 12.5 × 2.3 cm in size and invaded the ileocecal valve, cecum, and appendiceal base. A final diagnosis of poorly differentiated adenocarcinoma of the proximal ascending colon with a stage of pT3N1a (1/15) was established. The appendiceal base was involved by tumor. The patient was discharged on the 7th day after surgery.

3. Discussion

Acute appendicitis is the most common surgical emergency at MacKay Memorial Hospital (MMH), with around 500 cases of appendicitis undergoing operation or medical treatment at MMH per year. The most common mechanism causing appendicitis is luminal obstruction due to lymphoid hyperplasia followed by fecalith.^{7,8} Nevertheless, appendicitis caused by tumor obstruction in the cecum or proximal ascending colon should be taken into consideration, especially in elderly individuals.⁹ Moreover, right-sided colon cancer concurrent appendicitis may cause perforation or abscess formation that may result in increased risk for peritoneal seeding,¹⁰ which has been related to very poor oncologic outcomes. Furthermore, perforation at the cancer site would advance the colon cancer stage to T4 or M1c. Appendectomy for right-sided colon cancer concurrent appendicitis carries considerable risk. First, colon obstruction would increase the risk for poor healing and leakage of the appendiceal base. Second, appendectomy for acute appendicitis caused by cancer involving the appendiceal base may increase risk for peritoneal seeding. The aforementioned factors have strong adverse effects on short-term surgical outcomes and long-term oncologic outcomes. Considering that CT is a sensitive imaging modality for the evaluation of such conditions, it has been highly recommended before surgical intervention, e.g., laparoscopic appendectomy.⁹ This recommendation is particularly valuable for elderly patients who are at higher risk for colon malignancies given that the incidence rate of colorectal cancer increases dramatically after the age of 50.¹¹

We reviewed operation list of MMH from 2019/1/1 to 2019/12/31. There were 497 cases who underwent appendectomy for appendicitis in 2019. Almost 500 appendicitis cases who had undergone surgery or medical treatment at MMH annually revealed that one or two had been diagnosed with right-sided colon cancer during the 1-year follow-up period after initial diagnosis of appendicitis. Laparoscopic or open appendectomy for such cases would have resulted in not only poor healing and cecal perforation but also increased risk for abdominal cavity seeding of colon cancer, which had been described in previous studies.^{10,12} Although two-stage ileo-



Figure 2. Coronal view of abdominal computed tomography scanning with contrast medium. Perifocal fat stranding in the cecum (arrow) and proximal ascending colon and cecal dilatation up to 10 cm with wall enhancement were evident, suggesting the presence of an obstructive lesion in the proximal ascending colon.

cecal resection followed by right hemicolectomy for cecal cancer accompanied by appendicitis had been reported,¹³ one-stage right hemicolectomy has been highly recommended to avoid subsequent surgery. Therefore, one-stage curative radical surgery for right-sided colon cancer concurrent appendicitis remains the safer and more reliable treatment option.

4. Conclusion

The right side colon cancer should be a concern when the acute appendicitis happened among the elderly. Computed tomography is an essential imaging modality for the diagnosis of right-sided colon cancer presenting as acute appendicitis. One-stage curative radical surgery should be considered instead of appendectomy only.

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