RIGHT SIDED DIVERTICULITIS MIMICKING ACUTE APPENDICITIS: A CASE REPORT AND REVIEW OF ONE-YEAR BARIUM ENEMAS FOR LOCATION OF DIVERTICULOSIS

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ABSTRACT

Right-sided diverticulitis is an uncommon cause of acute abdomen. We present a case of right-sided diverticulitis, whose presentation mimics acute appendicitis. We also review the prevalence of diverticulosis in our hospital, which shows that right-sided diverticulosis is very common, found in about 66% of diverticulosis cases. Because of high incidence of right-sided diverticulosis in our region, awareness of right-sided diverticulitis is important, since the treatment for this condition is mostly nonsurgical, which is opposite to acute appendicitis.

INTRODUCTION

Right-side diverticulitis is not a common cause of acute abdomen in the Western countries, because of low incidence of diverticulosis in this location.[1] In contrast, the incidence of right-sided diverticulosis in Asia is much higher than the West,[2-6] therefore, we should expect to encounter right-sided diverticulitis more often than those countries. We report a case of right-sided diverticulitis and review the prevalence of diverticulosis in our hospital in order to remind us of this condition.

CASE HISTORY

A 42-year-old woman presented with right lower quadrant (RLQ) pain for a few days and fever with chills for 1 day. She had a history of RLQ pain, on and off for a year. Physical examination revealed body temperature of 38.5 degree Celsius, RLQ tenderness and mild leukocytosis. Acute appendicitis was a presumptive diagnosis. However, history of chronic abdominal pain was unusual for appendicitis, therefore, barium enema was performed to confirm or rule out appendicitis. Barium enema revealed irritability and poor distension of the cecum. Multiple outpouchings, characteristic of diverticula, were noted along the cecum. Some diverticula showed slightly deformed sacs which suggested possible inflammation (Figure 1). The appendix was well distended and barium and air were filled to its tip, which helped to exclude appendicitis (Figure 2).

Based upon the barium enema and clinical findings, cecal diverticulitis was diagnosed. The patient was treated by antibiotics and supportive care and finally was discharged with full recovery.

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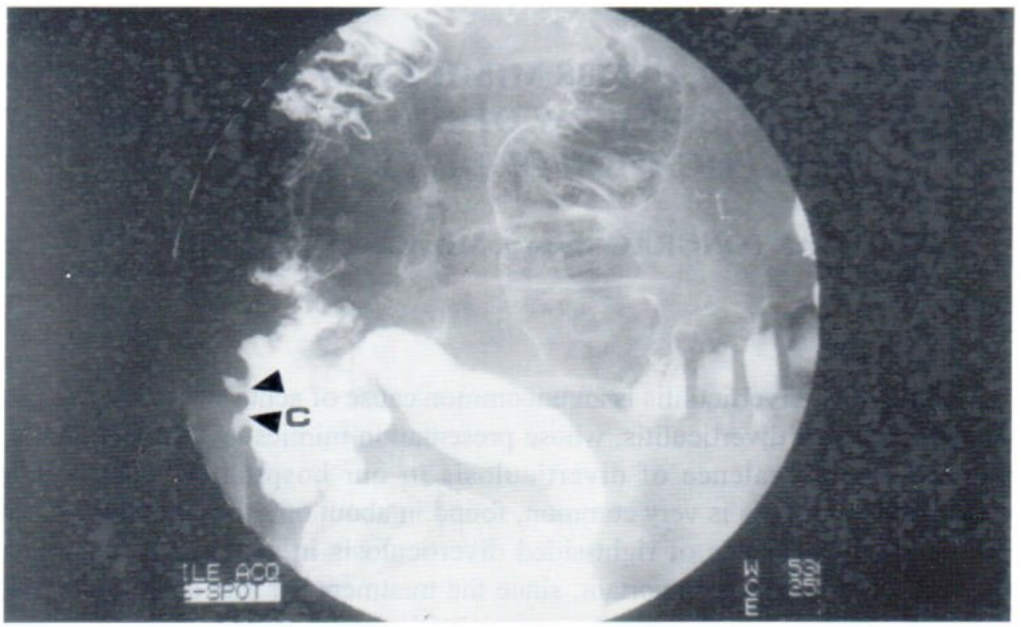

Fig. 1. Focus view of barium enema reveals poor distension of cecum (C) with deformed diverticula sacs (arrowheads), suggestive of inflammation.

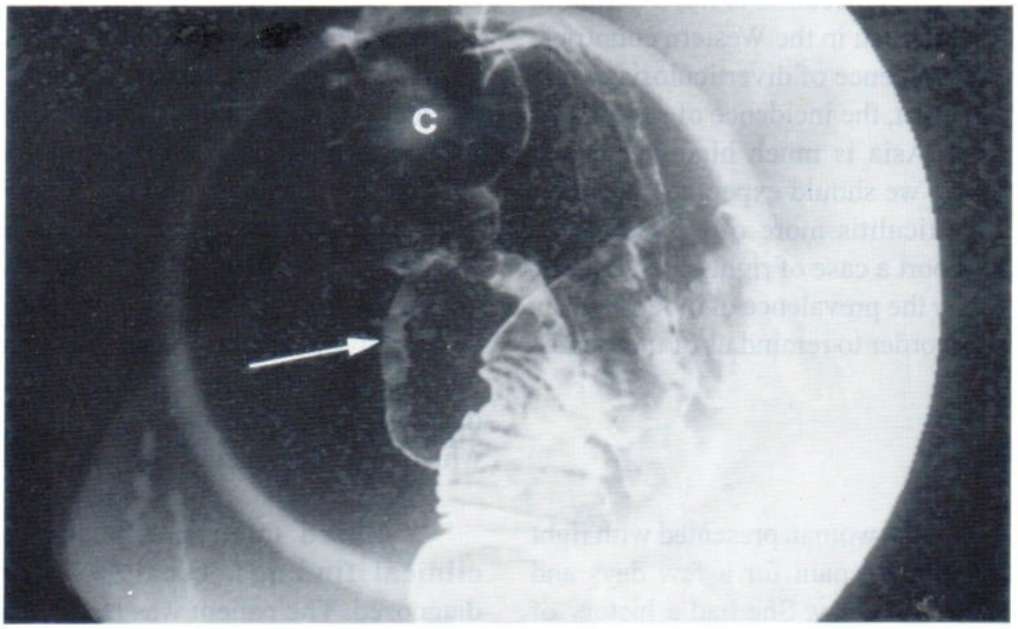

Fig. 2. Focus view of barium enema reveals the appendix (arrow) which is filled entirely with barium and air, therefore, excluding appendicitis.
C = cecum.

RETROSPECTIVE REVIEW OF BARIUM ENEMAS

According to out-patient medical records from the radiology department, barium enemas were performed in 388 patients during January to December 1997. Of these 388 patients, 228 patients had barium enemas available for review. Twenty-four patients were excluded from the study secondary to prior history of colonic surgery, colonic carcinoma, ulcerative colitis or suboptimal study. Of the remaining 204 patients, 149 patients (73%) showed no evidence of diverticulosis. The remaining 55 patients (27%) were positive for diverticulosis and were subjects for analysis.

Of these 55 patients, 31 were males and 24 were females, ages ranged from 25 to 81 years (mean, 61). The number of diverticula ranged from 1 to more than 20 (median, 4). Location of diverticula is shown on Table 1.

Table 1. Distribution of diverticulosis

Predominantly right-sided colon	36 patients (65.5%)
involve cecum	21 patients
not involve cecum	15 patients
Predominantly left-sided colon	13 patients (23.6%)
involve sigmoid	9 patients
not involve sigmoid	4 patients
Bilateral	5 patients (9.1%)
Transverse colon only	1 patients (1.8%)
Total	**55 patients (100.0%)**

Of the 55 patients, the majority of diverticula were predominantly involved right-sided colon (cecum, ascending colon, and hepatic flexure), accounting for 36/55 patients (65.5%). Of these 36 patients with right-sided diverticulosis, cecum involvement was very common, found in 21/36 patients (58.3%). The left-sided colon diverticulosis (sigmoid, descending colon, and splenic flexure) was found in 13/55 patients (23.6%). Of these 13 patients with left-sided diverticulosis, sigmoid colon was commonly involved (9/14 patients, 64.3%). Bilateral involvement was found in 5/55 patients (9.1%), whereas diverticulosis of transverse colon alone was found in only 1 patient (1.8%).

Comparing age distribution between the 2 dominant groups, the right-sided diverticulosis group ranged in age from 37-81 years old (mean, 61.5), and the left-sided diverticulosis ranged from 51-72 years old (mean, 63.1). There were 3 patients in right-sided diverticulosis group whose ages were under 50 years old (37, 39, and 43 years), whereas none was found in the left-sided diverticulosis group. Considering sex distribution, the right-sided diverticulosis group consisted of 22 males and 14 females (M:F = 1.6:1), whereas the left-sided diverticulosis group consisted of 6 males and 7 females (M:F = 0.9:1).

DISCUSSION

Diverticulosis is a common disorder in the Western countries, and is commonly involved the

left-sided colon, particularly sigmoid colon.[1] The pathophysiology is increased intraluminal pressure, which is highest within the sigmoid colon due to its smallest diameter. Moreover, fecal material at sigmoid colon is the hardest secondary to resorption of water content as stool travels through the colon, therefore pressure, needed to propel the stool, is also high. The less fiber food content, commonly consumed by the Westerners, is a contributing factor of high intraluminal pressure.

In contrast to the West, the Asian population tends to have right-sided diverticulosis. Our study, although small in number, is in concordant with prior studies,[2-6] of which right-sided diverticulosis is more common than the left side (66% vs 24%). The pathophysiology of right-sided diverticulosis is not clear. High intraluminal pressure alone cannot explain this phenomenon. Colonic muscle abnormality, motility dysfunction, as well as genetic factor, may contribute to the propensity of diverticulosis on the right side.[4,7-8]

Right-sided diverticulosis, similar to the left side, tends to occur in older age group. However, many reports revealed that right-sided diverticulosis were found in young people much more often than the left-sided diverticulosis.[3,7,9] Our study also shows 3 patients with right-sided diverticulosis whose ages were less than 50 years, while none was found in the left-sided diverticulosis group. Right-sided diverticulosis seems to occur more commonly in men and our review also confirms this finding[3,7,9] (M:F = 1.6:1).

Inflammation of right-sided diverticulosis, particularly at cecum, poses a clinical problem because it can mimic acute appendicitis, which is the most common surgical cause of acute RLQ pain. Awareness of the possibility of right-sided diverticulitis is, therefore, important since the treatment approach is different. Diverticulitis is usually treated by antibiotics, whereas appendicitis is by surgery.[10] If clinically doubtful, imaging study is recommended to differentiate these two diseases. The conservative imaging study is barium enema. Findings on BE of normal appendix is virtually exclude appendicitis. As shown in this case report, normal appendix and evidence of inflamed right-sided diverticula (deformed diverticula sacs) are well shown on BE, which makes diverticulitis the most likely diagnosis. However, the entire appendix is usually not filled on BE, posing a problem of "appendicitis is not excluded". More over, leakage of barium through the ruptured diverticula creates some concern to the clinician. Trend in the current literature suggests that CT scan is probably the best imaging modality for evaluation of RLQ pain.[11] Thin section helical CT can easily identify the appendix and diverticulosis. With optimal IV contrast enhancement, inflammation of either structure is also comfortably demonstrated by CT in most cases.[12-14]

In conclusion, we report a case of right-sided diverticulitis which clinically mimics acute appendicitis. As reviewed by this report, right-sided diverticulosis is common in our region, therefore, awareness of this condition is important so that appropriate treatment can be provided.

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