



Caecal diverticulitis: Presentation and management[☆]



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HIGHLIGHTS

- CD occurs mostly in young Asians, presenting with atypical symptoms of appendicitis.
- With increasing migration, more patients are presenting in Western countries with CD.
- If imaging confirms uncomplicated CD, conservative treatment is recommended.
- In our limited study, diagnosis of CD was superior with computed tomography.

ARTICLE INFO

Article history:

Received 13 November 2014

Received in revised form

6 January 2015

Accepted 12 February 2015

Keywords:

Diverticulitis

Caecal

Conservative

General surgery

Colorectal

ABSTRACT

Introduction: While left sided colonic diverticular disease is common in Western countries, right sided colonic diverticular disease is rare. With increasing migration from Asia, many western countries including Australia, are now seeing more right sided diverticular disease, of which caecal diverticulitis is the commonest. This study aims to determine the incidence of caecal diverticulitis in patients presenting with colonic diverticulitis, as well as identify the symptoms and clinical features that may aid in making a pre-operative diagnosis.

Methods: Data was collected using the Queen Elizabeth II Hospital medical records database identifying patients diagnosed with colonic diverticulitis and, more specifically, those with caecal diverticulitis from January 2007 to December 2013. Only those patients who had confirmed caecal diverticulitis on imaging studies or at laparoscopy on their first admission were included in this study.

Results: A total of 632 patients with colonic diverticulitis were admitted to our institution over a seven-year period, of which 13 patients had caecal diverticulitis (2.06%). Of the 13 patients, twelve were of Asian background and ten were considered young (≤ 50 years of age). The main complaints were right sided abdominal pain ($n = 11$, 84.6%) and diarrhoea ($n = 5$, 38.5%). Nine were diagnosed using computed tomography ($n = 9/10$, 90%), three on laparoscopy and one using ultrasound ($n = 1/2$, 50%). Ten patients were treated successfully by conservative means.

Discussion: A high index of suspicion in Asian patients with atypical symptoms of appendicitis, especially diarrhoea, may provide the diagnosis of caecal diverticulitis.

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1. Introduction

Left sided diverticular disease of the colon is very common in most Western societies and is probably related to diet. However, right sided diverticular disease is relatively uncommon, in particular caecal diverticulitis. It represents 3.6% of all colonic diverticular

disease and is found in one in every 300 appendicectomies [1,2]. Recent studies also indicate that caecal diverticulitis is most common amongst the Asian population and with increasing migration, this is being seen more frequently in the acute setting [3].

The management of caecal diverticulitis is now primarily conservative and most patients respond well to intravenous antibiotics. The exceptions are cases of caecal diverticulitis that have perforated or where malignancy cannot be excluded on imaging studies [4,5].

This study aims to determine the incidence of caecal diverticulitis in patients presenting with colonic diverticulitis, as well as to identify the symptoms and clinical features that may aid surgeons to make a preoperative diagnosis.

[☆] The corresponding author is not a recipient of a research scholarship. This article has been previously presented at the 2013 Royal Australasian College of Surgeons Queensland Meeting and at the 2014 Royal Australasian College of Surgeons Annual Scientific Congress in Singapore.

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2. Methods

A retrospective analysis was performed identifying patients admitted to the Queen Elizabeth II Hospital from January 2007 to December 2013 with colonic diverticulitis. Only those patients with initial presentation and confirmed caecal diverticulitis either by imaging studies (presence of fat stranding around either a single caecal diverticulum or multiple caecal diverticula) or laparoscopy (presence of gross caecal diverticulitis) were included in this study. Patients with multiple presentations and non-diagnostic imaging were excluded.

Data was collected using the Queen Elizabeth II Hospital medical records database. Patient's clinical features, age, sex, ethnic origin and imaging studies were reviewed. Their duration of stay, management and outcomes were also analysed. Student's t-test was used to compare the mean age of patients with caecal diverticulitis with the rest of the patients with colonic diverticulitis.

3. Results

During the seven year period from January 27th, 2007 to the 29th of December, 2013, 632 patients were admitted with colonic diverticulitis. Thirteen patients (2.06% of all patients presenting with colonic diverticulitis) had caecal diverticulitis either confirmed on imaging or at laparoscopy.

The mean age of patients with colonic diverticulitis was seen to be 56.23 years, while the mean age of patients with caecal diverticulitis was 44.54 years, which was statistically significant ($t = 5.736$, $df 12$, $P = 0.000094$) (Fig. 1). Of the 13 patients with caecal diverticulitis, there were eight males and five females. Twelve were of Asian descent and one was of Caucasian descent. There was no difference in the smoking status between the patients (smoker: $n = 8$, 61.54%; non-smoker: $n = 5$, 38.46%).

The main presenting symptoms in patients diagnosed with caecal diverticulitis were right sided abdominal pain ($n = 11$, 84.6%) and diarrhoea ($n = 5$, 38.5%). Other symptoms included anorexia ($n = 3$, 23.08%), constipation ($n = 2$, 15.38%), nausea ($n = 1$, 7.69%) and fever ($n = 1$, 7.69%). None of the patients reported vomiting or sweats (Table 1). The reported abdominal pain was similar to that seen in acute appendicitis, but vague in description and of a longer duration (five to seven days). Those who reported having diarrhoea had symptoms for a week prior to their admission (Table 2).

Blood tests showed an elevated white blood cell count in nine patients (four were normal). The C-reactive protein levels were also elevated in all of the five patients who had the test performed.

Table 1

Presenting symptoms of patients with confirmed caecal diverticulitis.

Presenting symptom	Percentage	No. of patients
Right-sided abdominal pain	85%	11
Diarrhoea	38%	5
Anorexia	23%	3
Constipation	15%	2
Nausea	8%	1
Fever	8%	1
Vomiting	0%	0
Sweats	0%	0

Serum lipase was normal in all patients who were tested ($n = 10/10$, 100%).

Diagnosis of caecal diverticulitis was confirmed in 10 of the 13 patients on imaging studies alone. An ultrasound scan was useful in one case ($n = 1/2$, 50%), while a computed tomography (CT) scan was necessary to detect the pathology in the other nine cases ($n = 9/10$, 90%). All ten patients diagnosed with caecal diverticulitis were treated with intravenous antibiotics and intravenous fluids for 4 days (on average) or until complete resolution of their symptoms. None required radiological intervention during this period of conservative treatment.

Three patients were diagnosed with caecal diverticulitis upon surgical intervention. All were provisionally diagnosed with acute appendicitis and underwent diagnostic laparoscopy. Two patients had no prior imaging, whilst one had a pre-operative CT scan suggestive of caecal inflammation involving the appendix. One was converted to an open right hemicolectomy upon discovery of a perforated caecal diverticulum, while the other two underwent precautionary appendectomies with no further bowel resection, drainage or lavage performed. Post-operatively, all patients were continued on intravenous antibiotics until their symptoms resolved (mean time of three days). The intravenous antibiotics regimen consisted of Ampicillin 1 g, every six hours, Metronidazole 500 mg, every eight hours, and an adjusted daily dose of Gentamycin (4–7 mg per kilogram patient weight). Patients with a Penicillin allergy ($n = 1$) received a regimen of Ceftriaxone. All patients, regardless of treatment modality, were also given a course of oral antibiotics (Amoxicillin and Clavulanic Acid 875 mg/125 mg, one tablet, twice daily; Cephalexin 500 mg, one tablet, every six hours, if Penicillin allergy present) on discharge from hospital for 5 days.

Postoperative colonoscopy done on six patients revealed caecal diverticula in four, with two failing to identify any pathology. The other seven patients are awaiting their procedures due to long

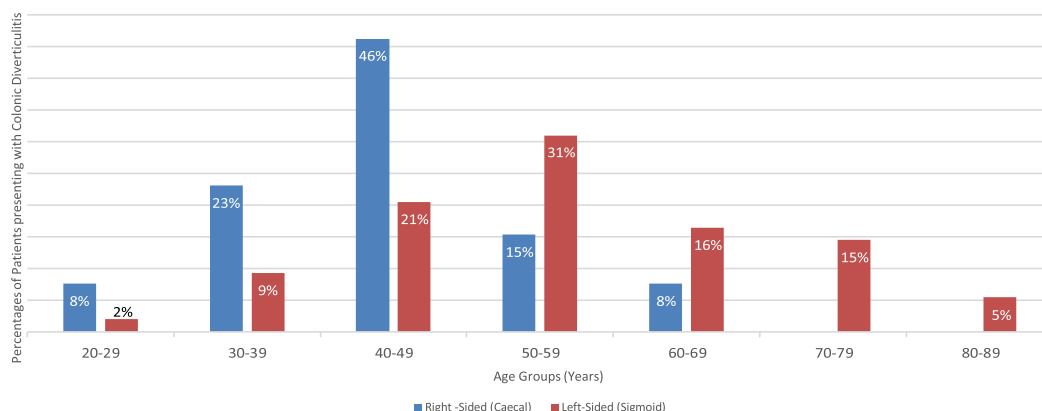


Fig. 1. Patients presenting with colonic diverticulitis: right-sided vs. left-sided.

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