Original Paper

There Is No Role for Colonoscopy after Diverticulitis among Asian Patients Less than 50 Years of Age

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Colorectal cancer · Diverticulitis · Screening for malignancy

Abstract

Background: Colonoscopy is advocated following acute diverticulitis to ensure that malignancy is not missed. In an Asian population, diverticulitis is more common in the right colon and in younger patients. The purpose of this study is to examine the utility of colonoscopy amongst Asian patients <50 years of age who have had colonic diverticulitis. **Methods:** A retrospective review of all patients aged 50 years and under who were treated for colonic diverticulitis between 2012 and 2014 was performed. All patients were advised to undergo a colonoscopy when the diverticulitis had settled, and findings at colonoscopy were recorded. **Results:** Fifty-five patients aged <50 years had acute diverticulitis. Forty-eight (87.3%) had right-sided diverticulitis. Amongst them, 45 (93.8%) had Hinchey 1a, 1b or 2 diverticulitis, while none had Hinchey 4 diverticulitis. Excluding the only patient that underwent a colonic resection, 27 (50.0%) patients returned for a colonoscopy. None of these patients were found to have colorectal cancer or an advanced adenoma. Six (11.1%) of them had adenomas with low-grade dysplasia. **Conclusion:** Right-sided diverticulitis is more common in the young Asian population. Most patients can be conservatively treated. Follow-up colonoscopy may not be required in these patients.

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Introduction

The American College of Colon and Rectal Surgeons (ASCRS) have published guidelines recommending a follow-up colonoscopy after a diagnosis of acute diverticulitis has been made in 2006 [1] and again in 2014 [2]. The intention of the surveillance colonoscopy is to

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ensure that a malignant lesion is not missed. The rationale of such an approach arose from an era when acute diverticulitis was commonly diagnosed on double-contrast barium studies, in which there was a low sensitivity and specificity in detecting malignant lesions [3]. The current era of the ubiquitous computed tomography (CT) scan in diagnosing acute diverticulitis may, however, render such follow-up colonoscopies redundant.

Particularly in an Asian population, the incidence of diverticulitis tends to be more right-sided and in younger patients. This pattern of disease has been shown to be milder compared to left-sided diverticulitis [4, 5], thereby allowing for successful non-operative management [6], or a less aggressive surgical option [7], with similarly good outcomes.

In light of the above considerations, this study was performed to evaluate the utility of colonoscopy in an Asian population amongst patients <50 years of age.

Methods

A retrospective review of all patients with a previous episode of acute colonic diverticulitis from January 2012 to June 2014 was performed. This database of patients with acute diverticulitis was obtained using the ICD-9 code for acute diverticulitis. Individual case documents were then obtained and scrutinised for patients who had been treated for acute diverticulitis following a diagnosis made on CT scan or surgery. Patients who had been presumptively treated without surgical or radiologic evidence of acute diverticulitis were excluded.

Localisation of the site of diverticulitis was made either on CT or during surgery. Right-sided diverticulitis was determined as lesions arising from the caecum to the transverse colon [7, 8]. Hinchey's classification was used to grade the severity of the diverticulitis [9, 10]. Other information retrieved from the patient's clinical notes included demographics of the patient, pre-existing comorbid conditions, results of radiological tests as well as details of surgical or interventional procedures performed on the patient.

The decision to obtain a CT scan was dependent on the clinical judgement of the consultant surgeon. Patients with a diagnosis of diverticulitis would typically be administered antibiotics while the subsequent interventions such as percutaneous drainage and surgical intervention and type of surgery were left at the discretion of the consultant surgeon.

Upon discharge from the hospital, patients were given a follow-up outpatient appointment 4–6 weeks later. All patients would be offered a colonoscopy during the clinic appointment. All statistical analysis was performed using STATA 14.0 (College Station, Tex., USA).

Results

Between 2012 and 2014, 55 patients aged <50 years were admitted for an acute episode of colonic diverticulitis. Out of these patients, 48 (87.3%) had right-sided and 7 (12.7%) had left-sided diverticulitis. Out of those with right-sided diverticulitis, 45 (93.8%) had Hinchey 1a, 1b or 2 diverticulitis, while none had Hinchey 4 diverticulitis. One out of the 7 (14.3%) patients with left-sided diverticulitis was found to have faeculent peritonitis on laparotomy. Demographics and detailed location of the site of diverticulitis can be found in table 1.

Focusing on the right-sided diverticulitis group, 5 patients required surgery. All 5 patients were brought to the operating theatre with a presumptive diagnosis of acute appendicitis and were planned for appendicectomy. Out of these 5, 3 did not have a CT scan prior to surgery. Out of the remaining 2, 1 showed appendicitis on CT, though it was found to be normal during the operation, whilst the other patient had equivocal findings of appendicitis versus diverticulitis on imaging.

Amongst the patients with left-sided diverticulitis, only the Hinchey stage 4 patient was brought to the operating theatre due to sepsis and haemodynamic instability. No pre-operative CT imaging was performed for this patient.

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Table 1. Patient and disease characteristics

	Right-sided	Left-sided
Number	48 (87.3%)	7 (12.7%)
Median age, years	40.5 (13–49)	42 (35–49)
Gender		
Male	22 (45.8%)	6 (85.7%)
Female	26 (54.2%)	1 (14.3%)
Comorbid conditions		
Hypertension	4 (8.3%)	0
Diabetes	0	0
Dyslipidaemia	3 (6.3%)	2 (28.6%)
Ischaemic heart disease	2 (4.2%)	0
Stroke	1 (2.1%)	0
Chronic kidney disease	0	0
Site of diverticulitis		
Caecum	21 (43.8%)	–
Ascending colon	25 (52.1%)	–
Hepatic flexure	2 (4.2%)	–
Transverse colon	0	–
Descending colon	–	1 (14.3%)
Sigmoid colon	–	6 (85.7%)
Hinchey stage		
1a	37 (77.1%)	5 (71.4%)
1b	3 (6.3%)	1 (14.3%)
2	5 (10.4%)	0
3	3 (6.3%)	0
4	0	1 (14.3%)

Excluding the patient who had an anterior resection following faeculent peritonitis, all patients were offered colonoscopy following their diagnosis of diverticulitis. Only 27 (50.0%) of them agreed to undergo the procedure. No malignancy was identified from these colonoscopies, while 6 (11.1%) of them had neoplastic polyps that were removed at the same setting.

Discussion

The latest guidelines from ASCRS in 2014 [2] have recommended a follow-up colonoscopy after a diagnosis of diverticulitis has been made. The intention is to ensure that a malignant lesion is not missed. However, recent publications have suggested that routine colonoscopic evaluation may not be required and should only be performed on selected patients. A systematic review by Daniels et al. [11] showed that the adenoma detection rate was only 14%, with a pooled colorectal cancer prevalence of 1.4%. Similarly, another meta-analysis by Sharma et al. [12] yielded an adenoma detection rate of 19.5%, with colorectal cancer detected in only 1.6% of cases. The number of colonoscopies performed in order to detect one case of colorectal cancer was approximately 120 [11]. These include patients from all age groups.

Our results showed that Asians have a higher incidence of right-sided diverticular disease compared to data from the Western literature. This pattern of disease may also have a milder course, with none of our right-sided diverticulitis patients having Hinchey 4 diverticulitis. None of these patients was brought to surgery as a result of sepsis or haemodynamic instability. The main reason for surgical management in right-sided diverticulitis appears to be the difficulty in differentiating diverticulitis from appendicitis. In contrast, although there were only 7 cases of left-sided diverticulitis in our study, 1 patient had faeculent peritonitis,

suggesting that right-sided diverticulitis may take on a more indolent course compared to the left-sided disease. This has been supported in several recent local studies [6–8].

Perhaps more importantly, none of our patients who underwent colonoscopy had a diagnosis of advanced neoplastic polyp or colorectal cancer. These patients also do not fulfil the criteria set up by our national Ministry of Health [13] for screening of colorectal cancer. However, they were offered and underwent colonoscopy simply because of current guidelines for surveillance colonoscopy following acute colonic diverticulitis. Although a significant proportion of these patients had a neoplastic polyp removed at the procedure, the possibility of these lesions turning cancerous remains debatable and they would probably be detected and removed if the patient follows the proposed screening guidelines.

Moreover, colonoscopy is not without its complications. About 0.1–0.2% of patients experience a perforation which may require emergency surgery [14]. Colonoscopy also requires bowel preparation, which is not desirable to most patients. A more selective approach to colonoscopy after diverticulitis would preclude otherwise well patients from the risks of colonoscopy. Fortunately, there were no adverse events following colonoscopy in our study group.

Therefore, the risks of colonoscopy must be weighed against the potential benefit of detecting colorectal cancer or an advanced adenoma. It has been reported that there has been an increasing incidence of colorectal cancer amongst the young, with a 1.5% increase per year in men, and 1.6% per year in women [15]. That said, the absolute risk remains low, comprising only about 5–15% of all colorectal cancers treated [16, 17]. A strategy to perform follow-up colonoscopy after diverticulitis should therefore only target patients who would already have been at higher risk for colorectal carcinoma. This would include patients with a family history of colorectal cancer, and those who had pre-existing worrisome symptoms prior to or persisting following the episode of acute diverticulitis [17].

The main weakness of our study stems from its retrospective nature. Also, as there were no standardised treatment protocols, management of each case of diverticulitis was largely dependent on the acumen of the consultant surgeon in charge of the patient. Our study also had a high number (50.0%) of patients who declined colonoscopy following diverticulitis.

However, the findings of our study do suggest a prudent approach in advocating colonoscopy following acute diverticulitis in patients aged <50 years. These patients represent a potential low-risk group in which colonoscopy need not be performed for the mere presence of a previous attack of diverticulitis, as the risks do not justify the very low likelihood of detecting significant pathology.

Conclusion

Right-sided diverticulitis is more prevalent compared to left-sided diverticulitis in the Asian population. The disease process of right-sided diverticulitis tends to be more indolent compared to its left-sided counterparts. Patients under the age of 50 who develop acute diverticulitis may represent a low-risk group in which follow-up colonoscopy need not be performed.

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Disclosure Statement

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