

Charity Colonoscopy Event to Commemorate the 185th Anniversary of Singapore General Hospital

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Abstract

Introduction: Colorectal cancer is now the cancer with the highest incidence in Singapore. However, the overall mortality rate is still about 50% because the majority of the patients present at a late stage of disease. A charity event of screening colonoscopy was offered to the public in conjunction with the 185th anniversary of Singapore General Hospital. The aim of this event was to raise awareness about early detection of colorectal cancer and the safety of colonoscopy. **Materials and Methods:** We conducted a one-off free screening event for colorectal cancer using colonoscopy. Four hundred and ninety individuals responded to a multimedia advertisement for the event. Of these, 220 individuals were selected for the screening based on National Guidelines for colorectal cancer screening and financial status. **Results:** One hundred and fifty-two individuals turned up for the colonoscopy. The median age was 55 years (range, 22 to 82), with 84 males. Significant pathology was found in 33% of the individuals (n = 51). Colorectal polyps were detected in 34 individuals (22%). A total of 45 polyps were removed, with 20 hyperplastic polyps and 25 adenomas. Eight out of 25 adenomas were located proximal to the splenic flexure. Rectal cancer was diagnosed in 1 individual (0.6%). One individual had a large dysplastic rectosigmoid ulcer and refused further intervention. There were no significant complications from any of the colonoscopies. **Conclusions:** Colonoscopy is an invaluable screening modality as it has a high pick-up rate for colorectal polyp and cancer in an asymptomatic population. It is also proven to be safe in our study. It has the added advantage over flexible sigmoidoscopy of detecting a significant number of proximal lesions. Also, therapeutic polypectomy can be performed in the same setting.

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Introduction

Colorectal cancer is now the cancer with the highest incidence in Singapore. Similar to many developed countries, individuals here have a moderate to high risk of developing colorectal cancer in their lifetime. While early stages of colorectal cancer are potentially curable, the reality is that many patients still present in the advanced stages of the disease. Based on data from the Singapore Cancer Registry, the overall mortality from colorectal cancer is about 50% in Singapore.¹

Screening for this cancer is important as it is proven to reduce incidence and mortality.^{2,3} Several screening guidelines have been developed for the early detection of colorectal cancers.^{4,6} Generally, individuals are divided into 3 categories for the purpose of colorectal cancer screening, namely, “average risk”, “high risk” and “very high risk” groups (Table 1). Various screening modalities

have been recommended for the detection of colorectal cancers depending on which risk groups individuals belong to. Colonoscopy is the recommended screening tool for the “high risk” and “very high risk” groups.^{4,6} However, for the screening of “average risk” individuals various modalities can be used, such as faecal occult blood testing, double contrast barium enema and colonoscopy. More recently, the use of computed tomography (CT) colonography has also been suggested as a possible screening tool for “average risk” individuals.⁷

The use of colonoscopy for colorectal cancer screening in the “average risk” group has only become more popular over the last decade.⁸⁻¹⁰ Recently, 2 large studies in the United States have validated the use of colonoscopy for colorectal cancer screening in this group of individuals, with the added advantage of detecting proximal colonic lesions and therapeutic polypectomy.^{11,12} However, the use

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of this screening tool has not been validated in our local population. Furthermore, many patients are reluctant to undergo a colonoscopic examination as they believe it to be painful, costly and carrying a high risk of complication similar to surgery.^{13,14} To commemorate the 185th anniversary of the Singapore General Hospital (SGH), we organised a charity event to perform free screening colonoscopy for the general public. Through this event, we hoped to increase the awareness of colorectal cancer screening and to validate the efficacy and safety of the use of colonoscopy in the “average risk” group in our population.

Materials and Methods

The colonoscopy screening event was publicised in the mass media. A dedicated hotline was set up for the public to enquire about the screening event. A telephone interview was then conducted to obtain a brief medical and social history. The inclusion criteria for screening followed the National Clinical Practice Guidelines drawn out by the Ministry of Health, Singapore.⁴ Exclusion criteria used for the screening were similar to those used in large studies,^{11,12} including severe medical problems, previous colonic evaluation, and multiple previous abdominal surgery. Individuals who satisfied both the inclusion and exclusion criteria were interviewed by a medical social worker regarding their social and financial status. This was done to benefit individuals who need colonic evaluation but who could not afford it. Individuals selected were invited to attend a special outpatient clinic session the week prior to the event. During the visit, a medical interview and clinical examination were conducted by doctors from the Department of Colorectal Surgery, SGH. They were also provided with instructions regarding colonoscopy as per normal. Colonoscopies were performed by consultant endoscopists from the Department of Colorectal Surgery, SGH. The event was held over 2 days (5 and 6 August 2006). It was conducted in the SGH endoscopy centre with 6 endoscopy suites, 1 of which was equipped with radiological imaging facility for procedures such as endoscopic retrograde cholangiopancreaticogram. For this event, 4 endoscopy suites were utilised. A consultant colorectal surgeon was in charge of each suite, aided by 2 trained endoscopy nurses and a team of volunteers made up of medical and paramedical staff from various departments in SGH.

Results

A total of 490 individuals called and enquired about the screening programme. A simple telephone interview was conducted to get the medical and social history of these callers. Of these, 214 individuals were excluded from participation in the screening programme due to medical reasons (Table 2). In particular, 46 patients were excluded

Table 1. Recommendations for the Screening of Colorectal Cancer Based on Clinical Practice Guidelines, Ministry of Health, Singapore⁴

Risk of colorectal cancer of asymptomatic individual	Type of individuals
Average risk	<ul style="list-style-type: none"> Asymptomatic individuals above 50 years old
High risk	<ul style="list-style-type: none"> Asymptomatic individuals who have one first degree relative diagnosed with colorectal cancer less than 45 years of age Asymptomatic individuals who have 2 first or second degree relatives from the same side of the family with colorectal cancer diagnosed at any age
Very high risk	<ul style="list-style-type: none"> Family history of either familial adenomatous polyposis (FAP) or hereditary non-polyposis colorectal cancer (HNPCC) Longstanding ulcerative colitis

Table 2. Reasons for Exclusion From Screening Colonoscopy

Colonic examination in previous 10 years	72
History of colon diseases	4
Serious medical diseases	22
Anticoagulation therapy	1
Need for antibiotic prophylaxis	4
Significant abdominal surgery	46
<50 years old and no risk factors	65
Total number of patients excluded	214

due to previous significant abdominal surgery. As patients with multiple abdominal surgeries may have higher risk of colonic perforations during colonoscopy, they were offered less invasive screening modality, like the barium enema. The rest of the 276 individuals who satisfied the screening programme criteria were screened by a medical social worker, in order to offer this free screening colonoscopy to patients who had financial difficulties. About 220 individuals were selected and invited to attend the specialist outpatient clinic for consultation before the colonoscopy. One hundred and ninety-five individuals turned up for the consultation. Another 10 individuals were excluded due to medical reasons after interview and examination by surgeons in the outpatient clinic.

A total of 152 individuals attended the screening colonoscopy. The characteristics of these individuals are shown in Table 3. About 80% of the individuals screened were more than 50 years old and 55% were male. Most of the individuals were Chinese (96%). One hundred and

Table 3. Characteristics of 152 Individuals Who Underwent Screening Colonoscopy

Age (y) [median, range]	55 [22-82]
Age group (y)	
<40	2
40-49	29
50-59	69
60-69	42
>70	10
Male	84
Ethnicity	
Chinese	146
Malay	3
Indian	2
Others	1
Family history of colorectal cancer	25

twenty-one of these patients were labelled as “average risk” and 31 patients as “high risk”. A positive family history of colorectal cancer was present in 16% of the individuals. There were no complications related to the screening colonoscopy, for example bleeding or perforation. All individuals underwent the colonoscopy in the outpatient setting. No individual was admitted after the colonoscopy. Only 1 individual had an incomplete colonoscopy and was later evaluated with double contrast barium enema.

Positive colonoscopy findings were noted in 33% of the individuals (Fig. 1). Incidental diverticular diseases were noted in 7.9% of the individuals. Colorectal polyps were found in 34 individuals, with a total of 45 polyps removed endoscopically. Of these 34 individuals, 14 had hyperplastic polyps, 15 had adenomas and 5 had both hyperplastic polyps and adenoma. The histological distribution of these polyps is shown in Figure 2. The majority of the adenomas had low-grade dysplasia. Only 2 polyps were adenoma with moderate dysplasia (1 tubular adenoma and 1 tubulovillous adenoma). Another 5 polyps were serrated adenomas. With regard to the location of these adenomatous polyps, 8 were situated proximal to the splenic flexure. The mean size of these polyps was 3.7 mm (range, 2 to 15).

Initial endoscopic diagnosis of cancer was made in 3 individuals. One individual had a mid-rectal cancer and subsequently underwent anterior resection 1 week later. Final histology revealed a moderately differentiated tumour (pT3) with no nodal involvement. The second individual had a very large ulcerative lesion in the rectosigmoid junction. However, multiple biopsies taken from the ulcer showed only dysplastic features, with no frank malignancy seen. This individual refused further intervention. The third individual was noted to have a large polypoidal growth just proximal to the dentate line, mimicking an anal

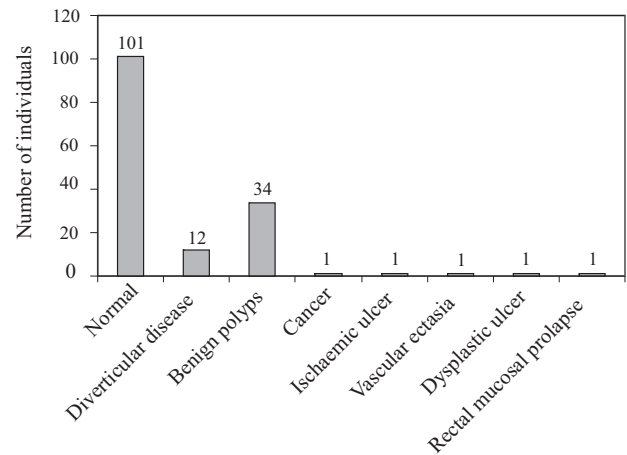


Fig. 1. Colonoscopy findings of 152 individuals who underwent screening colonoscopy.

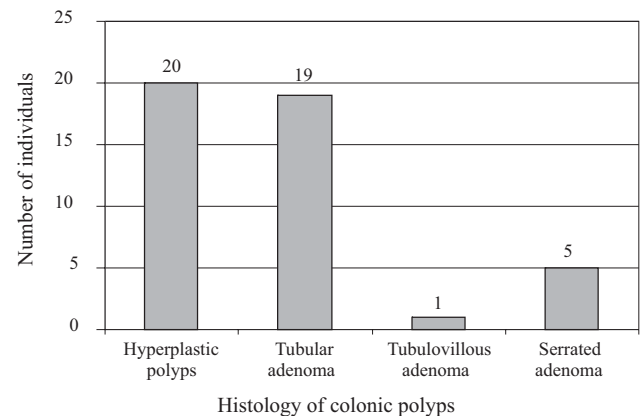


Fig. 2. Type of colorectal polyps in 34 individuals.

canal tumour. However, final histology revealed features consistent with severe rectal mucosal prolapse.

Discussion

There are several advantages of colonoscopy in screening for colorectal cancer over other modalities. Firstly, therapeutic polypectomy can be performed in the same setting. Screening asymptomatic individuals and polypectomy has been proven to reduce the incidence and mortality from colorectal cancer.⁸⁻¹⁰ Secondly, biopsy can be taken at the same time of the colonoscopy if a suspicious lesion is detected. However, for other modalities like faecal occult blood and double contrast barium enema, a definitive endoscopy is still required. Thirdly, with normal colonoscopy findings, the patient will only need another colonoscopy 10 years later.⁴⁻⁶ On the other hand, with faecal occult blood testing, it has to be performed annually and compliance with life-long annual testing is a problem. Nonetheless, colonoscopy is not without risk. However, in

the hands of experienced endoscopists, as shown in this event, the complication rate is very low.

There was a high incidence of colorectal polyps detected in this screening event, accounting for about 22% of the screened population. More than half of these polyps were dysplastic lesions. These findings are similar to those of large screening study for colorectal cancer using colonoscopy.^{11,12} The patients with colorectal polyps need a closer surveillance colonoscopy than the general population with average risk. A recent study has also shown that there is an increased incidence of colorectal adenomas in patients with hyperplastic polyps found during the index colonoscopy.¹⁵ Therefore, it is recommended that patients with hyperplastic polyps should be followed-up with an interval colonoscopy too. The presence and significance of dysplasia in hyperplastic polyps have been studied extensively in recent years. The possibility of malignant transformation in these serrated adenoma has been recognised.¹⁶ About 5 of the polyps in this screening exercise were serrated adenoma.

The inability of flexible sigmoidoscopy in the detection and treatment of proximal colorectal polyps has always been a controversial issue.¹² More than half of the polyps removed in this study were proximal to the splenic flexure and would not have been picked up with flexible sigmoidoscopy.

The pick-up rate for colorectal cancer using colonoscopy for screening asymptomatic patients varies between 1% and 3%.^{11,12} As was the case with the patients in our screening exercise, colorectal cancer detected through screening asymptomatic individual tends to be in the early stages. These patients have a better prognosis than patients who are symptomatic and present at an advanced stage. Therefore, screening of asymptomatic individuals should be strongly advocated.

The results of this charity screening event have the inherent biases found in any screening programme, with patient's self-selection being the most important one. Therefore, the result of any screening programme is never a true reflection of the disease burden in the population. In that light, not all the patients are truly asymptomatic and patients with positive family tend to be over-represented in the screening population.¹⁷

Conclusion

Colonoscopy is an invaluable screening modality as it has a high pick-up rate for colorectal polyps and cancers in an asymptomatic population in Singapore. This charity event has shown that colonoscopy can be performed quickly and safely with minimal discomfort to a patient in experienced hands. The high incidence of adenomatous lesions detected during this event is consistent with worldwide data. This

would suggest a wider application of colonoscopy in screening asymptomatic "average risk" individual may be beneficial.

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