

Spectrum of endoscopic findings among patients referred for colonoscopy in RIPAS Hospital

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ABSTRACT

Introduction: Colonoscopy is the investigation of choice for the evaluation of lower gastrointestinal symptoms. Just like any other investigation, it is important to be aware of the spectrum of findings so that appropriate referrals and decisions can be made for patients being evaluated for lower gastrointestinal symptoms. **Materials and Methods:** Patients (mean age 52.3 ± 15.3 years old with almost equal proportion of gender) referred for colonoscopy in RIPAS Hospital over a five year period (January 2003 to December 2007) were retrospectively identified and studied. **Results:** The most common indication for colonoscopy was bleeding per rectum (22.9%), followed by evaluation of abdominal pain (18.6%), anaemia (11.7%), colorectal cancer screening (11.7%), evaluation of constipation (5.9%) and altered bowel habit (3.8%). A large proportion of (58.4%) colonoscopies were normal. The most common positive finding was haemorrhoids (30.3%), majority of which were categorised as grade I. This was followed by colonic polyps (17.6%), diverticular disease (12.1%), non-specific colitis (4.0%), colorectal cancers (4.0%), ulcers (3.6%), melanosis coli (0.4%) and telangiectasia (0.1%). Colorectal cancer was most common among the Malays (4.4%), followed by the Chinese (4.0%), the indigenous (2.8) and the others (1.2%). **Conclusions:** Our study showed that the most common indication was for the evaluation of bleeding per rectum. The majority had normal colonoscopy and the most common positive finding was haemorrhoids. Importantly colorectal neoplasms accounted for one fifth of procedures with colorectal cancers accounting for four percent.

Keywords: Endoscopy, colorectal cancer, haemorrhoids, diverticular disease, colon

INTRODUCTION

Gastrointestinal complaints are some of the most common reasons for consultations and fortunately, most are benign and self-limiting. However, a small proportion can be persistent

and require appropriate evaluation to exclude significant pathologies. Colonoscopy is an important investigation tool as it has both diagnostic and therapeutic potentials and is generally safe in experienced hands. It allows direct visualisation of the colonic mucosa and allows samples to be taken for histological examinations. It is the preferred modality for

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evaluation of the colon compared to other modalities such as barium enema and the newer modalities such as computer tomographic colography. It is the recommended modality for screening of colorectal cancers and it is widely available.¹⁻³

Like all other medical disorders, the prevalence and incidence of lower gastrointestinal disorders may vary with different regions depending on the ethnic background and population demographic.⁴⁻⁸ Therefore, it is particularly important to be cognizant of the spectrum of commonly encountered disorders. This study assesses the spectrum of colonic findings among patients referred to RIPAS Hospital, a tertiary hospital in Brunei Darussalam with population catchment of almost 320,000.

MATERIALS and METHODS

The study was conducted at RIPAS Hospital, the largest and the only tertiary hospital in Brunei Darussalam with a bed capacity of 550 beds for all specialties. It has the broadest

range of facilities and services. It is located in the Brunei-Muara District, home to 247,200 persons and therefore, has the largest catchment of all the medical centres in Brunei Darussalam. For endoscopic procedures, the Endoscopy Unit, RIPAS hospital provides a service to three of the four districts (Brunei-Muara, Tutong and Temburong) with a total population catchment of almost 320,000. Recently, the Pengiran Muda Mahkota Al Muthadee Billah Hospital, Tutong district has started provision of endoscopic services in addition to the Jerudong Park Medical Centre (JPMC) which provides private services. Ethical approval was given by the Medical Research and Health Ethic Committee (MRHEC), Ministry of Health, Brunei Darussalam to conduct this study as part of the Pengiran Anak Puteri Rashidah Sa'adatul Bolkiah (PAPRSB) Institute of Health Sciences (formerly Institute of Medicine) second year medical programme.

All endoscopic records of patients who had colonoscopy during the five year period

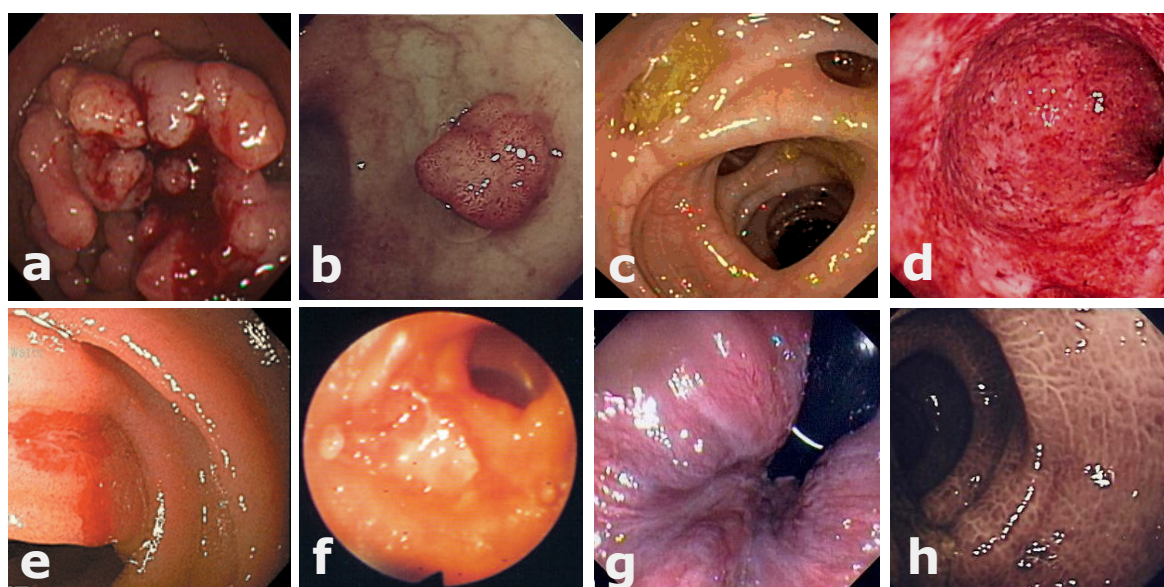


Fig. 1: Colonoscopic images of a) colorectal cancer, b) polyp, c) diverticula, d) colitis, e) arteriovenous malformation, f) rectal ulcer, g) haemorrhoids and h) melanosis coli.

Table 1: Demographic of patients attending for colonoscopy (2003-2008).

Parameters	Overall	Male	Female
Mean age (years)	52.3 ± 15.3	53.7 ± 15.1	50.8 ± 15.3
Gender	2,464 (100)	1,231 (49.8)	1,234 (51.2)
Ethnic group	2,464 (100)	1,230 (49.9)	1,234 (50.1)
Malay	1,587 (64.4)	793 (50.0)	794 (50.0)
Chinese	324 (48.4)	345 (51.6)	669 (27.2)
Indigenous	36 (1.5)	18 (50.0)	18 (50.0)
Others	172 (7.0)	95 (55.2)	77 (44.8)

Figures presented in absolute number and percentage in parenthesis

(2003 to 2007) were retrieved and retrospectively studied. Data collected included, age, gender, ethnicity, indications and the findings of colonoscopy. Important endoscopic findings include colorectal cancer (Figure 1a) and polyps (Figure 1b). Other findings included diverticular disease (Figure 1c), colitis (Figure 1d) and haemorrhoids (Figure 1e).

Data collected were coded and entered into the SPSS program for analysis.

RESULTS

During the five year period, there were 2,464 colonoscopies done. The demographics of the patients are shown in Table 1.

The most common indication was the evaluation of bleeding per rectum followed by abdominal pain. The overall indications for colonoscopy are shown in Table 2.

The majority of the colonoscopies (58.4%) were normal. The most common finding was haemorrhoids (30.3%), followed by colonic polyps (17.6%) and diverticular disease (12.1%). Colorectal cancer accounted for four percent of the procedures. Less common findings include non-specific ulcerations, melanosis coli and vascular malformations. The endoscopic findings are shown in Figure 2.

Table 2: Indications for colonoscopy.

Indications	n (%)
Bleeding per rectum	596 (22.9)
Abdominal pain	546 (21.0)
Evaluation of anaemia	305 (11.7)
Screening	415 (15.1)
Family history of CRC/colonic polyps	93 (3.6)
Elevated serum CEA	37 (1.4)
Constipation	152 (5.9)
Altered bowel habit	99 (3.8)
Diarrhoea	64 (2.5)
Weight loss (suspected lower GI related)	52 (2.0)
Surveillance	34 (1.3)
Melaena (after negative OGD)	23 (0.9)
Bowel obstruction	7 (0.3)
Non specified	305 (11.7)

CEA: carcinoembryogenic antigen

Percentages

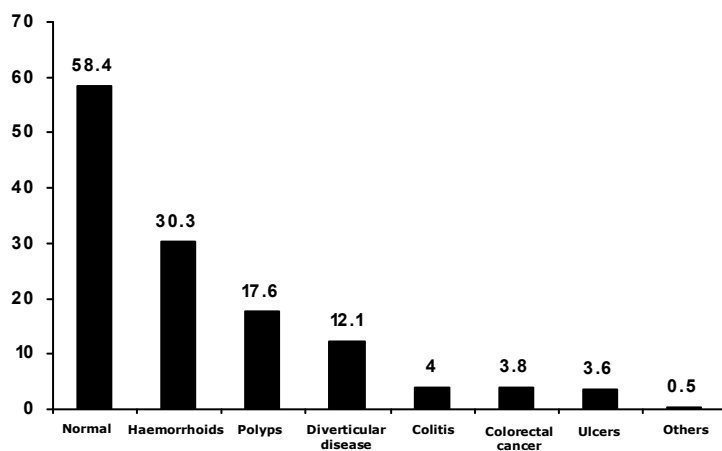


Fig. 2: Spectrum of findings. Others include vascular malformations and melanosis coli.

Colonoscopy Findings

Among patients with diverticular disease, this was most common among the Chinese (15%) followed by the Malays (12%) and the others (11%). It was lowest among the indigenous group (2.8%).

There were a total of 100 cases of colorectal cancers detected during this period, accounting for four percent of all procedures. Among patients with colorectal cancers. They were most common among the Malays ($n=70$, 4.4%), followed by the Chinese ($n=27$, 4.0%), indigenous group ($n=1$, 2.8%) and the others ($n=2$, 1.2%).

DISCUSSION

To date, there is no published data available looking at the spectrum of findings among patient referred for colonoscopy in Brunei. Therefore, our study will represent an important contribution to the understanding of the common lower gastrointestinal disorders experienced by our patients. The population demographics of our patients are almost similar to the national breakdown, with the exception of slight over representation by the Chinese population and under representation

by the 'other' or expatriate group. This suggests that perhaps, our Chinese population are more willing to undergo evaluation compared to the Malays. However, this will require further study. The smaller representations from the 'other' group is probably reflective of the fact that this group was less likely to have any significant co morbidities considering that they all had to undergo compulsory pre-employment health screening. Furthermore, they were also most likely to have their investigations in their homeland if required.

Among the indications, evaluation of bleeding per rectum was the most common reason followed by evaluation of abdominal pain and anaemia. In Brunei, the prevalence of lower gastrointestinal complaints was 20.1% in a recent survey.⁹ It is also interesting and encouraging to note that 15.1% of the overall procedures were for colorectal cancer screening. In Brunei, it has always been perceived that most people are reluctant to undergo any investigations unless they are symptomatic or unwell. Unpublished data also suggest that the number of patients coming

for screening has increased over time probably from better understanding and also the health screening programme conducted among government civil servants. This is encouraging especially is a formal colorectal cancer screening programme is to be considered.³ It is also important to note that 11% of the procedures did not have any indications specified or documented in the endoscopic record. Missing information from inadequate documentation can lead to problems and this needs to be addressed.

Among the endoscopic findings, it is interesting to note that a large proportion were normal. This suggests that the indications for a large proportion of the colonoscopy can be categorised as inappropriate. Guidelines on appropriateness for colonoscopy are available and these guidelines have been published to help clinicians to decide who should be referred for colonoscopy.^{2, 10-12} This can help minimise low yield procedures and this will translate to cost saving and avoid unnecessary complications.¹³ In busy centres, this is particularly important with rising cost of health care.

Among procedures with positive findings, the most common finding was haemorrhoids, of which the majority were of minor grade. Similar to those procedures with normal findings, if the patients' characteristics with haemorrhoids as the positive findings were known, then patient selection can be done appropriately to undergo the less invasive sigmoidoscopy without increasing the risk of missing any significant right sided pathologies. This will reduce the work load and cost of procedures. However, at the same time we have to be cautious not to attribute

symptoms such as bleeding per rectum solely to haemorrhoids especially in older patients.¹⁴

Diverticular disease was also common among our population and was detected in over 12%. This is consistent with another study done in Malaysia where the population demographics are most similar.^{8, 15} This study showed the prevalence of diverticular disease of 10%, highest among the Chinese (15%), followed by the Indians (9%) and the Malays (4.5%).¹⁴ Our Chinese population (15%) also had the highest prevalence followed by the Malays (12%). The indigenous group had the lowest with less than three percent affected. In contrast to other studies, there is no obvious difference between the main ethnic groups in Brunei Darussalam with the exception of the indigenous group. It is well known that diverticular disease is a disorder of age and diet, higher in elderly and those with low fibre diet.^{16, 17} Therefore, it is not surprising that the Indigenous group had the lowest prevalence as their diet is probably the least affected by modernisation and still consists mainly of a high fibre diet.

Importantly, colonic polyp and colorectal cancer accounted for one fifth of all procedures. This group of disorders is considered significant findings and need to be detected early. Early detection and removal of polyps can prevent progression to colorectal cancer.^{2, 3} For those with advanced lesions, colorectal cancers need to be diagnosed early so that curative therapy can be achieved. We have previously shown that colorectal cancer incidence in Brunei Darussalam has been increasing in the past two decades in all ethnic groups based on cancer registry. Among the

ethnic groups, the Chinese and indigenous groups had higher rates compared to the Malays, almost three times.⁷ However, in our current study, the Malays had the highest incidence followed by the Chinese. This can be explained by the fact that in this study, we had only looked at colonoscopy performed in one centre. A proportion of colorectal cancer is located in the rectosigmoid region and some would have been diagnosed with sigmoidoscopy. Furthermore, some patients may present acutely and proceed to surgery with colonoscopy. A smaller proportion would have been diagnosed in the other endoscopy centre located in the Suri Seri Begawan Hospital, Kuala Belait. This population of the district has a larger proportion of Chinese.

Other less common findings included colitis, ulcers, melanosis coli and arteriovenous malformations. Among those with ulcerations, the most common condition was the solitary rectal syndrome which was mostly found in the younger age group who have defecation dysfunctions.¹⁸ Apart from ulcerative colitis, colitis seen on endoscopy can also be due to ischaemia or infections. Melanosis coli is often associated with prolonged use of bowel stimulants used for those with difficulty evacuating their bowel. Arteriovenous malformations are generally uncommon and are often found incidentally.

One main limitation with our study is the retrospective nature. Retrospective studies are inherently associated with missing or incomplete data and are also dependent on the documentation in records. However, the main strength of our study is the large sample size and the fact that the study was done in a centre with a catchment of over 80% of

the whole population. Therefore, our data are generalisable to the whole population. The demographics of our patients are similar to the national demographics with the exception that there was a slight over representation of the Chinese. Despite the limitations, our study can form a baseline information for future reference or comparisons.

In conclusion, our study showed that the most common indications for colonoscopy in our local setting were evaluations of bleeding per rectum, abdominal pain and anaemia. Importantly, screening colonoscopy accounted for 15% of the procedures. This is encouraging as it suggests that acceptance for screening colonoscopy is good and will be important if a formal colorectal screening program is to be started. Among the endoscopic findings, a large proportion were normal. The most common positive findings were haemorrhoids. Colorectal neoplasm accounted for a fifth with colorectal cancer accounting for four percent.

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