

A retrospective study of clinico-pathological characteristics of colonic polyps in adults seen at a tertiary care centre

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Abstract

Objective: To analyse morphological types, location in the large bowel and demographic characteristics of colonic polyps.

Methods: The retrospective descriptive study was conducted at the Department of Pathology, Sultan Qaboos University Hospital, Muscat, Oman, and comprised biopsy specimens of colonic polyps from patients related to a two-year period from 2011 to 2012. Demographic data, types of polyps, anatomical location and grade of dysplasia were analysed. SPSS 20 was used for statistical analysis.

Results: There were 160 biopsy specimens from 143 patients. Of the patients, 91(63.6 %) were male and 52(36.4%) were female. The mean age was 55.27±14.2 years. Of the 160 polyps, 37((23.1%) were in the rectum. The most common type was the adenomatous polyp in 88(55.0%) cases followed by hyperplastic polyps 51(31.9%) and inflammatory polyps 21(13.1%). Of the 88 adenomatous polyps, 23(26%) showed high-grade dysplasia.

Conclusion: The commonest colon polyp type was adenomatous polyp. Screening programmes, such as stool occult blood testing and colonoscopies, are recommended.

Keywords: Colonic polyp, Colorectal cancer, Dysplasia. (JPMA 67: 12; 2017)

Introduction

Generally, intestinal polyps are classified as non-neoplastic or neoplastic. Most common neoplastic polyps are adenomas or adenomatous polyps, which arise due to dysplastic proliferation and have a potency to progress to cancer. The other types of polyps include hamartomatous, inflammatory and hyperplastic polyps.^{1,2}

Hyperplastic polyps can be recognised by their serrated architecture and bland morphology.³ Previously these polyps were considered non-neoplastic. Nevertheless, now there are studies that have showed that hyperplastic polyps can progress to carcinoma (new serrated line of carcinogenesis).³

Inflammatory polyps are seen more frequently in patients with inflammatory bowel disease (ulcerative colitis and Crohn's disease).³ Hamartomatous polyps show a mixture of normal tissue which is native to the anatomical location where they develop.⁴

In adenomatous polyps, dysplasia ranges from low-grade to high-grade dysplasia. Low-grade dysplasia is defined as architecturally noncomplex crypts with stratification of nuclei to the point where the nuclei reach the lower half of cytoplasm. Mitotic activity is low; pleomorphism and

loss of polarity are also negligible. High-grade dysplasia is defined as pseudo-stratification of nuclei that extend to luminal surface with back to back glands, increased mitotic activity and loss of polarity.^{4,5} All adenomatous polyps can transform into carcinoma.^{5,6} The risk of malignancy with adenomatous polyps is interconnected with histological architecture, polyp size, and the grade of dysplasia.^{6,7}

There are no previous studies about colonic polyps in Oman. The current study was planned to see the clinico-pathological characteristics of colorectal polyps seen at a tertiary care hospital.

Materials and Methods

The retrospective descriptive study was conducted at the Department of Pathology, Sultan Qaboos University Hospital, Muscat, Oman, and comprised biopsy specimens of colonic polyps from patients related to a two-year period from 2011 to 2012. After approval from the institutional ethics committee, record of all patients who underwent colonoscopy with biopsy of colonic polyps during the study period were included. Patients who were diagnosed cases of colorectal carcinoma were excluded. Data was collected from the pathology database (LabTrak). Haematoxylin and Eosin (H&E) stained slides were reviewed by two pathologists. Demographic data, such as gender and age of the patients, and clinical information, such as site of polyp, were obtained from the Hospital Information System (TrakCare).

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The polyps were categorised depending on the histological type into adenomatous polyps (tubular, tubulo-villous and villous) with high/low grade dysplasia, hyperplastic polyps, inflammatory polyps, and hamartomatous polyps.

SPSS 20 was used for data analysis. For continuous variable (age), mean and standard deviation were calculated. Association between the grade of dysplasia of adenomatous polyps and patients' age, gender, site of polyp and histological pattern was also noted. The finding was considered statistically significant at $p < 0.05$.

Results

There were 160 biopsy specimens from 143 patients with 17(11.8%) patients having two or more adenomatous type polyps. Of the patients, 91(63.6%) were males and 52(36.4%) were females. The overall mean age was 55.2 ± 14.2 years (range: 19-82 years). The most common type of polyp was the adenomatous polyp in 88(55.0%) cases followed by hyperplastic polyps 51(31.9%) and inflammatory polyps 21(13.1%). There was no case of hamartomatous polyp (Table-1).

The most common anatomical location of polyps was the

Table-1: Distribution of different types of colorectal polyps.

Type of polyps	M/F	Average age (years)	No.(%)
Hamartomatous	-	-	-
Inflammatory	12/9	48.10	21 (13.1%)
Hyperplastic	33/18	52.27	51 (31.9%)
Adenomatous	60/28	58.06	88 (55.0%)
Total	105/55	54.91 ± 14.2	160 (100%)

M/F: Male/Female.

Table-2: Dysplasia associations with the gender, age, histological type and location.

	Low-Grade dysplasia	High-Grade dysplasia	P
Gender			
Male	44 (73.3%)	16 (26.7%)	
Female	21 (75.0%)	7 (25.0%)	
Age (years) value			
<21	0 (0.0%)	0 (0.0%)	
21-50	9 (52.9%)	8 (47.1%)	
≥ 51	56 (78.9%)	15 (21.1%)	
Histological type			
Tubular	53 (93.0%)	4 (7.0%)	<0.001
Tubulovillous	11 (37.9%)	18 (62.1%)	
Villous	1 (50.0%)	1 (50.0%)	
Location			
Right side colon	35 (87.5%)	5 (12.5%)	0.008

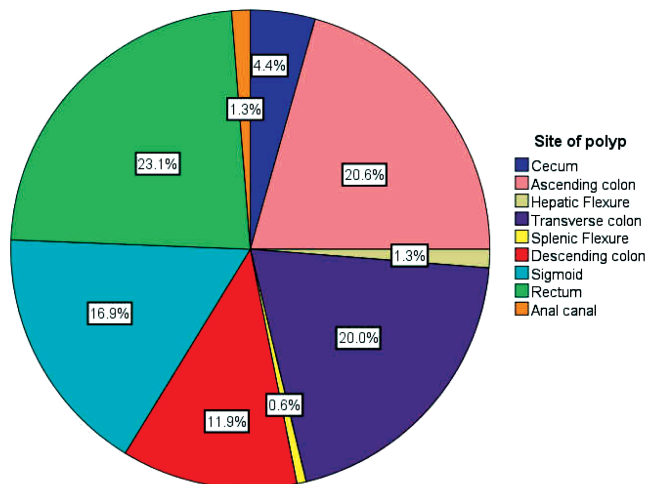


Figure: Distribution of different types of polyps regarding the anatomical site in the colon.

rectum in 37(23.1%) cases followed by ascending colon 33(20.6%), transverse colon 32(20%), sigmoid 27(16.9%), descending colon 19(11.9%), and caecum 7(4.4%) (Figure).

Of the 88 adenomatous polyps, 60(68.18%) were in males and 28(31.82%) in females. High-grade dysplasia was found in 16(26.7%) polyps in males and 7(25.0%) in females ($p > 0.05$). The 21-50 years age group had 8(47.1%) case of high-grade dysplasia ($p = 0.029$). Higher rate of high-grade dysplasia was associated with villous 1(50%) and tubulovillous 18(62.1%) architecture compared to tubular type 4(7%) ($p < 0.001$). There was a significant association between high-grade dysplasia and left-sided location of the polyps compared to right-sided location ($p = 0.008$) (Table-2). The mean size of polyps was 0.5 ± 0.05 cm (range: 0.2cm-1.2cm). Five (3%) polyps were > 1.0 cm and 4(80%) of them showed high-grade dysplasia, and all 5(100%) showed tubulovillous morphology ($p < 0.05$ each).

Discussion

To the best of our knowledge this study is the first to look into the clinico-pathological characteristics of colorectal polyps in this country. During the study period, 143 patients were found with 160 polyps. Male predominance for development of colorectal polyps is similar to regional studies from Saudi Arabia and Kuwait.^{8,9} Our study showed a slight male predominance (63.6%), but a study conducted in Washington DC found a slight female dominance (53%), which could be due to the large sample size that was collected over 47 years (5,013 colorectal polyps) or because that 90% of these cases were collected from African American population.¹⁰

In this study, the average age was 55.27 years and ranged from 19 to 82 years. A recent study from Sri Lanka reported a comparable result with an average age of 56.5 years.¹¹ Moreover, one group of scientists from King Khalid University Hospital in Saudi Arabia recently found that the average age of 2,654 patients was 50.5 years.⁸

The predominance of adenomatous polyps in this study is similar to most of the earlier studies. From Saudi Arabia a predominance of adenomatous polyps was reported.⁸ Two studies, one from Iran and the other from Pakistan, reported that the juvenile type was the most common.^{12,13} This is probably because these studies were focussing on paediatric cases. The absence of hamartomatous polyps in this study is probably due to the short study period which was only two years.

Anatomical distribution of polyps can give an idea of the risk of colorectal cancer (CRC) development.¹⁴ This study found that the most common anatomical location of polyps was the rectum (23.1%).

From 160 polyps, adenomatous polyps accounted for 88 (55%), 65 (73.86%) had low-grade dysplasia, and 23 (26.14%) were high-grade. As study on the effect of patient's gender on the presence of dysplasia in colonic polyps found that a polyp in a male is 1.3 times more likely to have dysplasia than a polyp in a female ($p=0.034$) and that was explained by hormonal protection in pre-menopausal women.¹⁵ Adenomatous polyps histologically are divided into tubular, tubulovillous and villous. This study found that a higher rate of dysplasia was associated with villous (50%) and tubulovillous (62.1%) compared to tubular type (7%) ($p<0.001$). A similar observation was made in a Saudi Arabia study of 166 adenomatous polyps which concluded that the villous (95.7%) and tubulovillous (66.7%) structures were strongly associated with high-grade dysplasia ($p<0.001$).⁸

Left-sided adenomatous polyps were found to be strongly associated with high-grade dysplasia compared to right-sided ones ($p=0.008$).

The study has certain limitations being a single-center study spanning just two years. On the other hand, the study has several strengths. It is the first of its kind in Oman and the data collected has a high degree of accuracy which gives confidence in the results and subsequent recommendations for screening and evaluation to assess risk for development of carcinoma.

Conclusion

The commonest colon polyp type was adenomatous polyp. Screening programmes, such as stool occult blood testing and colonoscopies, especially in people over the age of 50 years, are recommended.

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Conflict of Interest: None.

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