

Original Article

Spectrum of Colonic Polyps in a South Indian Urban Cohort

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ABSTRACT

Background: The histological nature of polyps by site prevalence and size is unclear. **Aim:** To determine the prevalence of polyps in patients undergoing routine lower gastrointestinal (LGI) endoscopy and identify the histological types and their characteristics by age, location and size. **Materials and Methods:** For this retrospective study, patients undergoing ileocolonoscopy or sigmoidoscopy between 2014 and 2016 were included. Data on age, gender, test indication, site and size of polyps and histology type were collected. **Results:** Two hundred and ninety (12.7%) of 2303 patients who underwent LGI endoscopy had colonic polyps (n= 317; single in 272 patients). The median age was 61.1 years (range 5-99 years) and 223 (76.4%) were men. Polyps were rare <40 years age (7.3%). By site, the polyp frequency in right colon was 6.9%, 3.9% in left colon and 4.6% in the rectum. Two thirds of polyps (64%) were <1cm size. The 3 common polyp types were adenomatous (48.9%), hyperplastic (23.7%), and inflammatory (22.4%). Adenomatous polyps were common above 60 years (p <0.0002), located often in right (35.5%) or left colon (42.6%), large in size (54.2%) and showed low grade dysplasia (89.7%). Hyperplastic polyps were most common in the middle aged and in the rectum (p <0.00001). Inflammatory polyps were the most common type below 40 years age. Almost all hyperplastic and inflammatory polyps were <1cm size (93.3% and 87.3%). **Conclusions:** Adenomatous polyps were the commonest type; especially >60 years age. High grade dysplasia and carcinoma were rare (10.3%). While two-thirds of polyps <1cm size were inflammatory or hyperplastic, 86% of large polyps were adenomatous.

KEYWORDS: Adenomas, colon, colonoscopy, polyps

INTRODUCTION

Colonic polyps (CP) are often incidentally detected during colonoscopy. The significance of these incidental polyps and the need for polypectomy is not known. CP are commonly adenomatous, hyperplastic, or juvenile.^[1] In the West, including the USA, the prevalence of adenomatous polyps parallels the rate of colorectal malignancy.^[2] Screening for polyps and colorectal cancers from 45 years of age is therefore considered mandatory in these countries. There are few publications from India on the frequency and spectrum of polyps by age.

Our retrospective study was done in patients undergoing lower gastrointestinal (LGI) endoscopy for various routine indications at our center to identify the

histological type of CP and their characteristics by age, location, and size.

MATERIALS AND METHODS

Patients who underwent ileocolonoscopy or sigmoidoscopy between 2014 and 2016 were considered for the analysis. Baseline patient information included age, gender, and indication for LGI endoscopy. In addition, polyp characteristics (site/size/histology) were collected from our endoscopy and histopathology databases.

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Exclusion criteria

Fibroepithelial polyps, anal canal polyps and in those where biopsy tissue was inadequate for interpretation were excluded from the study

Based on the histology, CP were classified as adenomatous (low- or high-grade dysplasia [HGD], adenomatous malignancy), hyperplastic, inflammatory, others (including juvenile polyps, benign space occupying lesions such as lipoma) and normal. The histopathology reporting was done by a single pathologist (MV).

The characteristics of the three major histology groups (adenomatous, hyperplastic, and inflammatory) were further stratified by age (<40, 40–60, and >60 years), location (right colon: cecum, ascending colon and transverse colon, left colon: descending and sigmoid colon and rectal when confined to the rectum) and by size (diminutive: <0.5 cm, small: 0.5–1 cm and large: >1 cm).

Statistical analysis

The data were tabulated in Microsoft excel sheet and analyzed for age distribution (median and range), sex distribution (percentages), and distribution in terms of size and location of polyps (percentages). The size, site, and age comparison of the polyps were done using Chi Square test 3 × 3 contingency tables.

Ethics Committee of the Institution approved the study. Ethical principles as dictated by the Declaration of Helsinki, which provides guidance to physicians and other participants in medical research involving human subjects was strictly followed.

RESULTS

LGI endoscopy was done in 2303 patients (sigmoidoscopy: 818; colonoscopy: 1485) during the study for the following indications: irritable bowel syndrome constipation/diarrhea/evacuation disorder (59%), hematochezia (38%), anemia (10%), perianal discomfort (7%), screening for dysplasia/carcinoma in inflammatory bowel disease (1%), evaluation for liver metastasis (4%), and family history of polyposis (4%).

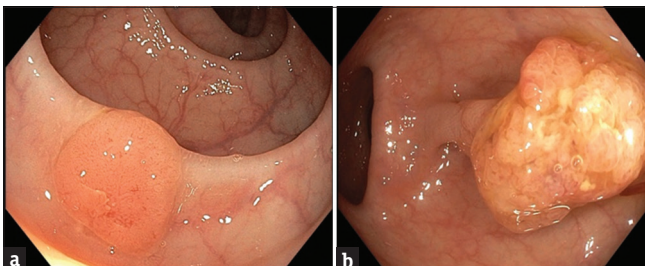


Figure 1: (a) Sessile polyp in colon. (b) Pedunculated polyp in colon

Two hundred and ninety patients (12.7%) had CP which were single (274 patients) or multiple (16 patients; 43 polyps). 45% of the polyps were pedunculated. The median age of these patients was 61.1 years (range 5–99 years); 223 were men (76.9%). The detailed algorithm of the study is shown in Figure 1. It highlights the patient and polyp characteristics noted in the study cohort. The distribution of polyps as per the indication for LGI endoscopy is shown in Table 1.

Most of the polyps in the study cohort (301/317; 95%) were classifiable by histology into one of the following three groups: adenomatous 155 (48.9%), hyperplastic 75 (23.7%), and inflammatory 71 (22.4%). The remaining 16 included juvenile polyps (5), lipoma, and carcinoid (1 each). In 9, the histology was reported as normal colonic mucosa. The median age for adenomatous, hyperplastic, and inflammatory polyps was 66 years (range 34–99 years), 57 (range 24–85), and 59 (range 24–86), respectively.

As noted in Table 2, adenomatous polyps were significantly more common above 60 years age ($P < 0.0002$), located mostly in the left and right colon and were often large (54.2%). The majority showed low-grade dysplasia (LGD) (139; 89.7%). Only 5 polyps had features of HGD (3.2%; 1–2 cm size). The remaining 11 polyps were malignant; 9 were >2 cm size. Hyperplastic polyps were the most common type in the rectum ($P < 0.00001$), mostly <1 cm size (93.3%) and seen in the middle age (40–60 years). While inflammatory polyps were distributed between the right colon (39.4%), left colon (23.9%), and the rectum (36.6%), they were the most common type seen in the young (<40 years age) and were mostly <1 cm size (87.3%), similar to hyperplastic polyps.

DISCUSSION

CP are a frequent finding during colonoscopy for specific indications. However, scanty data are available from India regarding the location and types of polyps detected during routine LGI scopy. In the present study, polyps were 3.2 times more common in men and were incidental findings in 12.7%. Bhargava and Chopra^[3] reported a much lower prevalence of 2% as incidental CP. A study from Kerala in Southern India^[4] noted incidental polyps in 124 (5.1%) of 2412 colonoscopy studies. The higher prevalence in our series is partly attributed to the fact that our patients were being evaluated for symptoms and were not healthy subjects.

Polyps in our series were uncommon below 40 years. The median age of our cohort was 61.1 years (range 5–99 years). In Amarapurkar's

Table 1: Distribution of polyp detection as per indications of lower gastrointestinal endoscopy

Indication for lower gastrointestinal endoscopic study	Total number of cases	Number of cases with polyps
Irritable bowel syndrome	1360	217
Hematochezia	880	78*
Anemia	230	26*
Perianal discomfort	161	1
Screening in IBD	23	1
Liver metastases	91	4
Family history of polyposis	93	4

*Overlap of cases was present in these 2 groups. IBD=Inflammatory bowel disease

Table 2: Differentiating adenomatous, hyperplastic, and inflammatory colonic polyps by age, location, and size

	Adenomatous (155)	Hyperplastic (75)	Inflammatory (71)	P
Age, years (%)				
<40	6 (3.9)	7 (9.3)	10 (14.1)	0.000249
40-<60	46 (29.7)	39 (52)	26 (36.6)	
>60	103 (66.5)	29 (38.7)	35 (49.3)	
Site (%)				
Right	55 (35.5)	20 (26.7)	28 (39.4)	<0.00001
Left	66 (42.6)	8 (10.7)	17 (23.9)	
Rectum	34 (21.9)	47 (62.7)	26 (36.6)	
Size, cm (%)				
<0.5	13 (8.4)	19 (25.3)	11 (15.5)	<0.00001
0.5-1	58 (37.4)	51 (68)	51 (71.8)	
>1	84 (54.2)	5 (6.7)	9 (12.7)	

series,^[5] the mean age with colorectal polyps was 54.8 years. Kumar *et al.*^[6] found polyps in relatively young patients.

Amarapurkar *et al.*^[5] recently studied the histomorphological features of colorectal polyps and determined risk stratification of adenomatous polyps in adults. Of 515 colorectal polyps, 270 (52.4%) were adenomatous, with equal distribution of inflammatory and hyperplastic polyps (15% each). Fifteen (2.9%) cases had adenocarcinoma presenting as polyps. The mean age for adenomatous polyps was 59.5 years with male-to-female ratio of 2:1. The majority of adenomatous polyps (45.9%) were tubular adenomas and frequently found in the rectosigmoid. Authors found a significant prevalence of high-grade dysplasia of 14% in their series. Similar to this study, we also found a male preponderance among adenomatous polyp; most patients were more than 60 years, and the polyps were invariably greater than one cm in size. Further, our cancer incidence in polyps was also

similar (11/317; 3.5%). However, very few of our adenomatous polyps had HGD (3.4%). Wickramasinghe *et al.* from Srilanka reported 158 patients (median age 56.5 years, male:female 2:1) with CP. 76% of the polyps were left sided, and tubulovillous polyps were the commonest.^[7] The results from these studies highlight that the profile of CP differs from one region to another. This could be due to multiple factors such as ethnicity, environmental factors, and variations in pathology reporting.

The spectrum of polyps in Indian children and adolescents differs from adults. Poddar *et al.*^[8] studied 236 CP in children and reported that solitary polyps were seen in 76%, multiple polyps in 16.5%, and juvenile polyposis in 7%. Nearly 93% of polyps in children were juvenile and 85% were located in rectosigmoid region. Similar high prevalence of juvenile polyps was also documented by Rathi *et al.* from Mumbai,^[9] 97.2% of these polyps were located in the left colon. In our study of predominantly adult patients, five patients had juvenile polyps, and their median age at presentation was 14 (9–34) years.

Should all incidental polyps including adenomatous polyp be removed? Based on our study, we propose that polypectomy is not indicated for polyps <1 cm size located in the left colon despite being adenomatous, as majority have LGD (89.7%). Approximately, 69.8% of our diminutive polyps were nonadenomatous quite distinct from the West where 50% of diminutive polyps are adenomatous.^[10] Polyps, especially adenomatous and those <1 cm, require histology and close surveillance for progression from low to HGD. Advanced endoscopic imaging may improve dysplasia detection. Several new technologies have been evaluated for the same. Dye based and digital chromocolonoscopy^[11,12] is a robust way of identifying these polyp subtypes at endoscopy. Improvement in visualization of the colon using cap-assisted colonoscopy,^[13] endo ring,^[14] and endocuff^[15] may help in early polyp detection. Newer scopes such as third eye retroscopes and extra wide angle view scopes have also been developed to improve polyp detection.^[16,17] Among all these modalities, narrow band imaging (NBI) seems to be the best modality suited for day-to-day practice. However, the routine use of NBI requires upgrade of equipment in all units, and both modalities require a steep learning curve before an endoscopist can confidently classify the polyp type at endoscopy. Till such time, we believe that polyp biopsy is mandatory to typify the lesion histologically enabling decision-making for further surveillance.

CONCLUSION

This single-center, retrospective study on polyps in a patient population revealed higher than previously reported polyp prevalence. Polyps were rare in young (<40 years). Overall, adenomas were the most common type of polyps: they frequently occurred over 60 years, were larger in size and found mostly in the left and right colon with 90% showing LGD. Hyperplastic polyps were the most commonly present in rectum and inflammatory polyps were the most common type in young individuals.

Multicenter studies, especially longitudinal (a practically difficult proposition) from various centers across the Indian subcontinent are required to understand the natural history of adenomatous polyps in our population. Detailed assessment and follow-up of adenomatous polyps with LGD would help to develop surveillance guidelines for Indian patients.

Limitations

One-third of cohort had only sigmoidoscopy as per clinical indication preventing confident statements on the overall distribution of polyps by site. Lack of clinical and endoscopic follow-up data prevents postulating definitive guidelines from the analysis. Retrospective nature of study and single-center experience is other obvious limitations. Single histopathologist reporting is both a strength and weakness of the study.

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Conflicts of interest

There are no conflicts of interest.

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