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Colorectal Polyps in Young Patients Undergoing Colonoscopy

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ABSTRACT

Background: More than 10 % of colorectal carcinoma occur in patients less than 50 years. Progression of a colorectal polyp to carcinoma may take 5 to 20 years. Implementing screening guidelines and removing such polyps would reduce the progression into carcinoma. The aim of the study was to find the prevalence, distribution and histological analysis of polyps in patients under 50 years undergoing colonoscopy.

Methods: Single-center cross-sectional study of 254 consecutive patients less than 50 years who underwent colonoscopy were included in the study. Patients with prior diagnosis of inflammatory bowel disease, colonic polyp(s) or colorectal carcinoma were excluded. Basic demographic data (age, gender), history of smoking and alcohol consumption were recorded. Prevalence of polyps, their location, size and histological type were estimated. Categorical data were expressed as frequencies and percentages.

Results: Among 254 patients who underwent colonoscopy, 63 had colorectal polyps. 39 (61.9 %) patients with polyp were males and 33 (52.38 %) patients were of 40-49 years age. Recto-sigmoid polyps were seen in 47 (74.6 %) patients. Regular heavy alcohol consumers and active smokers had higher odds of having polyps. Adenomatous polyps and adenocarcinoma were detected in 12 and 10 patients respectively. Ulcerated or excavated appearance strongly suggested carcinomatous histology (OR: 363.8, (CI: 16.04 – 8250.90). Similarly, polyp size 5 mm or more favored adenomatous polyp or carcinoma [(OR: 177.35, CI: 9.7 – 3229)].

Conclusions: Prevalence of polyps in patients below 50 years age was 24.8 %. Most of the polyps were benign, diminutive (< 5 mm) and located in recto-sigmoid colon. One-third of the polyps were adenoma or adenocarcinoma.

Keywords: Colonoscopy; colorectal polyp; screening

INTRODUCTION

Colorectal cancer (CRC) is the third most common cancer and the second leading cause of cancer-related deaths globally.[1] Colorectal cancer is among the top five malignancies in Nepal.[2] More than one-tenth of CRC cases occur in patients less than 50 years.[3] The US Preventive Services Task Force (USPSTF) recommends initiating CRC screening for average-risk patients at the age of 45 years.[4] Hyperplastic, inflammatory, juvenile and retention polyps are benign. Adenomatous polyps are precursors to colorectal cancer.[5]. Colorectal adenoma is significantly associated with older age, waist girth, current smoking and alcohol intake.[6] In Nepal, data are lacking on colorectal polyps in young population. This study was done to find the prevalence of colorectal polyps, their distribution, histologic findings in patients younger than 50 years undergoing colonoscopy. Similarly, association of polyps with smoking and alcohol intake was also estimated.

METHODS

This study is a cross sectional study of 254 patients less than 50 years age who underwent colonoscopy. Study was conducted from April 15, 2023 to November 15, 2023. Ethical clearance and approval was obtained from the institutional review board of National Academy of Medical Sciences (ref no. 832). Common indications for colonoscopy were bleeding per rectum, chronic diarrhea or constipation, abdominal pain, unexplained anemia. Other indications were screening for colorectal carcinoma in first degree relatives of known colorectal carcinoma or

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familial polyposis and in asymptomatic patients aged 45 or more who wished for screening. For colonoscopy, bowel preparation was done with polyethylene glycol (PEG) powder mixed to form 2 liters of solution. One liter of the prepared solution and two 5 mg tablets of bisacodyl was consumed on the night prior to colonoscopy and another remaining one liter was consumed in the morning on the day of colonoscopy.[7] This prescription advice was given by the endoscopist and a trained nursing staff. Most of the patients were referred from outpatient clinic. All procedures were done without sedation after obtaining informed consent. Patients with previously diagnosed inflammatory bowel disease, colorectal cancer or prior colonoscopy showing polyps were excluded from the study.

Colonoscopy was performed using Pentax and Fujifilm colonoscopes. Patient were examined in the left lateral position to start with and adequate changes in position and maneuver would be done as needed for the ease of examination. Scope withdrawl time was ensured to be at least six minutes for proper visualization of entire colon.[8]

Preformed proforma was used to collect necessary data from the patient. Information was collected directly from the patient regarding demographics, alcohol and smoking consumption. Regular heavy alcohol intake refers to drinking more than 40 grams of pure alcohol per day for men and 20 grams of pure alcohol per day for women.[9] Physical examination was done during the day of colonoscopy. The location, size and morphological appearance of the polyp(s) were noted during colonoscopy. Polypectomy samples were sent for histopathological diagnosis. When more than one polyp was found, the largest polyp was sent for evaluation. After the procedure, patients were observed in the waiting room for half an hour. Histopathology reports were collected from the patients themselves during follow up. Prevalence of polyps in the study population was calculated. Distribution of location, size, morphology and histological type of polyps were expressed as frequencies and percentage. Odd's ratio (OR) was calculated to estimate the increased association of smoking and alcohol in patients with polyps. Association of size and morphology of polyps with histology was estimated as Odd's ratio. Statistical analyses were carried out using Statistical Package for Social Sciences (SPSS) version 21.

RESULTS

Out of 254 patients included in study duration, 63 patients (24.80 %) had polyps. Among the patients with polyps, 39 were males and 24 were females. 33 (52.4 %) patients with polyps belonged to age group of 40-49 years. 12 (19.04 %) patients with polyp were smokers and 31 (16. 23 %) patients without polyps were smokers. Similarly, 15 (24 %) of the patients with polyps and 34 (17.8 %) patients without polyps were regular heavy alcohol consumers (Table 1).

Table 1. Patient characteristics and occurrence of polyps.

Variables	Category	Polyp (N=63)	No Polyp (N=191)	Odds ratio (95% CI)
Age	< 20 years	6	12	-
	20 - 29 years	13	57	
	30 - 39 years	11	59	
	40 - 49 years	33	63	
Gender	Male	39	107	-
	Female	24	84	
Smoking	Yes	12	31	
	No	51	160	1.21 (0.581-2.538)
Alcohol	Yes	15	34	
	No	48	157	1.44 (0.725-2.872)

CI: confidence interval

Most of the polyps were found on the left side of the colon in rectum 37 (58.7 %) followed by sigmoid colon 10 (15.9 %). Caecum with ascending colon, transverse colon and descending colon had decreasing order of frequency of polyps (Figure 1).

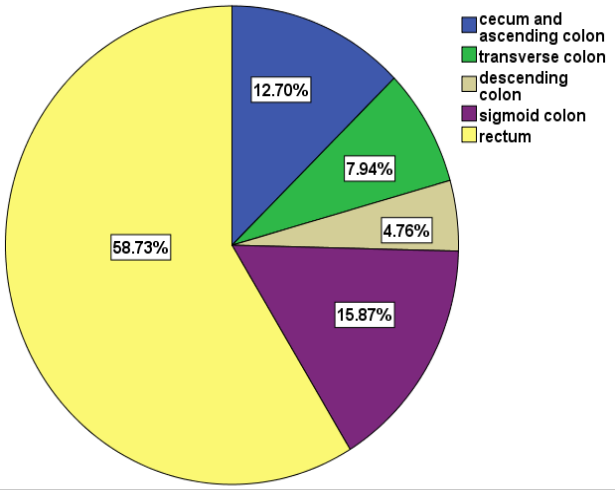

Figure 1. Location of polyp

Most of the polyps were benign: hyperplastic in 18 (28.6 %), inflammatory in 17 (27.0 %) or retention type in 6 (9.5 %). Adenoma was detected in 12 patients (19 %) and 10 patients (15.9 %) were diagnosed with carcinoma on histopathological analysis of the specimens (Figure 2).

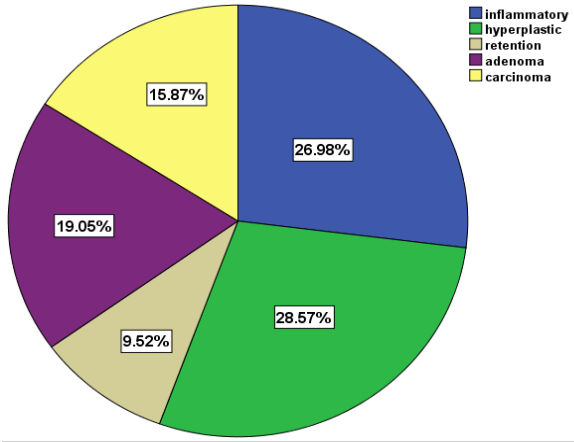

Figure 2. Histological findings of polyp.

Patients with adenomatous polyps/carcinoma had higher mean age compared to those with hyperplastic, inflammatory or retention polyps. 8 patients with adenoma belonged to age group of 40-49 years. Among 10 patients with carcinoma, 6 belonged to age group 40-49 years. Males were more likely to have polyps than females but no gender differences were seen with regard to adenomatous polyps/carcinoma. Size of polyp was significantly associated with adenomatous polyp or carcinoma. 33 (52.4 %) polyps were smaller than 5 mm. All of the adenomatous polyp/cancer were larger than 5 mm [(Odd's ratio 177.35 CI: 9.7 - 3229)]. (Table 2).

Table 2. Association of patient and polyp characteristics with polyp histology.

Variables	Category	Adenoma/ cancer (N = 22)	Benign polyp (N = 41)	Odds ratio (95% CI)
Age	< 20 yrs	1	5	-
	20 to 29 yrs	5	8	
	30 to 39 yrs	2	9	
	40 to 49 yrs	14	19	
Gender	Male	11	28	
	Female	11	13	
Size of polyp	5 mm or more	22	8	177.35 (9.7 - 3229.1)
	< 5 mm	0	33	

CI: Confidence Interval

According to the Paris classification system of polyp morphology on endoscopy examination[10], 38 (60.30 %) of polyps were sessile, 9 (14.3 %) were pedunculated, 8 (13%) were ulcerated/excavated, 6 (9.5 %) were sub-pedunculated and 2 (3.2 %) were flat (Table 3). All of the ulcerated/excavated lesions were carcinoma [Odd's ratio 363.8 (CI: 16.04 - 8250.90)].

Table 3. Endoscopic appearance of polyp (Paris Classification).

Polyp morphology	Frequency (N)	Percent (%)
Sessile	38	60.3
Subpedunculated	6	9.5
Pedunculated	9	14.3
Flat	2	3.2
Ulcerated/ excavated	8	12.7
Total	63	100

Cold biopsy forceps was used to remove diminutive sessile polyp esp. 3 mm or less, whenever removal with cold snare removal was not successful or feasible. Larger polyps were removed with cold snare and occasionally with hot snare as recommended by the European Society of Gastrointestinal Endoscopy (ESGE) guidelines.[11] Two

pedunculated polyps needed endoloop application prior to resection. One patient underwent endoscopic mucosal resection. Three patients had immediate post-polypectomy bleeding which was managed with endoclip application. No patients developed significant delayed post-polypectomy bleeding or other complications.

DISCUSSION

The prognosis of a polyp depends on its characteristics as it can predict the probability of transformation into colorectal cancer. It may take 5 to 20 years for an adenoma to develop into a cancer and various pathways and factors are involved in it.[12] Most of the polyps in young are benign and non-adenomatous. Adenomatous polyps are usually larger than the benign polyps and they tend to occur mostly on the left side of colon and rectum. In a study done by Jeong et.al on 570 individuals aged under 50 years, the prevalence of colorectal adenoma in group of 19-29 years was 3.2 % (1 of 31), 30-39 years was 13.8% (30 of 217) and in the group of 40-49 years was 21.1% (68 of 322) (P =.009).[13] A recent study done in Nepal showed the prevalence of colonic polyps as 12.95 % and almost 46 % of the patients with polyps were less than 50 years of age. 43.61% of the polyps were adenomatous polyps.[14] Our study showed the prevalence of colorectal polyps in patients under 50 years as approximately 25 %. Three-fourths of the polyps were located in the recto-sigmoid colon which is in accordance with other studies. Similarly, in our study approximately 35 % of the polyps were either adenomatous or carcinoma. Various risk factors for the occurrence of polyps have been implicated in literature such as genetic predisposition, smoking, alcohol and obesity.[6,13] Patients with polyps had higher odds of smoking and heavy alcohol intake in our study although statistically insignificant.

Incidence of colorectal carcinoma is decreasing worldwide due to early diagnosis through colonoscopy screening, genetic counseling and early treatment of polyps and premalignant lesions. However, its incidence is rising in the younger population. In a study, among two hundred and thirty-three patients with colorectal cancer, 39.05 % of patients were below 40 years and 4.29 % were below 20 years of age.[15] A retrospective study done in Nepal showed the incidence of colorectal cancer to be 28% in young patients aged between 20-39 years.[16] Detection of carcinoma in almost 16 % of the patients with colorectal polyp in our study strongly supports indication for colorectal cancer screening in younger individuals. In a study done by Silva et.al polyps > 0.5 cm (preferably >1 cm) had statistically significant increased probability of being adenomatous.[17] Our study also correlates with this finding as polyp size 5mm or more had higher odds of being adenomatous or carcinoma. Ulcerated or excavated colorectal lesion can strongly predict a presence of underlying cancer[18], which is also in agreement to our study results.

Our study is not without limitations. Only patients who underwent colonoscopy for some indications such as per rectal bleed, altered bowel habit, pain abdomen and weight loss were enrolled because colorectal cancer screening is not routinely practiced in Nepal. Thus, it is not a screening colonoscopy based study and thus does not represent the actual prevalence of polyps in the community. Furthermore, colonoscopy was performed by endoscopists with varying levels of experience and on different endoscopes which might have affected the ability to identify all the polyps. Similarly, we could not use advanced endoscopic techniques like narrowband or blue light imaging during colonoscopies.[19]

CONCLUSIONS

Adenomatous polyps and colorectal cancer represent more than one thirds (35%) of polyps in young patients under 50 years of age undergoing colonoscopy. Larger polyp size favors adenoma or cancer. Ulcerated or excavated morphology are indicators of underlying cancer. Patients with colorectal polyps have higher odds of smoking and heavy alcohol drinking habits.

CONFLICTS OF INTERESTS

None

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