

# A Study into the Patterns of Gastrointestinal Tract Polyps

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## Abstract

The study was retro-prospective in nature. 102 cases diagnosed during the period of 10 years (i.e. 2003 to 2013) were studied. The site, age and sex wise distribution of the polyps was analyzed. Of 102 cases, 64(62.75%) were males, 38(37.35%) were females. The age ranged from 2 to 80 years with a mean of 27.2 years, maximum cases were seen in 0-9 years i.e. 39(38.24%). 88(86.27%) cases were benign and 14(13.73%) were malignant. Commonest site involved was colorectal region (78.43%). Hematochezia was seen in 48 cases (65.75%). Histologically 91 (89.2%) were epithelial polyps, 7 (6.9%) non epithelial polyps and 4(3.9%) miscellaneous polyps. The commonest epithelial polyp was juvenile polyp (49 cases) followed by adenomatous polyp (14 cases). Low grade dysplasia seen in 11(78.57%) and high grade dysplasia was seen in 3(21.43%) adenomatous polyps. Study provides an insight into histological patterns of GI polyps and enhances our knowledge about vivid etiologies of these polyps. Many of these polyps are precursors to malignant disease, it is recommended that endoscopy with polypectomy and histological confirmation is necessary to confirm the diagnosis followed by continued surveillance in patients having dysplastic polyps.

## Key Words

GI Polyps, Patterns, Dysplasia

## Introduction

When a neoplasm, whether benign or malignant, produces a macroscopically visible projection above a mucosal surface and projects into the lumen, it is termed as a polyp (1). Gastrointestinal (GI) polyps are proliferative or neoplastic mucosal lesions, projecting into the gastrointestinal lumina and are commonly seen in the colon but may occur in the esophagus, stomach, small and large intestine. They may remain asymptomatic or present as bleeding, pain and obstruction due to mass effect. However, most important risk with the gastrointestinal polyps is the development of malignancy in some of these polyps (2). Various epidemiologic, clinical and pathologic studies have proved that almost all colonic cancers arise from adenomas. About one-third of operative specimens containing colon cancer contain one or more synchronous adenomas, a significantly higher rate than in age matched controls without colon cancer. (3). The polyp size and histological type are two important factors for development of cancer in a polyp. In fact, larger the amount of villous portion and size of the polyp, higher is the risk of malignancy (4). The present study was conducted to determine the frequency and distribution of gastrointestinal tract polyps (in patients referred to

Postgraduate Department of Pathology of Government Medical College, Jammu between years 2003-2013 according to their location and histological type and also to assess benign or malignant nature of the polyps and association of their distribution with patient's age and sex. This single centre study could help us to know the characteristics of gastrointestinal polyps in adult as well as pediatric population of Jammu region in Jammu & Kashmir State.

## Material and Methods

The present study was conducted on 102 cases of gastrointestinal tract polyps diagnosed in the histopathology section of Department of Pathology, Government Medical College, Jammu over a period of ten years. Retrospective analysis was done by identifying the diagnosed cases of gastrointestinal tract polyps from archives of histopathology slides and prospective analysis consisted of all resected GI polyps received in the histopathology section. The histopathological features of all gastrointestinal polyps were described and presented in the form of appropriate tables. The site, age and sex wise distribution of the gastrointestinal tract was analysed. Special stains and immunohistochemistry were used as

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and when required

## Results

Out of total 102 cases of gastrointestinal tract polyps, 64 (62.75%) were seen in males, while 38(37.35%) were seen in females. The age of the patients ranged from 2-80 years with a mean age of 27.2 years. Maximum number of cases 39(38.24%) were seen in 0-9 years age group, followed by 16 (15.69%) cases in 10-19 years age group. (Table 1)

Present study included both adult as well as pediatric populations; 54 (52.94%) cases were seen in pediatric age group (0-18 years), while 48 (47.16%) cases were seen in adults.

Majority of gastrointestinal tract polyps were benign i.e., 88 (86.27%) and 14 (13.73%) were malignant. The gastrointestinal tract polyps were commonly encountered in colorectum 80 (78.43%), followed by stomach 17 (16.67%), esophagus 3 (2.94%), while 1(0.98%) each in small intestine and anal canal. Information regarding presenting clinical symptoms was available for 73 patients. Majority of cases i.e. 48 (65.75%) presented with lower gastrointestinal bleeding. (Table 2)

Histologically majority of GI polyps i.e. 91 (89.2%) were epithelial polyps followed by 7 (6.9%) non epithelial polyps and 4(3.9%) miscellaneous polyps. The commonest type of epithelial polyp in our study was juvenile polyp (49 cases) followed by adenomatous polyp (14 cases). (Table 3)

Out of 49 cases of juvenile polyps, 48 (97.95%) were seen in the pediatric population. 33 (67.3%) were seen in males and 16 (32.7%) in females (Fig 1). Mean age of patient was 7.7years, and most common site was rectum.

Adenomatous polyps predominantly seen in adult population. Eight (57.15%) cases were seen in males; while 6 (42.85%) cases were seen in females. Most common site was rectum and sigmoid colon. Most common subtype was tubular adenoma 10 (71.43%), followed by tubulovillous adenoma 3(21.43%), and 1 case of villous adenoma. Low grade dysplasia was present in 11(78.57%) adenomatous polyps, while high grade dysplasia was observed in 3 (21.43%) adenomatous polyps (Fig 3&4).

Immunohistochemistry for P53 marker was positive in the areas of high grade dysplasia as well as diffusely positive in adenocarcinomas, supporting the well known adenoma-carcinoma sequence. A total of 17 gastric polyps were identified in our study. (Table 4) Majority of gastric polyps were seen in females 11(64.71%), while 6 (35.29%) in males. Mean age for gastric polyps was 58.5 years, median age was 62 years and range of age was 35-80 years. Non-epithelial gastric polyps included one case each of gastric maloma (Fig 2) and gastrointestinal stromal tumor. Among the miscellaneous polyps, a lone case of xanthomatous gastric polyp showed collection of

**Table 1. Age Wise Distribution of Gastrointestinal Tract Polyps**

Age	No of polyps	Percentage
0-9	39	38.24%
10-19	16	15.69%
20-29	7	6.86%
30-39	7	6.86%
40-49	8	7.84%
50-59	6	5.88%
60-69	13	12.75%
70-79	5	4.9%
80-89	1	0.98%
<b>Total</b>	<b>102</b>	<b>100</b>

**Table 2. Presenting Clinical Symptoms in Patients With Gastrointestinal Polyps**

Symptoms	Number of patients (%age)
Gastrointestinal bleeding	48(65.75%)
Pain	9 (12.33%)
Change in bowel habits	6 (10.96%)
Dyspepsia	8 (8.22%)
Dysphagia	2 (2.74%)
<b>Total</b>	<b>73</b>

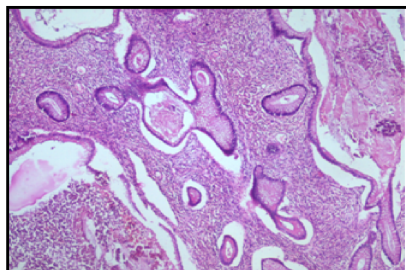
**Table 3. Distribution of Histological Subtypes of Epithelial Polyps**

Histological type	Number of polyps (%age)
Adenomatous polyps	14 (15.38)
Hyperplastic gastric polyps	10(10.99)
Hyperplastic polyps colon	4(4.39)
Juvenile/retention polyps	49 (53.85)
Hamartomatous polyps	1(1.09)
Malignant epithelial polyps	9(9.89)
Inflammatory polyps	4 (4.39)
<b>Total</b>	<b>91</b>

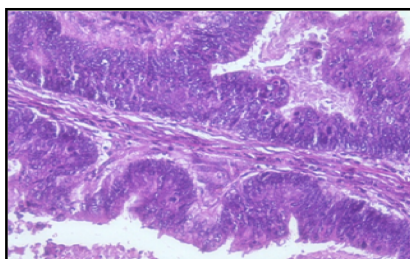
**Table 4. Distribution of Various Histological Types of Gastric Polyps**

Histological type	Number of polyps (%age)
Hyperplastic polyps	10(58.82)
Inflammatory polyps	1(5.88)
Adenocarcinoma (polypoidal)	3(17.65)
Miscellaneous polyps	1 (5.88)
Non-epithelial polyps	2 (11.76)
<b>Total</b>	<b>17</b>

**Fig. 1 Photomicrograph From A Juvenile Polyp Rectum, Showing Large Dilated Rectal Glands Along With Heavy Acute And Chronic Inflammation In The Lamina Propria(H&E 40X)**



**Fig. 3 Photomicrograph from a Case of Villous Adenoma Showing Foci of Moderate to Severe Dysplasia (H&E 200X)**



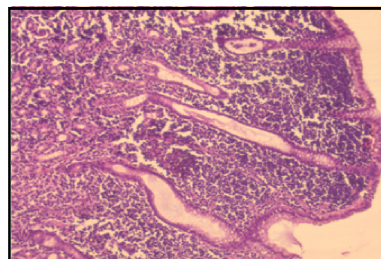
large foamy histiocytes in the lamina propria and these histiocytes were positive for CD 68 marker. Other miscellaneous polyps in our study included one case each of tubercular polyp in esophagus, haemorrhoids in rectum and verruca vulgaris in anal canal.

### Discussion

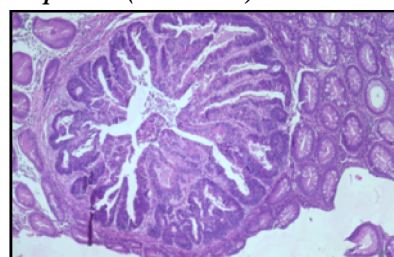
The present study was undertaken with a view to get information about the relative frequency of various histopathological types of gastrointestinal tract polyps, their location in gastrointestinal tract and their distribution with regards to age and sex. In the present study, out of total 102 polyps examined 62.75% polyps were from male patients and 37.25% from female patients. These findings are comparable with those of Mirzaie *et al.* (2) in which out of a total 210 patients, 61.43% were males and 38.57% were females. In the study conducted by Bafandeh *et al.* (5), 71% patients were males and 29% were females.

In the present study the age varied from 2 to 80 years. The observed higher range of age in the present study was nearly the same as observed by Mirzaie *et al.* (2), who showed that the age ranged from 16 and 81 years. The mean age of patients in our study was 27.2 years which is not in agreement with the mean age (58.4 years) observed by Mirzaie *et al.* (2) and 6.8 years observed by Wang *et al.* (6). These differences were due to inclusion of both adult and paediatric population and also the paediatric population share of our study was 52.9% explaining the lower value of observed mean age in our study. Majority of cases 48 (65.75%) in this study

**Fig.2 Photomicrograph from a Gastric Polyp Showing Aggregates of Monomorphic Lymphoid Cells in the Lamina Propria and Submucosa (H&E,40X)**



**Fig. 4 Photomicrograph From a Case of Tubulovillous Adenoma Showing Foci of Moderate to Severe Dysplasia in the Villous Component (H&E 40X)**



presented with hematochezia, followed by abdominal pain in 9 (12.33%), dyspepsia in 8 (10.9%), change in bowel habits in 6 (8.2%) and dysphagia in 2 (2.8%). 29 patients had no available history or symptom. Our findings are more or less comparable with those of Mirzaie *et al.* (2), who observed most frequent clinical symptom to be melena or hematochezia 66 (31.4%), followed by anemia 20 (9.5%), abdominal pain 18 (8.5%), obstruction 7 (3.3%), diarrhea in 4 (1.9%), constipation in 3 (1.4%), dyspepsia 2 (1%), dysphagia 1 (0.5%) and weight loss 1 (0.5%). Wang *et al.* (6) observed that majority of the polyps presented with hematochezia. Our findings differ from Gencosmanoglu *et al.* (7) who observed dyspepsia to be the most frequent presenting symptom accounting for 39.5%. The most common type of polyps in our study were juvenile/retention polyps accounting for 49 (48.04%) out of 102 polyps. In the study done by Sharifi & Akhlaghi (8) on 145 patients with gastrointestinal tract polyps, juvenile polyps constituted 52.7% of the colonic polyps. Study done by El-Shabrawi *et al.* (9) also found juvenile polyps as most frequent polyps constituting 84% of the total polyps. The mean age of patients with juvenile polyps in our study was 7.7 years. Similarly, Wang *et al.* (6) also reported mean age to be 6.8 years. In our study the most common site for juvenile polyps was rectum. This observation is in agreement with the findings of El-Shabrawi *et al.* (9) in which 68% of polyps were in the rectum. Wang *et al.* (6) also reported colorectum as the most common site (80%) for gastrointestinal tract polyps.

A total of 14 adenomatous polyps were diagnosed

during the period of our study. It was the most common type of epithelial polyp in the adult population (36.84%). Commonest site for adenomatous polyps was rectum and sigmoid colon. These polyps were more common in males 57.75% while females constituted 42.25% cases. The sub-types of adenomatous polyps were tubular adenomas 71.43%, tubulovillous adenomas 21.43% and villous adenomas 7.14%. Villous component was seen in 28.57% of all adenomatous polyps. Out of 14 polyps, 12 patients had solitary adenomatous polyps while 2 patients had multiple synchronous adenomas. Low grade dysplasia was present in 78.57%, while high grade dysplasia was observed in 21.43% of the adenomatous polyps.

The commonst polyp type observed by Mirzaie *et al.* (2) was adenomatous polyp (84.3%). Rectum and sigmoid were most common sites for adenomatous polyps (66.67%) and most of the polyps in their study were found in males. The sub-types of adenomatous polyps in their study included tubular adenoma 70.3%, tubulovillous adenoma 13.7% and villous adenoma 16%. Low grade dysplasia was present in 91.4% of adenomatous polyps and high grade dysplasia was seen in 8.6% of their patients. The age in their study varied from 16 and 81 years respectively. A total of 17 gastric polyps were identified in our study. Out of these, 58.82% were hyperplastic polyps, 17.65% polyps were found to be gastric adenocarcinoma, while 1 was an inflammatory polyp. We also noted one case each of gastric maltoma, gastrointestinal stromal tumor and xanthomatous gastric polyp. The commonest types of gastric polyp in our study were hyperplastic polyp. This finding is similar to those of Mirzaie *et al.* (2) and Gencosmanoglu *et al.* (7). The second most common type of gastric polyp in our study was polypoid gastric adenocarcinoma. However, our results are contrary to the results of Mirzaie *et al.* (2) and Gencosmanoglu *et al.* (7) In our study the higher frequency of gastric adenocarcinoma presenting as gastric polyp may be due to certain racial differences and diet regimens. Also an overall increased incidence of gastric carcinoma in Jammu and Kashmir region may be an independent reason for this spurious finding.

In our study majority of gastric polyps were seen in females (64.71%). Mean age was 58.5 years, median age was 62 years and age range was (35-80) years. These findings were more or less consistent with the observations of Gencosmanoglu *et al.* (7), in which out of 91 patients presenting with gastric polyps, 58% were women. Median age of patients was 53 years and age range was 31-82 years. In the present study a total of 9 (8.82%) cases of malignant epithelial polyps were observed out of 102 polyps and out of these, 7 (77.8%) were adenocarcinomas. Whole head of the polyp was composed of adenocarcinomas in 5 cases and were

labeled as polypoid adenocarcinomas, while 2 cases showed the histological evidence of pre-existing adenomas with stalk invasion. Khodadoostan *et al.* (10) in their study observed 6.07% cases of carcinoma in polyps out of 856 polypectomies studied. From the above discussion it has been observed that there is a worldwide variation in the distribution of various gastrointestinal tract polyps and these international differences appear largely due to exogenous factors like differences in dietary regimens, rapid growth of urbanization, low physical activity and obesity along with various inherited differences and ethnic group variations.

### Conclusion

The present study not only provides an insight into varied histological patterns of different gastrointestinal tract polyps, but also makes us aware of vivid etiologies manifesting as polyps. Gastrointestinal tract polyps are important clinical entity and many are precursors to malignant disease. It is recommended that endoscopy with polypectomy and histological confirmation is necessary to confirm the diagnosis. Continued surveillance is indicated in patients with neoplastic polyps with malignant potential.

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