

Original Research Article

HISTOPATHOLOGICAL PROFILE OF THE GASTROINTESTINAL POLYPS IN KASHMIR VALLEY

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ABSTRACT

Introduction: A gastrointestinal (GI) polyp is a discrete mass protruding into the lumen of GI Tract projecting above the plane of the mucosal surface. Polyp may be neoplastic and neo-neoplastic in nature. Determining the potential risk of malignancy of the polyp is very important for the purpose of line of treatment. The polyp size and histological types are important factors for development of cancers in polyps.

Materials and Methods: This was a five year observational study conducted from 2012-2016. All the patients diagnosed with true Gastro-intestinal polyps enrolled in Sher-i-Kashmir Institute of Medical Sciences, Kashmir were analyzed. Data regarding the clinico-pathological parameters was collected. Gastrointestinal polyps were grouped as per age, location, number, presence and absence of stalk, presence and absence of dysplasia; and histological type. The data was analyzed using the statistical software SPSS version V 20.

Results: Among 595 patients reported, 373 (62.7%) were males and 222 (37.3%) were females. The age of the patients ranged from 1 to 90 years. Mean age was 40 years. Majority of the polyps (74%) were found in large intestine. 63.19% were non-neoplastic and 36.8% were neoplastic. 90.76% percent of the patients presented with single polyps. Sessile polyps were seen in 90.76%. Majority of cases had adenomatous polyps (36.8%), followed by hyperplastic polyps (30.92%). The sub types of the adenomatous polyps were tubulovillous with 56.22 % followed by tubular and villous type with 28.31% and 15.06 % respectively. Among adenomatous polyps, 62.10 % were with dysplasia while 37.90% were without dysplasia. Four cases of Familial Adenomatous polyposis (FAP) were observed. 15 patients presented with 9 synchronous and 6 metachronous lesions.

Conclusion: The high prevalence of adenomatous polyps in our study warrants need of screening for early detection and prevention of colorectal carcinomas. Genetic and molecular screening evaluation may also have a huge impact on understanding the mechanism of neoplastic polyps.

KEY WORDS: Polyps, Gastrointestinal, Histopathology.

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BACKGROUND

A gastrointestinal (GI) polyp is a discrete mass protruding into the lumen of GI Tract [1] projecting above the plane of the mucosal surface [2].

Although more than 90% of the polyps are asymptomatic, but larger polyps may present with bleeding, anemia, obstruction, or abdominal pain [3]. They may be neoplastic and neo-neoplastic in nature. Determining the potential risk of malignancy of the polyp is very important for the purpose of line of treatment. The polyp size and histological types are important factors for development of cancers in polyps [4]. The larger the amount of villous portion and size of the polyp, the higher is the risk of malignancy [5]. The frequency and distribution of gastrointestinal polyps may vary in different populations according to genetic, socioeconomic status and life habits [6]. Genetic susceptibility ranges from well-defined inherited syndromes, e.g. familial adenomatous polyposis, to ill-defined familial aggregations.

Aim:

To determine the distribution and histopathological characteristics of gastrointestinal polyps in Kashmir valley.

MATERIALS AND METHODS

This was a five year observational study conducted from 2012-2016. All the patients diagnosed with true Gastro-intestinal polyps enrolled in Sher-i-Kashmir Institute of Medical Sciences, Kashmir were analyzed. Endoscopic/colonoscopic description and histological findings of all the patients diagnosed with polyps were noted. Data regarding the clinico-pathological parameter including age, site, number, histological features, presence and absence of stalk, and type of the polyp was collected. Association of the degree of dysplasia with site and type of the polyp was assessed. Gastrointestinal polyps were grouped as per age, location, number, presence and absence of stalk, presence and absence of dysplasia; and histological type. Approval by the Institutional Ethical Committee was obtained for this study. The data was analyzed using the statistical software SPSS version V 20.

RESULTS

Among 595 patients reported, 373 (62.7%) were males and 222 (37.3%) were females. The age of the patients ranged from 1 to 90 years. Mean age was 40 years with maximum number of cases viz; 106 (17.82%) seen in the age group of 51-60 years. Present study included both adult as well as pediatric population. Distribution of polyps on the basis of location is shown in Table 1. We followed the anatomic distribution of these polyps at the level of colon as shown in Table 2. Out of 595 GI polyps detected, 376 (63.19%) were non-neoplastic and 219 (36.8%) were neoplastic. As far as the number of polyps is concerned, 90.76% percent of the patients presented single polyps while only 9.24% percent were multiple polyps. Figure 1 shows colonoscopic view of a polyp. 540 cases (90.76%) were sessile polyps while only 55 (9.24%) polyps were pedunculated. Distribution of Gastrointestinal Polyps on the basis of histological impressions is shown in Table 3.

The sub types of the adenomatous polyps were tubulovillous with 56.22 % followed by tubular and villous type with 28.31% and 15.06 % respectively. Out of the 219 cases of adenomatous polyps, 62.10 % were with dysplasia while 37.90% were without dysplasia (Table 4). Four cases of Familial Adenomatous polyposis (FAP) were observed in this five year study period. Out of which three were male patients. Histologically, they were all adenomatous polyps. Dysplasia was low grade in one case while high grade in other 3 cases. No tumor was reported in any of the cases. Figure 2 shows a resected colon specimen of FAP with multiple polyps.

Between the year 2012-2016, 15 patients (10 male and 5 females) with age ranging from 40 to 75 years with 9 synchronous and 6 metachronous lesions were observed. The diagnosis lag for metachronous lesions was 2-10 years. All nine patients with synchronous cancers had two lesions. The tumour was located more frequently in the rectum followed by descending colon. All six metachronous lesions had undergone curative surgery for primary colorectal carcinoma and were on follow up. Histopathologically, the first primary tumour of synchronous lesion was adenocarcinoma.

Fig. 1: Single sessile Polyp- Coloscopic View.



Fig. 2: Gross photograph of resected colon from a patient with Familial Adenomatous Polyposis.



Fig. 3: Photomicrograph showing low power view of Hyperplastic polyp.

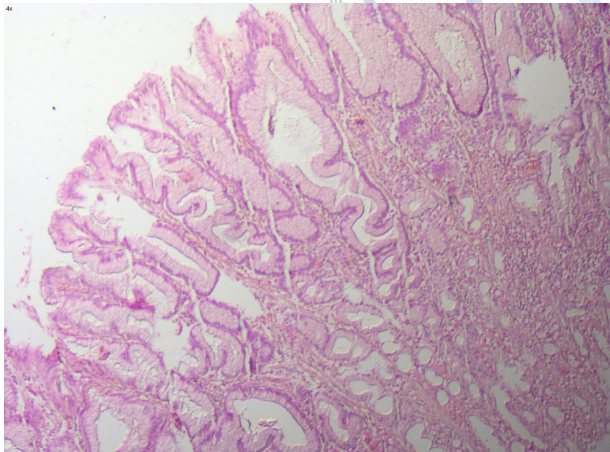


Fig. 4: Photomicrograph showing low power view of Tubular Adenoma-Adenomatous polyp (low grade)

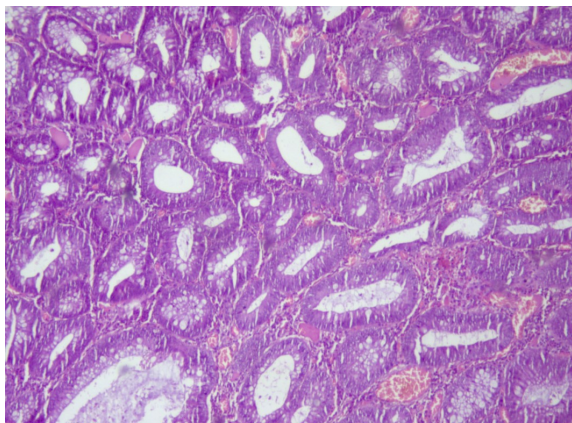


Table 1: Distribution of Gastrointestinal Polyps on the basis of gender, age, location and histological impressions.

Age	Male	Female				
	62.70%	37.30%				
Age	<40	>40				
	45.72%	54.28%				
Location	Gastric	Large intestine	Small intestine			
	23.87%	74.79%	1.34%			
Histology	Adenomatous	Hyperplastic	Juvenile	Inflammatory	Retention	Peutz Jeghers
	36.80%	30.92%	16.47%	7.39%	6.72%	1.68%

Table 2: Distribution of polyps in colon.

Location in colon	Number of cases	Percentage of cases
rectum	289 cases	(64.94%);
ascending colon	84 cases	(18.8%);
sigmoid colon	41 cases	(9.21%);
descending colon	12 cases	(2.70%);
caecum	7 cases	(1.57%);
splenic flexure	7 cases	(1.57%);
transverse colon	5 cases	-1.12%

Table 3: Histological classification of polyps.

Histological type	Number of cases	Percentage of cases
adenomatous polyp	219 patients	-36.80%
hyperplastic polyp	184 cases	-30.92%
juvenile polyp	98 cases	-16.47%
inflammatory polyp	44 cases	-7.39%
retention polyp	40 cases	-6.72%
Peutz Jeghers polyp	10 cases	(1.68%).

Table 4: Distribution of Adenomatous polyps.

Type of adenomatous polyps	Total cases	No. of cases with Dysplasia	No. of cases with LGD	No. of cases with MGD	No. of cases with HGD
Tubulovillous	124	72	28	9	37
Tubular	62	45	26	9	10
Villous	33	17	4	1	12

$$\chi^2 = 14.71, P = 0.005 \text{ significant}$$

Statistically, there is a significant association between adenomatous Gastro intestinal polyps on the basis of grade of dysplasia.

DISCUSSION

Gastrointestinal malignancy is a global oncological problem [7]. Kashmir is a very high risk area for cancer of the gastrointestinal tract, which comprises more than half the frequency of all the cancers [8].

In our five year study period (2012-2016), we found 595 gastrointestinal polyps, among them 62.7% were males while 37.3% were females.

Our observations of predominant male involvement are consistent with the number of studies from world including Kingdom of Saudi Arabia and Iran [6,9]. In our study, the mean age of the patients with gastrointestinal polyp was 40.64 years. In the literature of gastrointestinal polyps, Albasri et al. [9] from KSA and Yousuf et al. [10] from Iran have reported the mean age of patients with gastrointestinal polyps of 43.2 years and 49 years respectively. The age of the patients with gastrointestinal polyps in our study ranged from 1-90 years. The study from Mangalore by Kunjumon et al. [11] also reported the minimum age of patient with gastrointestinal polyp as 1 year. Out of 595 cases, 74% were found in large intestine, 25% in the gastric region while only 1% was present in small intestine. Similar results were reported by Khujuria et al. [12] from northern part of India wherein, they reported that the maximum number of polyps were present in large intestine (78.43 %) followed by stomach with 16.67%.

Determining the prevalence of gastrointestinal neoplasms in various anatomical sites can be an important factor to select the favorable modality of screening. In the present study as per the anatomic distribution, most of the polyps were found in the rectum (65%). Histopathologically, retention polyp was the commonest polyp seen in the rectum (45%) (Figure 3). The observation is similar to the study of Tony et al. [13] and Iravani et al. [14] who also reported that the rectum is the most common site of gastrointestinal polyp in south Indian and Iranian population.

Most of the polyps in our study were single (91%) while only 9% were multiple. Yoon et al. [15] in their study from Korea also reported that 89.2 % of the polyps were single while only 10.18% were multiple polyps. Similarly, Buyukasik et al. [16] reported that 88.14% of the polyps in Turkey population were single type while only 11.86 % as multiple type.

Regarding the histological subtypes of 595 polyps cases, there were 219 adenomatous polyps (36.8%), followed by 184 hyperplastic polyps (30.92%). Iravani et al. [14] in their study also reported that the most prevalent type of polyp was adenomatous (34.7%), followed by hyperplastic (31.1%) (2014). Albasri et al. [9]

From Kingdom of Saudi Arabia reported that out of 224 polyps, there were 166 adenomatous polyps (74.1%) followed by 24 hyperplastic polyps (10.7%) (2014). Similar results were reported by Mirzaie et al [6] and Geramizadeh B et al [1].

Most of the polyps found in our study were sessile (91%) polyps while only 9% were pedunculated. Our results were in agreement with the study of Gencosmanoglu et al. [17] and Garcia et al. [18], who reported 95.3 % and 90.8 % polyps were sessile respectively.

Regarding the histological subtype of 219 adenomatous polyps in our study, we observed 124 were tubulovillous (56.22%) followed by 62 tubular polyps (28.31%) and 33 were villous adenoma (15.06%). This is in consistence with the study carried out by Albasri et al [9] in KSA who also reported tubulovillous as most common type of polyp with 61.4% followed by tubular with 24.7%.

In our study, 62.10% of the adenomatous polyps were dysplastic (Figure 4) while 37.90 were without dysplasia. Similar results were observed in Iranian population by Geramizadeh B [1] wherein they reported 66.77% dysplastic adenomatous polyps.

In our study, tubulovillous adenomatous polyps were frequently associated with dysplasia (54.41%) as compared to tubular (33.09 %) and villous type (12.50 %). It was also observed that there were 43.38% of high grade adenomatous polyps. High grade dysplasia was more associated with villous (78.58%) and tubulovillous adenomatous (50.0%) polyps as compared to the tubular type. Similar observations were made by Mirzaie et al. [6] who studied 240 polyps and concluded that the amount of villous component were strongly associated with high grade dysplasia. Albasri et al. [9] 2014 also reported that tubulovillous adenomatous polyps were associated with higher rates of dysplasia as compared to tubular type.

Out of 595 GI polyps detected, 376 (63.19%) were non-neoplastic and 219 (36.8%) were neoplastic. Similar results were observed in an Iranian population by Sohrabi et al. [19] who also found that non-neoplastic polyps in majority of cases than neoplastic cases. Further, out of 453

colorectal polyps, 99 (21.85%) were right sided polyp and 354 (78.14%) were left sided polyps. These results were in agreement with the Mirzaie et al [6] who also found that out of 240 polyps 193 (80.4%) were left sided.

15 patients (10 male and 5 females) with age ranging from 40 to 75 years with 9 synchronous and 6 metachronous lesions were observed. The synchronous and metachronous colorectal carcinoma in our study have an incidence of 2.52%. Same results were observed by Papadopoulos et al. [20] during their 5 year study wherein they reported the incidence of synchronous and metachronous carcinoma of 2-10%. The co-existence of adenomatous polyp is considered as a risk factor for the development of metachronous lesions. Primary colorectal carcinomas were associated with multiple adenomatous polyps mostly in rectum and descending colon. Patients with colorectal carcinoma must be followed up regularly after surgery. Follow up aims at early diagnosis and treatment of metachronous lesions that can appear many years after diagnosis of primary lesions.

Four cases of Familial Adenomatous polyposis were observed in our five year study period. Out of which three were male patients while only one was female. Histologically, they were all adenomatous polyps. Dysplasia was low grade in one FAP case while high grade in other 3 cases. No tumor was reported in any of the cases. Proctocolectomy has been done in all the four patients. Polyposis inevitably progresses to colorectal cancer, if left untreated [21]. Screening for colorectal cancer in FAP associated cases must be based on the personal and family history of adenomas and cancer. Follow up of the reported FAP cases through genetic testing was not done due lack of facilities in our centre.

CONCLUSION

The high prevalence of adenomatous polyps in our study warrants need of screening for early detection and prevention of colorectal carcinomas. Genetic and molecular screening evaluation may also have a huge impact on understanding the mechanism of neoplastic polyps.

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