



HISTOMORPHOLOGICAL SPECTRUM OF GASTROINTESTINAL POLYPS SEEN AT A TERTIARY HOSPITAL IN NORTHEAST INDIA: A RETROSPECTIVE CROSS SECTIONAL STUDY.

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ABSTRACT

Background: Gastrointestinal polyps are commonly encountered specimens in the pathological laboratory. Histopathology is critical, as it dictates the biological behaviour of the lesion. **Materials and Methods:** This is a retrospective cross sectional study done in the Department of Pathology at Shija Academy of Health Sciences, Manipur. Data collection was done by identifying the diagnosed cases of all gastrointestinal tract polyps from the histopathology archives over a period of two years from January 2022 to December 2023. Data analysis was done using IBM Statistical Package for Social Sciences (SPSS) Version 21. The results were summarised in mean, frequency and percentages. For the association between various variables and neoplastic nature of the polyps, Chi square test was used. **Results:** A total of 163 gastrointestinal tract polypoid lesions were studied, out of which 56.4% were seen in males and 43.6% in females. Non neoplastic polyps (74.2%) constitute a majority of the lesions while 25.8% were neoplastic. Hyperplastic polyp and conventional adenoma were the commonest non neoplastic and neoplastic polypoid lesions respectively. The age range of the patient was from 1 to 85 years with a mean of 50.1 years. Hyperplastic polyp was the most frequently found polyp in stomach, conventional adenoma in colon, juvenile rectal polyp in rectosigmoid and fibroepithelial polyp in anal canal. A significant association was found with site, with higher number of neoplastic polyps seen in the colon. **Conclusion:** A diverse range of histological types of polypoid lesions were identified in the gastrointestinal tract, with the colorectal region being the most affected. Among the non neoplastic lesions, hyperplastic polyps were the most prevalent, while conventional adenomas were the most common non neoplastic polyps. Notably, the large intestine harboured a significantly higher proportion of neoplastic polypoid lesions compared to other gastrointestinal sites

KEYWORDS : Gastrointestinal Polyps, Adenoma, Hyperplastic Polyp

INTRODUCTION

Gastrointestinal polyps are masses that project above the level of surrounding mucosa. They are commonly seen in colorectal region but may occur in the esophagus, stomach and small intestine.^{2,4} Major clinical presentations in symptomatic cases of gastrointestinal polyp include gastrointestinal bleeding, abdominal pain and intestinal obstruction.⁵ The most dreaded complication is the development of malignancy in some.

Gastrointestinal polypoid lesions are frequently encountered specimens in histopathology, which may be attributed to increasing usage of endoscopic procedures.

Accurate biopsy assessment is essential as the clinical behaviour depends on its underlying pathological characteristics.

This study assesses the prevalence and histological nature of the gastrointestinal tract polyps received at the histopathology section of the Department of Pathology Shija Academy of Health Sciences, Imphal, Manipur, India. It studies the age, gender and anatomical site wise distribution and number of polyps. Also, association of age and gender of the patient, and site and number of the polyps with the neoplastic nature of the polyp is analysed.

MATERIALS AND METHODS

This is a retrospective cross sectional study done in the Department of Pathology at Shija Academy of Health Sciences. Data collection was done by identifying the diagnosed cases of all gastrointestinal tract polyps from esophagus to anal canal from the histopathology archives. Specimens included polypectomy and resection specimens. All the relevant data were retrieved from the archived records and entered and coded in an excel sheet. 163 cases of gastrointestinal tract polyps were diagnosed over a period of two years from January 2022 to December 2023. The data variables were age, gender, anatomical site, number and histopathological diagnosis of the polyps. Data was entered in Microsoft excel sheet 2010; analysis was done using IBM Statistical Package for Social Sciences (SPSS) Version 21. The results were summarised in mean, frequency and percentages. For the association

between various variables and neoplastic nature of the polyps, Chi square test was used.

Ethical Clearance was obtained from the Institutional Ethics Committee.

RESULTS

A total of 163 gastrointestinal tract polypoid lesions were studied, out of which 92 (56.4%) were seen in males and 71 (43.6%) in females, giving a male to female ratio of 1.3:1. Non neoplastic polyps (121 cases, 74.2%) constitute a majority of the lesions while 42 cases (25.8%) were neoplastic. Hyperplastic polyp (28.8%) and conventional adenoma (22.7%) were the commonest non neoplastic and neoplastic polypoid lesions respectively (Table 1). Conventional adenomas showed the following morphologies: 27 tubular, 5 villous and 5 tubulovillous. High grade dysplasia was seen in 7 (18.9%) of those cases. Invasive adenocarcinoma in adenomatous polyp was seen in 2 cases (5.4%). The age range of the patient was from 1 to 85 years with a mean of 50.1 years. The 61-70 year age group had the highest number of cases (37 cases, 22.7%), followed by the 41 -50 year age group (33 cases, 20.2%). Adenomatous polyps were most commonly seen in the 61-70 years age group (Table 2).

Colon was the commonest site (76 cases, 46.6%) followed by stomach (31 cases, 19.0%) and rectosigmoid (29 cases, 17.8%). Hyperplastic polyp was the most frequently found polyp in stomach, conventional adenoma in colon, juvenile rectal polyp in rectosigmoid and fibroepithelial polyp in anal canal. A solitary oxyntic gland adenoma was reported in the stomach. Similarly, a single case of neuroendocrine tumor was seen in the duodenum while 3 cases of Peutz jehgers polyp were found, 2 in ileum and 1 in rectosigmoid. The colorectal region also showed 3 cases of sessile serrated adenomas, all exhibiting low grade dysplasia (Table 3). 142 patients had single polyp while 21 patients had multiple polyps.

Analysis of the gender, age and number of the polypoid lesions with the categories of neoplastic vs non neoplastic pathological nature was not statistically significant. However a significant association ($p =$

0.000) was found with the site of polypoidal lesions, with higher number of neoplastic polyps seen in the colon (Table 4)

Table 1: Histological Types Of Polypoidal Lesions

	Type of polyp	Number (%)	Overall
Neoplastic	Conventional adenoma	37 (22.7%)	25.8%
	Oxyntic gland adenoma	1 (0.6%)	
	Neuroendocrine tumor	1 (0.6%)	
	Sessile serrated adenoma	3 (1.8%)	
	Parietal cell hyperplasia	1 (0.6%)	
	Inflammatory fibroid polyp	1 (0.6%)	

	Inflammatory cloacogenic polyp	1 (0.6%)	
Non neoplastic	Juvenile Retention polyp	14 (8.6%)	
	Fundic gland polyp	13 (8.0%)	74.2%
	Hyperplastic polyp	47 (28.8%)	
	Inflammatory polyp	22 (13.5%)	
	Peutz Jeghers polyp	3 (1.8%)	
	Squamous papilloma	2 (1.2%)	
	Fibroepithelial polyp	17 (10.4%)	
Total		163	

Table 2: Age Wise Distribution Of Histological Types Of Polyps

Age in years	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	total
Conventional adenoma	0	0	2	4	6	7	13	5	0	37(22.7%)
Oxyntic gland adenoma	0	0	0	1	0	0	0	0	0	1(0.6%)
Parietal cell hyperplasia	0	0	0	0	1	0	0	0	0	1(0.6%)
Neuroendocrine tumor	0	0	0	0	0	0	1	0	0	1(0.6%)
Lipomatous polyp	0	0	0	0	1	0	0	0	0	1(0.6%)
Inflammatory cloacogenic polyp	0	0	0	0	1	0	0	0	0	1(0.6%)
Juvenile retention polyp	6	4	1	1	1	1	0	0	0	14(8.6%)
Fundic gland polyp	0	0	1	3	2	0	4	2	1	13(8.0%)
Hyperplastic polyp	0	0	3	3	8	14	11	8	0	47((28.8%)
Inflammatory polyp	0	0	1	3	6	4	7	1	0	22(13.5%)
Peutz jeghers polyp	1	0	0	2	0	0	0	0	0	3(1.8%)
Sessile serrated adenoma	0	0	0	1	0	0	1	1	0	3(1.8%)
Squamous papilloma	0	0	0	0	1	1	0	0	0	2(1.2%)
Fibroepithelial polyp	1	0	3	2	6	5	0	0	0	17(10.4%)
Total	8(4.9%)	4(2.5%)	11(6.7%)	20(12.3%)	33(20.2%)	32(19.6%)	37(22.7%)	17(10.4%)	1(0.6%)	163

Table3: Site Wise Distribution Of Histological Types Of Polyps In The Gastrointestinal Tract

	Esophagus	Stomach	Duodenum	Ileum	colon	Recto sigmoid	Anal Canal	GE Junction	Total
Conventional adenoma	0	0	2	0	29	6	0	0	37(22.7%)
Oxyntic gland adenoma	0	1	0	0	0	0	0	0	1(0.6%)
Parietal cell hyperplasia	0	1	0	0	0	0	0	0	1(0.6%)
Neuroendocrine tumor	0	0	1	0	0	0	0	0	1(0.6%)
Lipomatous polyp	0	1	0	0	0	0	0	0	1(0.6%)
Inflammatory Cloacogenic Polyp	0	0	0	0	0	0	1	0	1(0.6%)
Juvenile retention polyp	0	0	0	0	1	13	0	0	14(8.6%)
Fundic Gland polyp	0	13	0	0	0	0	0	0	13(8.0%)
Hyperplastic polyp	0	15	0	0	27	4	0	1	47(28.8%)
Inflammatory polyp	0	0	1	0	18	3	0	0	22(13.5%)
Peutz Jeghers polyp	0	0	0	2	0	1	0	0	3(1.8%)
Sessile serrated adenoma	0	0	0	0	1	2	0	0	3(1.8%)
Squamous papilloma	2	0	0	0	0	0	0	0	2(1.2%)
Fibroepithelial polyp	0	0	0	0	0	0	17	0	17(10.4%)
Total	2(1.2%)	31(19.0%)	4(2.5%)	2(1.2%)	76(46.6%)	29(17.8%)	18(11.0%)	1(0.6%)	163

Table 4: Analysis Of Association Of Study Variables With Neoplastic And Non Neoplastic Polypoidal Lesions

Variables	No. of patients	Neoplastic	Non neoplastic	P value
Gender				
Male	92	22	70	0.538
Female	71	20	51	
Number of polyps				
Single	142	34	108	0.166
Multiple	21	8	13	
Esophagus	2	0	2	
Stomach	31	1	30	0.000
Site of polyps	Duodenum	4	1	
Ileum	2	0	2	
Colon	76	30	46	
Rectosigmoid	29	8	21	
Anal canal	18	0	18	
GE junction	1	0	1	

DISCUSSION

Males had a higher prevalence of gastrointestinal polypoidal lesions than females, aligning with existing literature.^{4,6,7} Non neoplastic polyps were in the majority, which is consistent with that of studies performed in Nepal by Gurung P et al³ in which 70% of the gastrointestinal polyps were non neoplastic and by Sherpa P et al⁵ in which 78% of the polyps were non neoplastic. This is in contrast to findings in studies by Manakkad et al¹ in India and Mirzaie et al⁸ in Iran. This may be attributed to the differences in ethnicity and environmental factors.

Conventional adenoma was the commonest neoplastic polyp in the

present study, which is comparable to other studies.^{3,6,7,8} Amongst them, 27 (72.9%) exhibited tubular morphology, 5 (13.5%) displayed tubulovillous morphology and another 5 (13.5%) showed villous morphology. High grade dysplasia was seen in 7 Cases (18.9%). This corroborates data from various studies which showed predominance of tubular subtype with a prevalence ranging from 70.3% to 77% and high grade dysplasia ranging from 8.6 to 21.43%.^{3,6,8,9} The incidence of invasive adenocarcinoma in adenomatous polyp ranged from 2.85 to 5.6% in various studies.^{10,11} The present study, revealed 2 (5.4%) cases of invasive adenocarcinoma in adenomatous polyp. Hyperplastic polyp (47 cases) was the most common non neoplastic polyp, followed

by inflammatory (22 cases). Sherpa P et al⁶ and Sharma GL et al¹² obtained similar results in their studies. This finding contrasts with other reports of juvenile polyps being most prevalent, possibly due to pediatric dominated samples in those studies.^{3,9,10}

The age of the patient ranged from 1 to 85 years with a mean age of 50.1 Years. This finding corroborates the studies of Chitturi R et al⁴, Sherpa P et al⁶ and Mannakad SP et al⁷. The age of the patient ranged from 4 to 88 years with a mean age of 46.5 years in the study by Chitturi R et al⁴. The study by Mannakad SP et al⁷ showed a mean age of 47.14 years with an age range of 2-85 years. Neoplastic polyps were most commonly seen in the 61-70 years age group.

Colon (76 cases) and rectosigmoid (29 cases) were the most common sites which aligns with other literature.^{8,10} Low incidence of oesophageal polyps (n=2, 1.2%) was seen in our study which is in agreement with other studies.^{6,8,10}

Hyperplastic polyp was the most frequently found polyp in stomach, conventional adenoma in colon, juvenile rectal polyp in rectosigmoid and fibroepithelial polyp in anal canal. A solitary case of oxyntic gland adenoma was reported in the stomach. Similarly, a single case of neuroendocrine tumor was seen in the duodenum while 3 cases of Peutz jehgers polyp were found, 2 in ileum and 1 in rectosigmoid. The esophagus revealed 2 cases of squamous papilloma. The colorectal region also showed 3 cases of sessile serrated adenomas, all with low grade dysplasia. The commonest polyp in stomach and colorectal region were hyperplastic polyp and adenomatous polyp respectively in studies of Gurung P et al³, Mirzaie et al⁸, Rahat N et al¹¹ and Sharma GL et al¹². Inflammatory polyp was the commonest duodenal polyp in studies of Gurung P et al³ and Sharma GL et al¹². The other gastric polyps reported in this study were fundic gland polyps, polypoid parietal cell hyperplasia and Inflammatory fibroid polyp. Hyperplastic polyp and inflammatory polyp constituted a major bulk of the remaining colonic polyps.

Analysis of gender, number and age of the patient with categories of neoplastic vs non neoplastic pathological nature was not statistically significant. However a significant association (p = 0.000) was found with the site of the polyp, with higher number of neoplastic lesions in the colon. A positive correlation between advancing age, increasing size and site of the polyp (higher incidence in large intestine) was reported by Manakkad SP et al.⁷ Mirzaie et al⁸ had seen a statistically significant association of the neoplastic nature with the anatomical site of the polyp and increasing age of the patient.

CONCLUSION

A diverse range of histological types of polypoid lesions were identified in the gastrointestinal tract, with the colorectal region being the most affected. Among the non neoplastic lesions, hyperplastic polyps were the most prevalent, while conventional adenomas were the most common neoplastic polyps. Notably, the large intestine harboured a significantly higher proportion of neoplastic polypoid lesions compared to other gastrointestinal sites.

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