

HISTOMORPHOLOGICAL SPECTRUM OF GASTROINTESTINAL POLYPS IN A TERTIARY CARE CENTRE

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ABSTRACT

Background: Polyp is any lesion which projects from the mucosal surface into the lumen. They are frequently seen in gastrointestinal tract from oesophagus, stomach, small intestine to large intestine. Most importantly, 80-90% of colorectal carcinoma originates on background of polyp which undergoes dysplasia, adenocarcinoma in situ and adenocarcinoma sequence. Histopathological examination is crucial as biological behavior depends on its pathological nature. The role of the Pathologist is to identify any dysplastic changes and inform the clinician regarding the risk of development of carcinoma. The aim & objective is to evaluate the distribution of different types of gastro intestinal polyps in a tertiary care center concerning age, sex, site and histopathological features. **Materials and Methods:** This is a retrospective study where data of 24 cases of gastrointestinal polyps were collected from the archives of Department of Pathology, Tirunelveli Medical College. Relevant clinical data of the patients like age, gender, site, family history if any, colonoscopy findings were obtained from the histopathological records of the patient from the Pathology department. All specimens received as polyp or polypoidal lesions of gastrointestinal tract for histopathological examination were included. Hemorrhoids and fibroepithelial polyps were excluded. **Result:** Our retrospective cross sectional study included 24 cases who underwent polypectomies and resection in Tirunelveli medical college and hospital. The incidence of polyps was higher in males compared to females. The commonly encountered polyps in our study were hyperplastic polyp, tubular adenoma and tubulovillous adenoma. The frequency of distribution of polyp was higher in stomach. **Conclusion:** This study helps to classify polyps and predict which polyps has the malignant potential. Biological progression and subsequent clinical management of patient can be effectively planned on histological classification. Further studies of genomic and molecular analysis could help in understanding pathogenesis and its biological behaviour with respect to adenoma carcinoma sequence in details.

INTRODUCTION

Polyps of gastrointestinal tract is a broad terminology which means well circumscribed lesion raised above mucosal surface on gross examination. There are several histological types of polyps, which differ in their clinical presentation and particularly in their ability for malignant transformation; Hence, management in every patient with polyp depends on accurate histological diagnosis. They may occur anywhere in the GI tract but are most common in the colorectal region.^[1] About 80-90% of colorectal carcinoma originates on background of polyp which undergoes dysplasia, adenocarcinoma in situ and

adenocarcinoma sequence. The site of the polyp and age of the patient are found to be significant risk factors for development of malignancy. Hence, this study is aimed to study the frequency, pattern, clinical presentation, and also to know the nature and risk of malignant transformation. The GI tract contains four layers: the innermost layer is the mucosa, underneath is the submucosa, followed by the muscularis propria and the outermost layer - the adventitia. [Figure 1] The structure of these layers varies in different regions of the digestive system, depending on their function.

Gastrointestinal (GI) polypoidal lesions are nodules or mass that project above the level of surrounding

mucosa and protrudes into the lumen. [Figure 2] They may arise as a result of epithelial or stromal cell hyperplasia, inflammation, ectopia and neoplasia. They may occur anywhere in the GI tract but are most common in the colorectal region. With increasing usage of endoscopic procedures, GI polypoidal lesions are commonly encountered specimens in histopathology practice. The presence or potential risk of malignancy in these polypoidal lesions is of concern. The size, site of the polyp and age of the patient are found to be significant risk factors for development of malignancy. Histopathological examination is crucial as the biological behavior is dependent on its pathological nature. The presence of a systemic process that promotes the development of multiple gastrointestinal polyps is termed 'polyposis. The polyp size and histological type are two important factors for development of cancer in a polyp. The neoplastic polyps are important because they have malignant potential that represents a stage in the development of colorectal cancer. Microscopic evaluation of polyps is very important especially to rule out foci of malignancy. It is essential to identify neoplastic polyps at a sufficiently early stage.

Aim and objectives:To evaluate the distribution of different types of gastrointestinal polyps in a tertiary care center concerning age, sex, site and histopathological features.

MATERIALS AND METHODS

This is a retrospective study where 24 cases of gastrointestinal polyps were collected from the archives of Department of Pathology, Tirunelveli medical college. Relevant clinical data of the patients like age, gender, site, family history if any, colonoscopy findings were obtained from the histopathological records of the patient from the Pathology department. All the polyps and polypoidal lesions in gastrointestinal tract from oesophagus to anal canal were included. Hemorrhoids were excluded from the study. Specimens include polypectomies and resection specimens that were received in 10% formalin. Gross features like the number, location, stalk and histopathology findings were recorded. Details of presence and severity of dysplasia in adenomatous polyps were recorded. The biopsies were stained with Hematoxylin& Eosin and studied under light microscope.

RESULTS

A total of 24 cases were included in the study. The age of the patients ranged from 14yrs to 78yrs. The mean age of patients in our study was 52.6 yrs. The incidence of gastrointestinal polyps was higher in males 19 (79%) compared to females 5 (21%). The frequency of distribution of polyp was higher in stomach accounting for 37.5%, followed by 20.8%

in rectum, 16.6% in colon, 12.5% in sigmoid colon, 8.3% in duodenum and 4% in jejunum. On histology, most common polyps were hyperplastic polyps, tubulovillous adenoma, tubular adenoma and inflammatory polyps (Table 2). 2 cases of hyperplastic polyps had low grade dysplastic changes. 2 cases of polyps were associated with adenocarcinoma. The other polypoid lesions encountered in our study were Brunner gland hyperplasia, Adeno polyposis coli, Adenomatous polyp, PeutzJeghers polyp and a sub mucosal GIST.

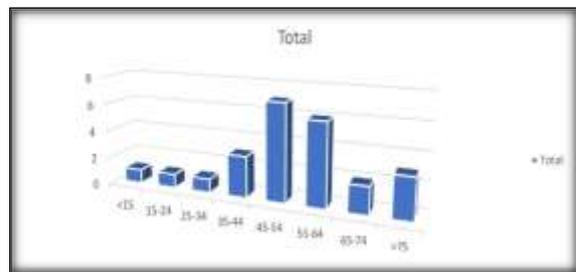


Figure 1: Age distribution.

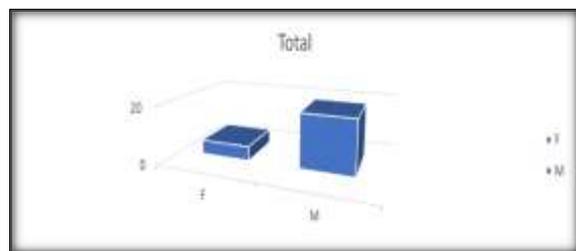


Figure 2: Sex distribution

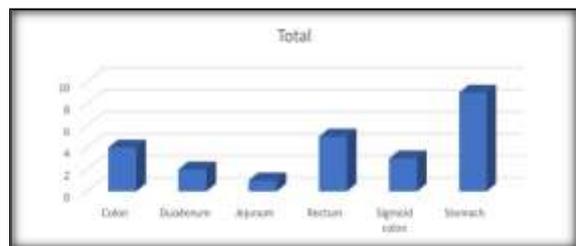


Figure 3: Site distribution

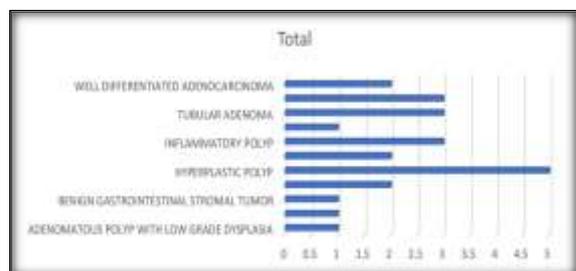


Figure 4: Histopathological diagnosis

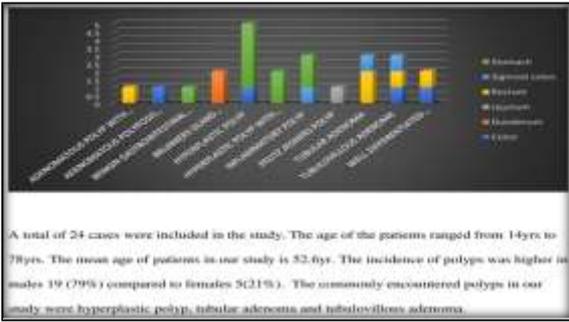


Figure 5: Distribution according to the site

Table 1: Distribution of polyps according to the site

S.NO	HISTOLOGIC TYPE	NUMBER	PERCENTAGE
1	Stomach	9	37.5%
2	Rectum	5	20.8%
3	Colon	4	16.6%
4	Sigmoid colon	3	12.5%
5	Duodenum	2	8.3%
6	Jejunum	1	4%

The frequency of distribution of polyp was higher in stomach accounting for 37.5%, followed by 20.8% in rectum, 16.6% in colon, 12.5% in sigmoid colon, 8.3% in Duodenum and 4% in Jejunum (Table 1).

Table 2: Histological types of polyp

S.NO	HISTOLOGIC TYPE	NUMBER	PERCENTAGE
1	Hyperplastic polyp	7	29%
2	Tubular adenoma	3	12.5%
3	Tubulovillous adenoma	3	12.5%
4	Inflammatory polyp	3	12.5%
5	Well differentiated adenocarcinoma	2	8.3%
6	Brunner's gland hyperplasia	2	8.3%
7	Adenomatous polyp	1	4.1%
8	Adenomatous polyp	1	4.1%
9	Gastrointestinal stromal tumor	1	4.1%
10	Petzit-Jeghers polyp	1	4.1%

On histology, most common polyps were hyperplastic polyps, tubulovillous adenoma, tubular adenoma and inflammatory polyps (Table 2). 2 cases of hyperplastic polyps had low grade dysplastic changes. 2 cases of adenocarcinomas were associated with polyps. The other polypoid lesions encountered in our study were Brunner's gland hyperplasia, Adenomatous polyp, Peutz-Jeghers polyp and a sub mucosal GIST.

Figures and Illustrations

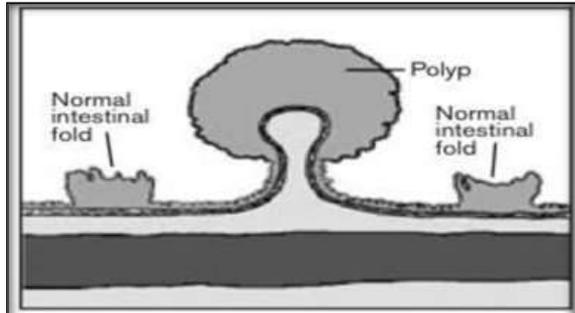
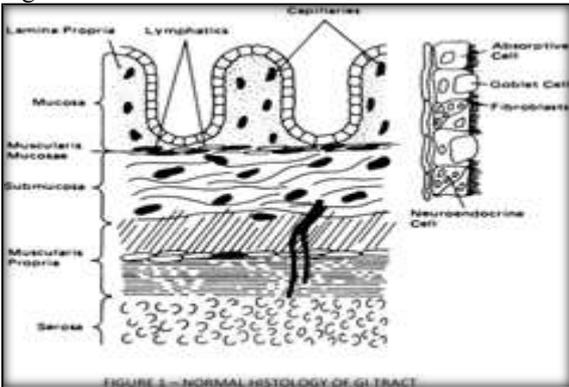


FIGURE 2 – DIAGRAMATIC REPRESENTATION OF A POLYP



FIG 3: GROSS PICTURE OF FAMILIAL ADENOMATOUS POLYPOSIS



FIG 4: HYPERPLASTIC POLYP

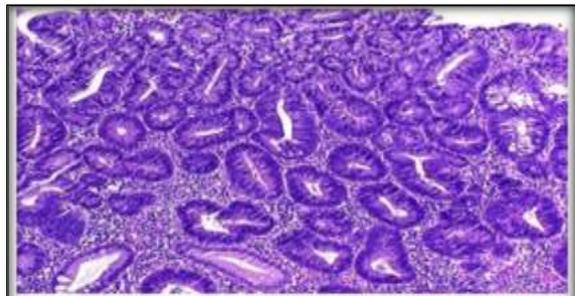


FIG 5: TUBULAR ADENOMA

DISCUSSION

Gastrointestinal polyps can develop throughout the gastrointestinal tract, in esophagus, stomach, small intestine, colon and rectum. Most of the studies have reported higher incidence of polyps in colon. In our study, the incidence of gastrointestinal polyps was higher in males 19 (79%) compared to females 5 (21%). This is in correlation with other studies by Mirzaie et al,^[2] Sharifi et al.^[3] In our study, 29.1% of the study population belonged to the 45–54-year age group, followed by 25% in the 55–64-year age group. About 12.5% of the population were in the 35–44-year and >75-year age groups, while 8.3% belonged to the 65–74-year age group. The age groups <15 years, 15–24 years, and 25–34 years each constituted 4.1% of the study population. This is comparable to Sharma et al,^[4] Jayadevan et al found that there was a five-fold increase in the prevalence of colonic polyps over age 40.^[5] Stomach (37.5%) and rectum (20.8%) were the most common sites for GI polyps in our study. Sharifi et al performed study on pediatric Iranian population, in which 75.8% of polyps were in colon and 24.1% were in stomach.^[2]

Incidence of gastric polyps in our study was 9 (37.5%) and most of them were hyperplastic polyps with 2 of them having dysplastic changes. In accordance with our study, a study done by Rasim Gencosmanoglu et al the incidence of gastric polyps was 2% in 2630 patients who underwent upper GI endoscopic examination and the most frequently encountered histopathologic subtype of gastric polypoid lesions in their study was hyperplastic polyp which was diagnosed in 46% of the lesions.^[6] In our study incidence of malignancy in polyps was 8.3%. In accordance with our study, the incidence of malignancy in polyps was 9% in study by Deepa Thomas et al.^[7] In our study, One case which was clinically diagnosed as familial adenomatous polyposis with positive family history in a first degree relative was histopathologically diagnosed as Well differentiated adenocarcinoma. The risk of development of carcinoma in FAP is 1-6% by age 21yrs and >90% of untreated patients develop carcinoma by age 50years. In carriers with MLH1 and MSH2 mutations in lynch syndrome, the risk of development of cancer is > 80% during their life time.¹⁵ The risk of development of carcinoma in PJS is 3-6%. Among all the polyps, hyperplastic polyp (n =7, 29%) was the most common followed by tubular adenoma, tubulovillous adenoma and inflammatory polyp (n =3, 12.5%), followed by well differentiated adenocarcinoma and brunner gland hyperplasia (n = 2, 8.3%). Similar result pattern was noted by Sharma et al. This finding, however, is different from other studies done by Tse JY et al, John R Goldblum et al which had juvenile polyp to be most prevalent.^[7,8] This differing result may be due to the predominance of paediatric population in their studies. This is in agreement with the literature

which highlights that colorectal polyps are the most frequently encountered GI polyps. In our study, the most common polypoid lesions were hyperplastic polyp in stomach, tubular adenoma in rectum and brunner gland hyperplasia in duodenum. In accordance with our study Hyperplastic polyp was the commonest polyp in stomach in studies of Mirzaie et al,^[2] Inflammatory polyp was the commonest duodenal polyp in studies of Gurung et al.^[9] Remaining subtypes of gastrointestinal polyps were Brunner gland hyperplasia, Adenopolyposis coli, Adenomatous polyp, Peutz-Jeghers polyp and a sub mucosal GIST.

CONCLUSION

In our study, site of the polyp, degree of dysplasia are important factors, which we have included in our study. Males have higher incidence of GI polyps than females. Hyperplastic polyps were most common in our study and stomach was the most common site. Recent studies show that they may harbour adenomatous changes or dysplastic foci. This study helps to classify polyps and predict which polyps has malignant potential. Biological progression and subsequent clinical management of patient can be effectively planned on histological classification. Further studies of genomic and molecular analysis could help in understanding pathogenesis and its biological behaviour with respect to adenoma carcinoma sequence in details.

Limitations: Our study is based on single tertiary care hospital. Multicentric studies in this area would be desirable.

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