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Original Research Paper

Pathology

HISTOPATHOLOGICAL SPECTRUM OF GASTROINTESTINAL LESIONS DIAGNOSED IN ENDOSCOPIC BIOPSIES.

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ABSTRACT

Background: Endoscopic biopsy is currently the gold standard in diagnosing gastrointestinal pathology. Histopathological examination of biopsy specimens is mandatory to confirm the endoscopic diagnosis in suspected malignancy or to rule out other benign-appearing lesions.

Aim of the study: To characterize the histopathological spectrum of Gastrointestinal lesions diagnosed on endoscopic biopsies.

Materials and methods: All received endoscopic biopsies from upper, and lower GIT were formalin-fixed and processed with an automated tissue processor. Paraffin blocks were made, and sections were cut at 4-micron thickness and stained with routine Hematoxylin and Eosin stain. Special stains like PAS, Giemsa, and immunohistochemistry were done wherever is necessary.

Results: Among the total 253 gastrointestinal endoscopic biopsies, 141 were upper gastrointestinal, and 112 were lower gastrointestinal lesions. Nonneoplastic lesions were more common than neoplastic lesions. Adenocarcinoma is the most common neoplastic lesion encountered in this study.

Conclusion: Among the various lesions diagnosed in the present study, the most common nonneoplastic lesion was chronic non-atrophic gastritis, and the most common malignancy was moderately differentiated adenocarcinoma of the stomach. Early endoscopy and biopsy can help the surgeon to detect unsuspected cases and also to diagnose and manage malignancies at an early stage.

KEYWORDS : Gastrointestinal lesions, Endoscopic biopsy.

INTRODUCTION :

Endoscopic biopsy is currently the major method of diagnosis of gastrointestinal neoplasms. Gastrointestinal neoplasms account for 12.9% of all malignant diseases. These cause a high degree of morbidity and mortality[1]. The use of flexible fibre optic endoscopy in 1968 proved to be a major breakthrough in the diagnosis of G.I lesions[2]. Endoscopy or colonoscopy has become incomplete without the biopsy for histopathological examination[3]. Apart from the diagnostic utility, they can also use to monitor the course and the extent of disease, to detect the complications, and to assess the response to therapy.

Hence they are considered as the gold standard investigation for G.I lesions [4].

AIM OF THE STUDY:

To characterize the histopathological spectrum of Gastrointestinal lesions diagnosed on endoscopic biopsies.

MATERIALS AND METHODS:

This is a descriptive study done for a period of 3 years, from June 2016 to June 2019.

A total of 252 endoscopic biopsies were evaluated.

INCLUSION CRITERIA :

All the endoscopic biopsies sampled from lesions of the upper and lower gastrointestinal tract were included in the study.

All age groups and both genders.

EXCLUSION CRITERIA:

Those who were not given consent for the study.

Endoscopic biopsies were received as tiny tissue fragments, and fixation of the tissue was done using 10% buffered formalin. Automated tissue processing was done using yorco YS103 and embedded in paraffin (Merck). Three to five micron thick sections were cut using Leica microtome, and slides were prepared. Formalin-fixed paraffin-embedded (FFPE) sections were stained with hematoxylin and eosin. Additional sections were stained with Periodic Acid Schiff (PAS) stain and Giemsa wherever necessary. Immunohistochemistry is performed in diagnostically challenging cases.

All tumors were classified according to the WHO classification, 2019[5].

RESULTS:

In the present study, out of 252 cases, 154(61.1%) were males, and 98(38.8%) were females with a male to female ratio of 1.57:1.The mean age of presentation was 50 years. The youngest patient was an 11/2 year male child with nonspecific colitis, and the elderly patient was 84 years female with ulcerative colitis with moderate activity.

Distribution of Endoscopic G.I lesions:

Among all the endoscopic biopsies- gastric biopsies constituted the highest number of 123(48.8%), followed by rectum 39(15.47%), colon 35(13.09%), and the least number of jejunal biopsies 1(0.39%), as depicted in Figure 1.

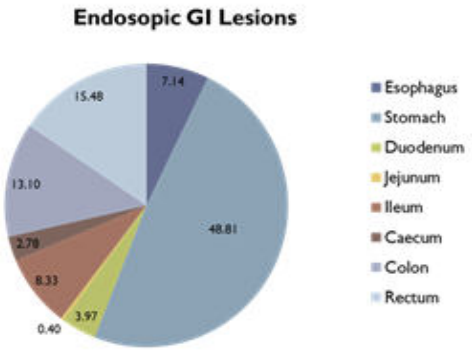


Figure 1: Pie diagram depicting the distribution of Endoscopic G.I. lesions.

Table 1: Age-wise distribution of endoscopic G.I. lesions.

Age	Benign lesions Frequency	Benign lesions %	Malignant lesions Frequency	Malignant lesions %
<10	1	0.3	0	0
10-20	17	7	6	2
21-30	26	10	2	1
31-40	52	21	5	2
41-50	43	17	7	3
51-60	39	15	5	2
61-70	27	11	9	4
71-80	8	3	3	1
81-90	1	0.3	1	0.3

As shown in Table 1, the most common benign lesions are encountered in the 3rd decade, followed by the 4th and 5th. The most common malignant lesions are encountered in the 6th decade, followed by the 4th and 5th.

Table 2: Gender-wise distribution of G.I lesions.

Site	Male	Female
Esophagus	3.89%	12.24%
Stomach	**51.29%**	**44.89%**
Duodenum	3.24%	5.10%
Jejunum	**0.64%**	**0%**
Ileum	7.79%	9.18%
Caecum	1.29%	5.10%
Colon	14.93%	10.20%
Rectum	16.88%	13.26%
Total	100%	100%

As shown in Table 2, the most common lesions are seen in the stomach followed by the rectum and colon, both in males and females with a slight male predominance.

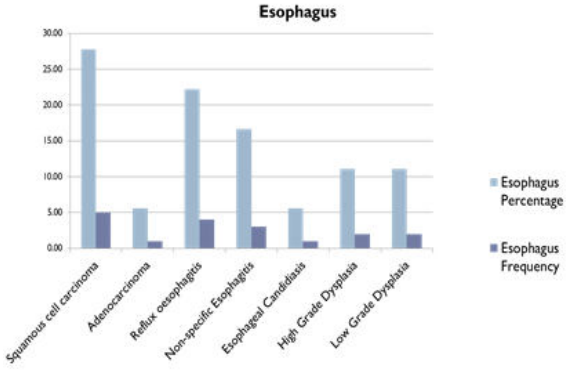


Figure 2: Histopathological spectrum of Esophageal Lesions

As shown in Figures 2 and 3C, squamous cell carcinoma is the most common lesion seen in the esophagus, which is followed by reflux esophagitis at G.E Junction. Occasional cases of esophageal candidiasis (Figure 3 A, B) and eosinophilic esophagitis are also reported (Figure 11 A).

Figure 3: A.Photomicrograph of esophageal candidiasis (H&EX100). B.Photomicrograph of esophageal candidiasis (PASX100). C.Photomicrograph of moderately differentiated Squamous cell carcinoma (H&EX400). D.Photomicrograph of moderately differentiated Adenocarcinoma at G.E Junction (H&EX100).

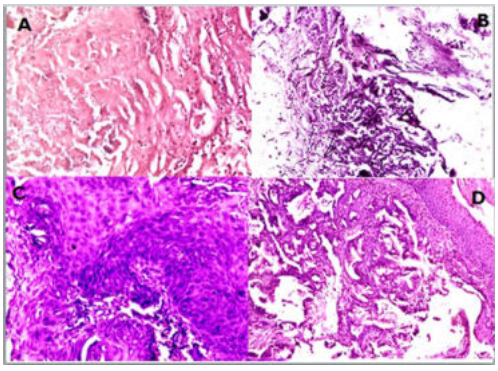
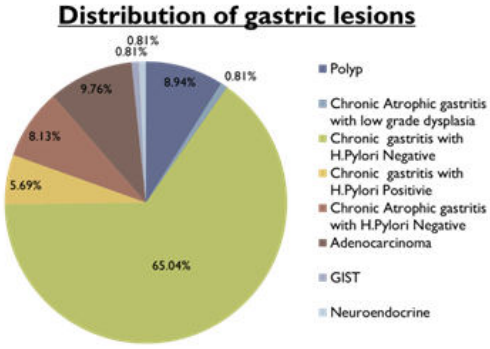


Figure 4: Histopathological spectrum of gastric lesions.



As shown in Figures 4 and 5, chronic non atrophic gastritis is the most common lesion seen in the stomach, and a few of the cases are H.Pylori Positive. Adenocarcinoma is the most common malignant lesion seen in the stomach, followed by neuroendocrine tumor (Figure 6), and occasional cases of lymphomas and gastrointestinal intestinal stromal tumor (Figure 5C and D) were reported. Fundic gland polyps are the most common polyps seen in the body of the stomach, and a rare case of fundic gland polyps with low-grade dysplasia was reported and depicted in figure 7.

Figure 5: A.Photomicrograph of non atrophic chronic gastritis (H&EX100). B.Photomicrograph of chronic gastritis with H.Pylori (GiemsaX1000). C.Photomicrograph of Gastroint estinal stromal tumor (H&EX100). D. Photomicrograph of Gastrointestinal stromal tumor (CD117 Positive).

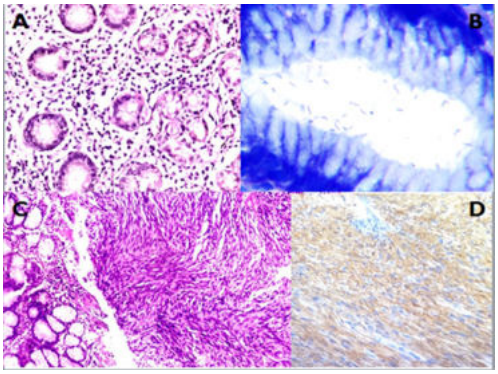


Figure 6: A.Photomicrograph of Neuroendocrine tumor-Grade 2 arranged in an organoid pattern in the stomach (H&EX400).B.C.Immunohistochemistry- Tumor cells are Synaptophysin and CD 56 positive. D. Ki- 67 Proliferation index : 3%.

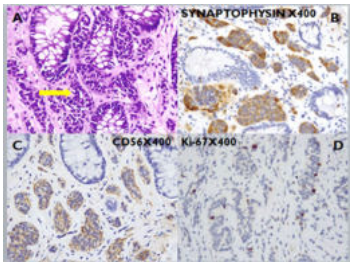


Figure 7: Photomicrograph of gastric Fundic gland polyp with lowgrade dysplasia (H&EX100).

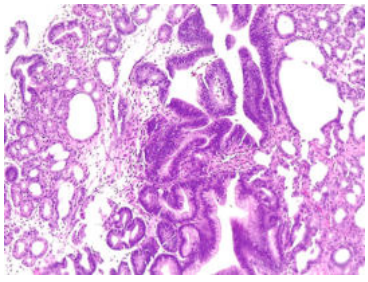
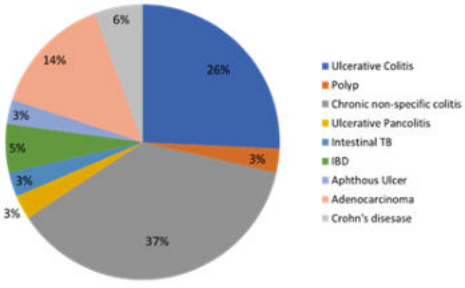


Figure 8: Histopathological spectrum of intestinal lesions.



As shown in Figures 8, 9, 10, and 11, infectious colitis is the most common benign lesions seen in the small bowel and colon, followed by ulcerative colitis, Crohn's disease, and intestinal tuberculosis. Occasional cases of ischaemic colitis, Lymphocytic colitis, melanosis coli, and chronic radiation colitis were reported. Adenocarcinoma is the most common malignant lesion seen in the colon, followed by the neuroendocrine tumor.

Figure 9: A.Photomicrograph of Crohn's disease showing microgranuloma in the ileum (H&EX400). B. Photomicrograph of segmental biopsies from colon showing Surface erosion, preserved crypt architecture, poorly formed noncaseating granulomas (H&EX100). C.Several foci of crypt centered inflammation, cryptitis and microgranuloma (H&EX400). D.Photomicrograph of ileocaecal tuberculosis showing a large granuloma with multinucleate giant cells. (H&EX400)

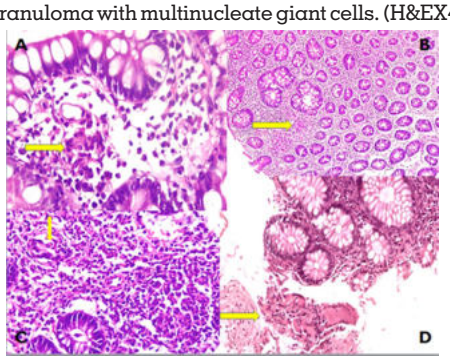


Figure 10: A.Photomicrograph of Ulcerative Colitis with moderate activity (H&EX40). B.Photomicrograph of Melanosis Coli (H&EX100).C.Photomicrograph of Chronic Radiation Colitis(H&EX100).

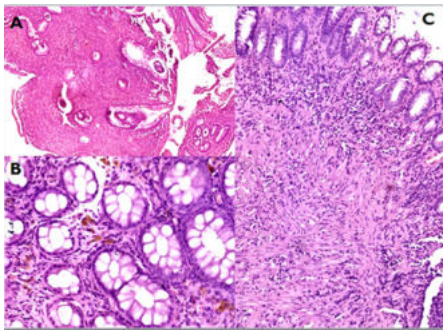


Figure 11: A.Photomicrograph of Eosinophilic Esophagitis (H&EX400). B. Photomicrograph of ischaemic colitis showing withered crypts and stromal hyalinisation (H&EX100).C. Photomicrograph of infective colitis (H&EX400). D.Photomicrograph of Lymphocytic colitis (H&EX400).

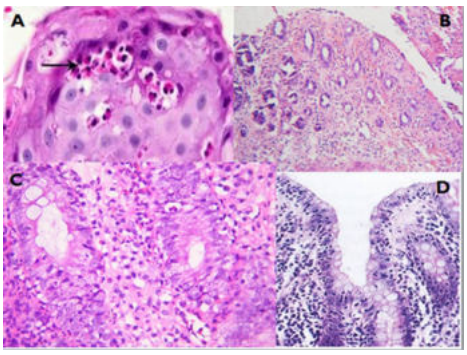
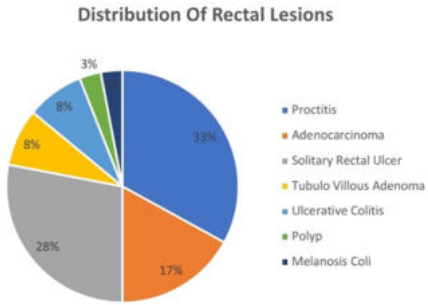


Figure 12: Histopathological spectrum of rectum lesions.



As shown in figure 12, nonspecific proctitis is the most common lesion seen in the rectum, followed by solitary rectal ulcer. Few cases of ulcerative proctitis and melanosis coli are seen. Few cases of Polyps such as tubulovillous adenoma with low-grade dysplasia and hyperplastic polyps are reported.

DISCUSSION:

Gastrointestinal lesions are one of the most common problems routinely seen in clinical practice. Endoscopy followed by biopsy forms an important tool in the diagnosis of premalignant lesions and detection of malignancy at an early stage, thus reducing the overall morbidity and mortality. Proper visualization with a precise selection of the site of biopsy followed by accurate histopathological interpretation with clinical correlation is the mainstay for diagnosis and clinical management. Biopsy tissue can also be further used for Immunohistochemistry in malignant lesions.

In the present study, the most commonly received are gastric biopsies which constitute 48.8% of the total 252 biopsies. The present study is similar to a survey by krishnappa R[6], and

prasad PR[7], who also identified that the most common biopsies received were gastric biopsy, accounting for 68% and 56% of the total G.I biopsies. Bilal A Sheikh et al. study also showed the majority of cases constituted by gastric biopsy(64.8%) [9]. The majority of cases were of the male gender with a male to female ratio of 1.57:1. This is in accordance with studies done by Aparajita A et al. [13] and Gumber R et al. [14]. Most common benign lesions are encountered in the 3rd decade. Most common malignant lesions are encountered in the 6th decade due to multiple risk factors in the elderly.

Oesophageal lesions:

Among the 18 oesophageal biopsies received in the present study, 12 were nonneoplastic, and six were neoplastic. The data is similar to other studies done by S.K. Md jaynut Islam [10] and Bilal A sheikh [9]. Chronic Nonspecific oesophagitis (24%) was the commonest diagnosis amongst the nonneoplastic lesions, similar to the study by Gulia SP et al. [15]. Squamous cell carcinoma was the most common histological type in malignant lesions, which is comparable to various studies [13, 14, 15, and 16].

Gastric lesions:

Of the total 123 gastric biopsies, 14 neoplastic and 109 nonneoplastic. The most common diagnosis in gastric biopsy in the present study is non atrophic chronic gastritis (65%) which is similar to the study done by Hirachand et al. and S.K. Md Jaynut Islam et al. [10]. H.pylori gastritis was seen in 5.69 % of cases, and it has been reported variably ranging from 3.9% to as high as 36% [13, 14, 15, and 16]. Fourteen cases are malignant, of which moderately differentiated adenocarcinoma diagnosis was the most common. Hirachand et al. [1], Sharma p et al. [8], Aparajita A et al. [13], Gulia SP et al. [15], and Qureshi et al. [17] also reported adenocarcinoma as the most common histological type in gastric carcinoma similar to the present study.

Duodenal lesions:

In the present study, we received ten duodenal biopsies, of which nine were nonneoplastic, and 1 was neoplastic lesion. Out of 9 benign lesions, 5 cases of chronic nonspecific duodenitis, three instances of Brunner gland hyperplasia, and one lesion of the duodenal polyp. The neoplastic lesion included in the study is the carcinoid tumor. Chronic non-specific duodenitis (55.5%) was the most common lesion encountered in the duodenum, which is similar to the studies done by Abhilash SC et al. [16] Kothari et al. [18] and Khandelia R et al. [19].

Colonic lesions:

Out of 33 (13.09%) colonic lesions, the most common were nonspecific colitis(39.3%). Nonspecific (infectious) colitis is the most common benign lesion seen in the small bowel and colon, followed by ulcerative colitis, Crohn's disease, and intestinal tuberculosis. Our findings were concordant with the study done by Sharma et al. [20] and discordant with the study by Siddiqui [21], in which they reported lymphocytic colitis is most common than nonspecific colitis. Occasional cases of ischaemic colitis, Lymphocytic colitis, melanosis coli, and chronic radiation colitis were reported. Among the tumours of the colon, moderately differentiated adenocarcinoma was the most common, which is similar to the study by Durrani A[12].

CONCLUSION:

Among the various lesions diagnosed in the present study, the most common benign lesion was chronic non-atrophic gastritis, and the most common malignancy was moderately differentiated adenocarcinoma of the stomach. Early endoscopy and biopsy can help the surgeon to detect unsuspected cases and also to diagnose malignancies at an early stage and appropriate management.

Conflicts of interest: None
Financial support: Nil

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