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Original Article

Histological study of endoscopic biopsies from the lower gastrointestinal tract

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ABSTRACT

Background: Endoscopy of the gastrointestinal tract is seen as an essential diagnostic tool because it can provide an in-depth visual assessment of gastrointestinal mucosa and allows for tissue sampling. This study aims to find out the histological diagnosis of various tissues biopsied from the lower gastrointestinal tract endoscopically.

Materials and methods: It is a retrospective observational study conducted in the Department of Pathology, Fewa City Hospital and Research Center, Pokhara, Nepal from March 2021 to February 2022.

Results: Total number of samples taken into the study was 174. Nonspecific inflammation was the commonest lesion in ileal, colon, and rectal biopsies.

Conclusions: Lower gastrointestinal tract can be targeted by a wide range of diseases, ranging from inflammatory to malignant entities. Endoscopy and biopsy for suspected lesions is a trusted approach for investigating and managing gastrointestinal tract pathologies

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INTRODUCTION

Endoscopy of the gastrointestinal tract (GIT) is a non-invasive daycare procedure used to investigate and manage various pathologies. It is valued as an essential diagnostic modality because it can provide an in-depth visual assessment of gastrointestinal (GI) mucosa.[1] It allows for tissue sampling which can be reviewed by a pathologist. Abnormal appearance on endoscopy may mean a diseased state and a biopsy can confirm whether there is some pathological condition. In some cases, GI mucosa may seem normal on endoscopy but histology can provide evidence

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of microscopic disease if present. Another advantage of endoscopy is that the procedure is carried out without any complications in most patients.[1] In the lower GIT, endoscopy plays a significant role in the diagnosis, management, and surveillance of inflammatory bowel disease and colorectal carcinomas.[2]

The lower gastrointestinal tract, similar to the upper gastrointestinal tract, can be a target of different conditions like infectious diseases, inflammatory disorders, mechanical trauma, toxic injuries, physical reactions, radiation damage, and neoplasm.[3,4] Any patient experiencing lower abdominal symptoms like pain or change in bowel habits is advised to have an endoscopic examination. Other symptoms of lower GIT diseases are rectal bleeding, diarrhea, and weight loss.[5] Suspicious lesions on endoscopy can be biopsied and the diagnosis confirmed. Endoscopy generates biopsy from sites that were previously inaccessible without a major surgery.[5-8]

Inflammatory diseases like Crohn's disease and ulcerative colitis can affect adolescents and young adults. [5] These illnesses can occur in males and females equally. Lower GIT is a common site for benign and malignant neoplasm. Adenomas are common on this site. Globally, colorectal cancer is the fourth most common cancer after breast, prostate, and lung cancer.[9] Regular bowel cancer screening has been shown to reduce the risk of death from bowel cancer by as much as 16%.[10]

Colonoscopy and biopsy have been shown to be more accurate in diagnosis than other investigations in GI pathology.[4] In addition to diagnosis, endoscopy can be utilized in treatment also. Colonoscopic polypectomy is now a practicable alternative to abdominal operation. [4] The objective of this study is to observe the histological diagnosis of various tissues biopsied from the lower GIT endoscopically.

MATERIALS AND METHODS

The present study was conducted in the Department of Pathology, Fewa City Hospital and Research Center, Pokhara, Nepal. It is a retrospective observational study. Data collection was done during a 12-month period from March 2021 to February 2022. Permission for research was obtained from the hospital board prior to the commencement of the study. The biopsy samples received from lower GI endoscopy were fixed in 10% formaldehyde and routinely processed. Approximately 4 micrometer-thick sections were cut and stained with Hematoxylin and Eosin (H&E). Data was calculated in percentage, ratio, and frequency using MS Excel and planned to be presented in table form.

RESULTS

Out of the total 174 lower GI biopsies, 62 (35.63 %) were males and 112 (64.36 %) patients were females; male to the female ratio being 0.55:1. The age of the patients ranged from 20 to 85 years. The youngest patient was a 20-year-old male with nonspecific proctitis while the eldest patient was an 85 years old male with nonspecific colitis. The site-wise distribution of endoscopic/colonoscopic biopsies was – ileal and ileocecal junction 27 (15.51 %) and colon 147 (84.48 %).

Non-specific ileitis was observed as the commonest histologic finding in the case of ileal/ileocecal junction biopsies. Non-specific proctitis was the commonest finding in colon biopsies. Similarly, among neoplastic lesions, the inflammatory polyp was the most frequent diagnosis. Lastly, adenocarcinoma was the most common malignant neoplasm in colon biopsies. (Tables 1 and 2).

Table 1: Histologic findings in ileal and ileocecal junction biopsies

Lesions	No of cases	Percentage(%)
Chronic nonspecific ileitis	23	85.18%
Crohn's Disease	2	7.40%
Nonspecific benign ulcer	2	7.40%
Total	27	100 %

Table 2: Histologic findings in colon biopsies

Lesions	No of cases	Lesions	No of cases
Chronic nonspecific colitis	10 (6.80%)	**Sessile serrated adenoma**	4 (2.72%)
Nonspecific typhilitis	3 (2.04%)	**Inflammatory polyp, without dysplasia**	43 (29.25%)
Nonspecific proctitis	18 (12.24%)	**Goblet cell rich-hyperplastic polyp**	3(2.04%)
Nonspecific Benign rectal ulcer	1 (0.68%)	**Juvenile polyp**	1(0.68%)
Nonspecific colonic ulcer	1(0.68%)	**Tubulovillous adenoma**	2 (1.36%)
Glandular intraepithelial neoplasia	2 (1.36%)	**Ulcerative colitis without dysplasia**	12 (8.16%)
Tubular adenoma, low grade	20 (13.60%)	**Ulcerative colitis with glandular intraepithelial neoplasia, high grade**	1(0.68%)
Tubular adenoma, high grade	12 (8.16%)	**Adenocarcinoma**	14 (9.52%)
		Total	147 (100%)

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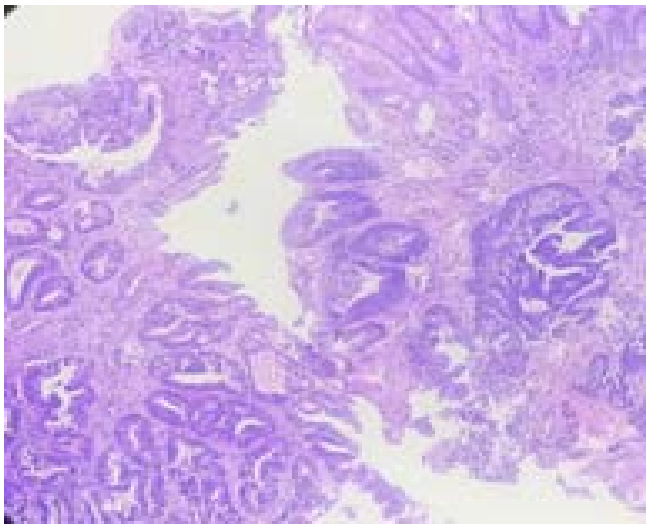

Figure 1: *Photomicrograph showing adenocarcinoma (HE stain, X100)*

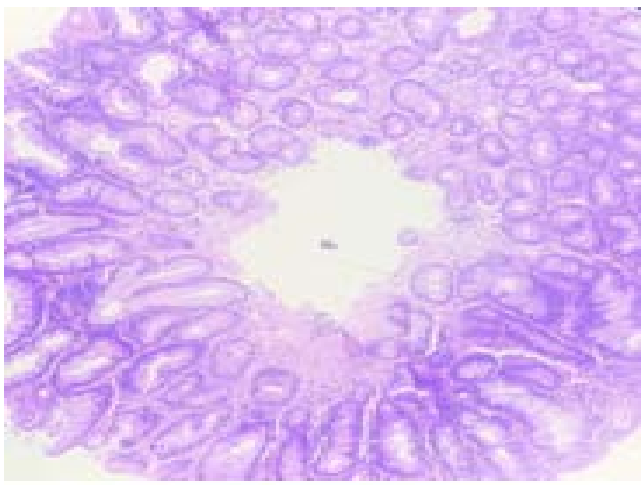

Figure 2: *Photomicrograph showing tubular adenoma (HE stain, X100)*

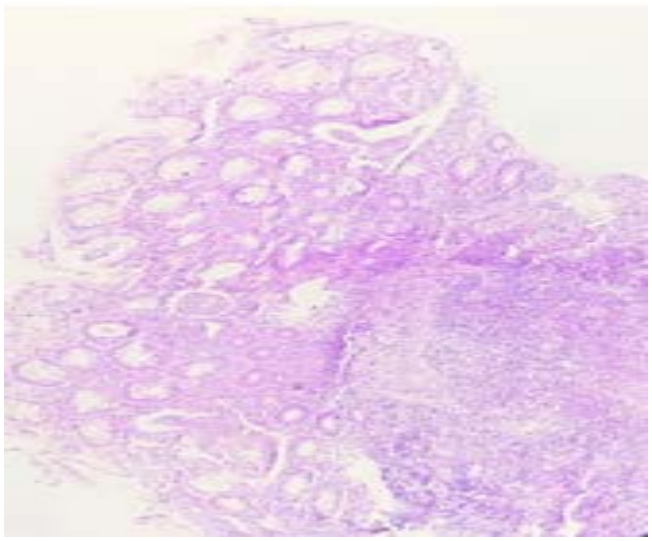

Figure 3: *Photomicrograph showing Ulcerative colitis, severe (HE stain, X100)*

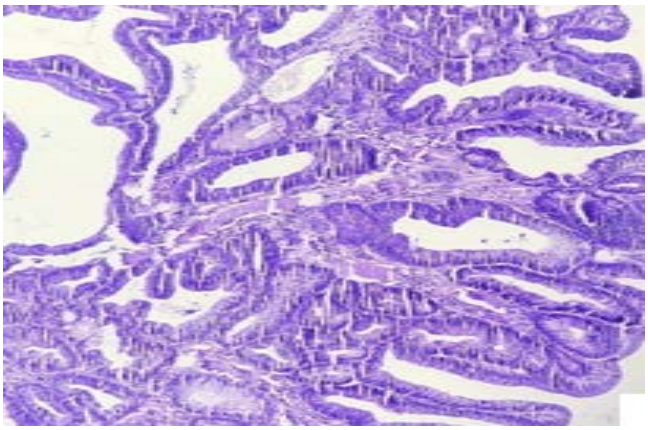

Figure 4: *Photomicrograph showing Villous adenoma (HE stain, X100)*

DISCUSSION

According to Williams et al, it has become mandatory on economic as well as clinical grounds that colonoscopy should be generally available, but it is also important that its indications, limitations, and relationship to radiological methods are understood. [4]

In a study by Isoken et al, hematochezia was the most common indication for colonoscopy and 48.4 % of these patients had malignant lesions.[9] The most common lesions seen on endoscopy were polyps, in 18.5 % of 192 specimens. 36.5 % of these lesions were malignant while the rest were benign conditions. In our study, malignant lesions were found in 14 specimens (9.52%), out of 147 colon biopsies.

Non-specific colitis was observed as the second commonest histological finding in a study by El-Sheikh Mohamed et al, the first being Schistosoma infestation.[11] In their study, a low incidence of adenomatous polyps (2.69%) and colorectal cancer 90.78%) was seen. Non-specific colitis(6.80%), proctitis(12.24%), and ileitis(85.18% of ileal/ileocecal specimens) were the most frequent site-wise diagnosis in the present study as well.

In the study by El-Sheikh Mohamed et al, the incidence of ulcerative colitis (1.75%) and Crohn's disease (0.19%) was observed to be low as compared to other research.[11] In our study, ulcerative colitis was seen in 8.16 % of colon biopsies and Crohn's disease was seen in 7.40% of ileal/ileocecal biopsies.

According to Sahu et al, the most common non-neoplastic lesion among 41 colonoscopic samples was chronic non-specific inflammation (12.19%) and the most common entity under the malignant category was well-differentiated adenocarcinoma.[12]These findings are similar to the ones illustrated by our study.

Sahu et al have written that non-neoplastic lesions were more common in upper GI endoscopic biopsies and neoplastic

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conditions were more frequent in lower GI endoscopic biopsies.[12]

In our study, we could not include the clinical profile of patients which is one of the limitations of this study. Also, we feel that it would have been better if the endoscopic findings of each patient were also noted and summarized.

CONCLUSIONS

The lower GI tract is host to a wide range of diseases, ranging from inflammatory to malignant entities. Endoscopy and biopsy for suspected lesions is a very dependable approach for investigating and managing GI tract pathologies.

REFERENCES

1. Teriaky A, AlNasser A, McLean C, Gregor J, Yan B. The utility of endoscopic biopsies in patients with normal upper endoscopy. Canadian Journal of Gastroenterology and Hepatology. 2016. Article ID 3026563, 7 page Crossref
2. Hosoe N, Ogata H. Application and efficacy of super-magnifying endoscopy for the lower intestinal tract. Clinical Endoscopy. 2016;49(1):37. Crossref
3. Tran-Nguyen T, Fernandez-Esparrach G, Ash S, Balaguer F, Bird-Lieberman EL, Córdova H, Dzerve Z, Fassan M, Leja M, Lyutakov I, Middelburg T. Biopsy sampling in upper gastrointestinal endoscopy: a survey from 10 tertiary referral centres across Europe. Digestive Diseases. 2021;39(3):179-89. Crossref
4. Williams C, Teague RH. Colonoscopy. Gut. 1973;14(12):990. Crossref
5. Seyedian SS, Nokhostin F, Malamir MD. A review of the diagnosis, prevention, and treatment methods of inflammatory bowel disease. J Med Life. 2019;12(2):113-22. Crossref
6. Geboes K, Lauwers GY. Gastrointestinal pathology: A continuing challenge. Arch Pathol Lab Med 2010;134:812-4. Crossref
7. Peixoto A, Silva M, Pereira P, Macedo G. Biopsies in Gastrointestinal Endoscopy: When and How. GE Port J Gastroenterol. 2016; 23(1): 19-27. Crossref
8. Shepherd NA, Valori RM. The effective use of gastrointestinal histopathology: guidance for endoscopic biopsy in the gastrointestinal tract. Frontline gastroenterology. 2014;5(2):84-7. Crossref
9. Umana IO, Obaseki DE, Ekanem VJ. The clinicopathological features of lower gastrointestinal tract endoscopic biopsies in Benin City, Nigeria. Saudi Surgical Journal. 2017;5(1):9. Crossref
10. NHS Bowel Cancer Screening Programme. [Last accessed on 2014 Apr 08] Available from: Website
11. El-Sheikh Mohamed A, AL-Karawi MA, Hanid MA, Yasawy I. Lower gastrointestinal tract pathology in Saudis: Results of endoscopic biopsy findings in 1,600 patients. Annals of Saudi Medicine. 1987;7(4):306-11. Crossref
12. Sahu PR, Hiwale KM, Vagha SJ. Study of Various Gastrointestinal Tract Lesions by Endoscopic Biopsies in a Tertiary Care Centre of Rural District of Maharashtra. Journal of Evolution of Medical and Dental Sciences. 2021 Apr 19;10(16):1135-40. Crossref