

Histomorphological Spectrum of Endoscopic Biopsies in Upper Gastrointestinal Lesions- A Study of 50 Cases in a Tertiary Care Centre

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Abstract

Background: Lesions of the gastrointestinal tract along with symptoms represent a pathological condition that can be diagnosed with the help of endoscopy-assisted biopsies. In this study, the histomorphology of the biopsies obtained from endoscopy is used to diagnose the pathological state

Methods: The biopsies obtained were fixed with formalin and stained with hematoxylin and eosin. Further processing of the biopsies was done if the H.pylori and celiac disease were suspected

Results: The patients who were presented with the symptoms were mostly 60 years of age. Eight biopsies were from the oesophagus, 18 biopsies were from the gastric region, 13 biopsies were from the colon and rectal regions, and 11 biopsies were from the duodenum region. Most carcinomas in oesophagus region were squamous cell carcinoma; most biopsies in the gastric region were gastritis; and most biopsies in the colorectal region were benign neoplastic lesion.

Conclusion: From this study, it can be concluded that a wide range of lesions can be analyzed to derive their pathological state. Endoscopy along with biopsy aids this process earlier and faster which helps physicians to develop an effective treatment plan.

Keywords: biopsies, gastrointestinal tract, endoscopy, histomorphology

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Introduction

Gastrointestinal disorders are generally difficult to diagnose based on clinical symptoms, as most of the symptoms are the same while the aetiology for them could differ to a great extent. Most of the manifestations of the malignant as well as non-malignant lesions are similar. A technique of endoscopy dating back to 1928 is a powerful tool to visualize the suspicious areas of the gastrointestinal tract [1,2].

Gastrointestinal lesions can be due to inflammation of the GIT, malignancy of the GIT, various other disorders of the glands of the GIT such as dysplasia and ulcers, and mechanical injuries such as trauma or exposure to toxins [3]. The distinctive histopathology makes the disease easily identifiable with the help of pathological expertise. The access to the region of lesions plays a vital role in diagnosis [4]. With the advances in endoscopic diagnostic techniques, it has become easier to access most of the GIT areas.

Endoscopic technique is comparatively non-invasive than the surgeries conducted just to get the biopsies of the affected area [5]. In this technique no

major surgery is required and the accuracy of the diagnosis is non-negotiable. Endoscopies can be also used to observe the course of treatment and to monitor the improvement of the histomorphology of the cells. The endoscopic technique is combined with the biopsies technique to understand the pathology of the cells and thus make an accurate diagnosis [6].

Early diagnosis can lead to reduced morbidity rates and prevent the prognosis of the diseases [7]. Accurate diagnosis is only possible when various such samples are studied for their histopathologies and then correlated with their clinical manifestation [8]. This study aims to analyze the histomorphology of the cells of the patients with symptoms of gastrointestinal disorder. Here endoscopic biopsies were conducted to collect samples for the study of histomorphology. The histomorphology was analyzed to derive the pathological state of the lesions.

Methods

This was a prospective study carried out on 50 biopsies obtained through endoscopy. Endoscopy

conducted on 50 patients in the period from February 2023 to August 2023 was analyzed in this study at the pathology department of Patna Medical College and Hospital.

The biopsies were taken from the endoscopies conducted on the gastrointestinal area. Biopsies of the liver and gall bladder were eliminated. Irrespective of the pathophysiological states biopsy was taken from all the patients who presented symptoms of the gastrointestinal tract. The biopsies which were not obtained properly were eliminated from the study.

The biopsies were labelled and fixated using formalin. Then it was stained with H&E, after that mucosal part of the biopsy was kept on the upper side and the mountant was used to mount the slides with coverslips. In the case of suspected infection by H.pylori it was stained with Giemsa stain and later on, stained with periodic acid Schiff reagent. If celiac disease was suspected, then the modification

on the biopsy obtained from the upper part of the small intestine was done. The data obtained from the biopsies was arranged in a tabulated format, the frequency of the pathological state was calculated and hence the correlation of histomorphology with pathology was established.

Results

50 biopsies were studied in this prospective study. It included biopsies from male as well as female patients. Most of the patients were 60 years of age. The average age of the 50 patients was 50.3 years. The study included biopsy from a pediatric patient who was 4 years old and a geriatric patient who was 95-year-old. Eight biopsies were from the oesophagus, 18 biopsies were from the gastric region, 13 biopsies were from the colon and rectal region, and 11 biopsies were from the duodenum region [Table no. 1].

Table 1: Histology and related pathology of the biopsies

Sources	Diseases	No. of biopsies
Oesophagal (n=08)	Oesophagitis	02
	Squamous cell carcinoma	04
	Adenocarcinoma	02
Stomach (n=18)	Gastritis	09
	Polyp	01
	Lymphoma	04
	adenocarcinoma	04
Duodenum (n=11)	Duodenitis	07
	Celiac diseases	02
	Inflammatory bowel disease	01
	Ulcer	01
Colon & rectum (n=13)	Benign neoplastic lesion	05
	Polyp	03
	Adenocarcinoma	04
	Crohn's disease	01

Among the 50 biopsies received eight belonged to the region oesophagus. More than 70% of the cases were neoplastic and only 2 cases were non-neoplastic which showed oesophagitis. All the neoplastic cases belonged to the age group of 50 years. The youngest patient with oesophagal carcinoma was 28 years old. Among the neoplastic biopsies the majority were squamous cell carcinoma.

Eighteen biopsies were taken from the gastric region, in contrast to the oesophagal biopsies here, the majority of the cases were non-neoplastic. 50% of the biopsies belonged to gastritis. It was long-term as well as acute inflammation. The inflammation was visible due to neutrophils. The acute and chronic were differentiated. In the case of chronic gastritis, a Giemsa stain was done to check the presence of H.pylori. In three out of nine cases, H. Pylori was detected as the reason for chronic inflammation. After gastritis, the adenocarcinoma was reported to be the malignant biopsies in four

cases. In another four cases, lymphoid cells covered the whole biopsies and later on, lymphoma was the cause detected. In the case of a 4-year-old patient, the polyp was visible.

Out of eleven biopsies, 63.6% of the biopsies belonged to duodenitis. The cases of malignancy were not found in duodenal biopsies. The biopsies which were suspected to be of celiac disease were tested negative for an anti-transglutaminase antibody test. Also, these biopsies had a high number of lymphocytes which then confirmed celiac disease. The other two biopsies belonged to ulcer and inflammatory bowel disease.

The colorectal biopsies were mostly neoplastic, among the nine neoplastic biopsies five were benign and four had very prominent malignant cells of adenocarcinoma. Other than those inflammation was observed only in one biopsy that was due to Crohn's disease. The remaining three had visible polyps.

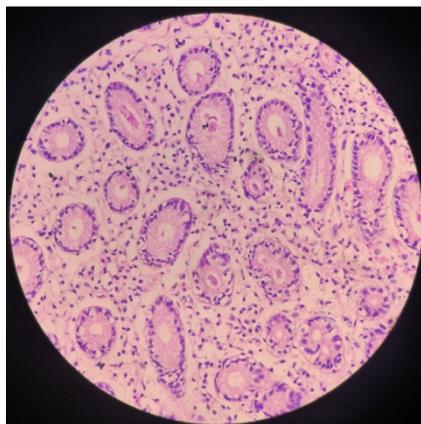


Figure 1: Photomicrograph of gastritis (40x, H&E)

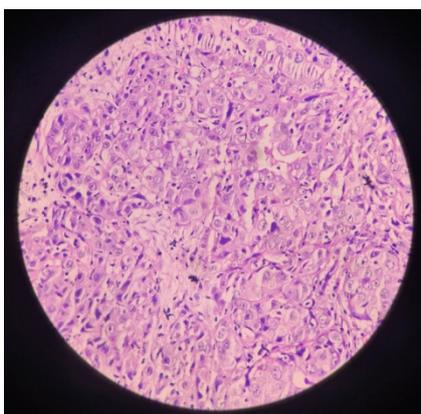


Figure 2: Photomicrograph of adenocarcinoma colon (40x, H&E)

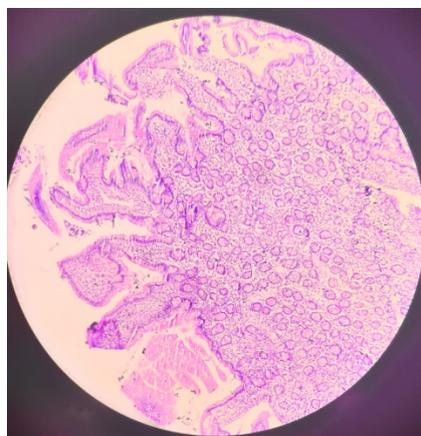


Figure 3: Photomicrograph of duodenitis (10x, H&E)

Discussion

When the oesophageal biopsy was compared to the other studies conducted on the oesophageal biopsies. The findings were consistent, majority of the biopsies were neoplastic and those that were non-neoplastic were the biopsies of inflammation of the oesophagus [7]. The average age of the patients was 60 years in our study as well as the other study conducted on the biopsies of the oesophagus region [9].

Gastritis is the most common pathology reported in the case of gastric biopsies which was again

consistent with the other studies. Among the other studies, *H. Pylori* was positive in fewer cases compared to the findings of our study, the gastritis in our study could be owed to irrational use of antacids such as proton pump inhibitors [10, 11]. Among the neoplastic biopsies adenocarcinoma was the most common. The cases of lymphoma particularly exceeded in our study compared to other studies [11].

The study of the biopsies of the duodenal region showed that 50% of the cases were of duodenitis. The 2 cases that confirmed the presence of celiac

disease had a high number of lymphocytes. The findings of our study that is 2 cases of celiac disease from 50 biopsies was higher in proportion to many other studies conducted which may be due to the small population size of our study and the patients were only included if they had one or more GIT symptoms [12,5].

In accordance with the previous studies conducted on the biopsies from the colorectal region, our study also found the commonest lesion in the colorectal region was adenocarcinoma [10]. Similarly, the non-neoplastic lesion belonged majorly to polyps. This was also consistent with studies conducted previously [10-12]. The other two lesions belonged to ulcerative colitis and Crohn's disease.

Conclusion

From this study, it can be concluded that a wide range of lesions can be analyzed to derive their pathological state. Endoscopy along with biopsy aids this process earlier and faster which helps physicians to develop an effective treatment plan.

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