Section: Pathology

Original Research Article

A TERTIARY CARE CENTRE STUDY ON THE HISTOMORPHOLOGICAL SPECTRUM OF LESIONS IN COLORECTAL BIOPSIES

Madhurima Bhattacharyya[1], Prasit Kumar Ghosh[1], Utpal Goswami[1]

[1]*Department of Pathology, ICARE Institute of Medical Sciences & Research Haldia, West Bengal, India*

Received *: 29/09/2025*
Received in revised form *: 12/11/2025*
Accepted *: 30/11/2025*

Corresponding Author:
Dr. Madhurima Bhattacharyya.
Department of Pathology, ICARE Institute of Medical Sciences & Research, Haldia, West Bengal, India
Email: m.bhattacharyya@gmail.com

DOI:10.70034/ijmedph.2025.4.547

Source of Support: Nil
Conflict of Interest: None declared

Int J Med Pub Health
2025; 15 (4); 3057-3061

ABSTRACT

Background: Colorectal lesions comprise a wide spectrum of inflammatory, benign, and malignant conditions, many of which present with overlapping clinical features. Histomorphological examination of colorectal biopsy specimens remains the cornerstone for accurate diagnosis, classification, and prognostication. Understanding the distribution and characteristics of these lesions in tertiary care settings is essential for effective clinical management.

Objective: To investigate the histomorphological spectrum of lesions observed in colorectal biopsies in a tertiary care centre.

Materials and Methods: This cross-sectional study included 65 patients aged over 18 years who underwent colorectal biopsies at ICare Institute of Medical Sciences & Research, Haldia. Clinical details and colonoscopic findings were recorded. Biopsy specimens were processed routinely and examined histopathologically using hematoxylin and eosin-stained sections. Lesions were categorized as non-neoplastic or neoplastic. Data were analyzed using descriptive statistics, with results expressed as frequencies, percentages, mean, and standard deviation.

Results: The study population comprised 33 males (50.8%) and 32 females (49.2%), with a mean age of 49.33 ± 16.45 years. Non-neoplastic lesions constituted the majority (83.1%), while neoplastic lesions accounted for 16.9% of cases. Among non-neoplastic lesions, chronic procto-colitis was the most common (53.7%), followed by chronic colitis (31.5%), chronic proctitis (12.9%), and ulcerative colitis (1.9%). Neoplastic lesions included moderately differentiated adenocarcinoma (54.5%), tubulovillous adenoma (27.3%) and intramucosal adenocarcinoma (18.2%).

Conclusion: Non-neoplastic inflammatory lesions predominated in colorectal biopsies in this tertiary care centre, with adenocarcinoma being the most common malignant lesion. Histomorphological evaluation of colorectal biopsies plays a crucial role in distinguishing neoplastic from non-neoplastic lesions, facilitating accurate diagnosis, timely intervention, and improved patient management.

Keywords: Colorectal biopsy; Histomorphology; Colorectal lesions; Adenocarcinoma; Proctocolitis; Tertiary care centre

INTRODUCTION

Colorectal lesions encompass a diverse array of histomorphological entities, ranging from benign to malignant, with significant implications for patient management and prognosis. Understanding the histomorphological spectrum of lesions in colorectal biopsies is crucial for accurate diagnosis, appropriate treatment planning, and prognostication. Colorectal cancer (CRC) remains one of the most prevalent malignancies globally, with substantial morbidity and mortality rates. According to the World Health Organization (WHO), CRC is the third most common cancer worldwide, with approximately 1.9 million new cases diagnosed annually.[1] Early detection and precise

characterization of colorectal lesions are pivotal for effective therapeutic interventions and improved patient outcomes.

Histomorphological analysis of colorectal biopsies plays a central role in the diagnostic workflow of CRC. It involves the examination of tissue architecture, cytological features, and presence of specific histopathological patterns indicative of various lesions, including adenomas, serrated polyps, inflammatory bowel disease (IBD) - associated changes, and malignancies. Accurate histomorphological interpretation relies on the expertise of experienced pathologists.[2]

Despite advancements in diagnostic modalities, challenges persist in accurately characterizing colorectal lesions due to the inherent histological heterogeneity and overlapping features among different entities. Furthermore, the increasing recognition of serrated lesions as precursors to CRC underscores the importance of comprehensive histomorphological assessment to stratify lesion risk and guide clinical management.[3]

In this context, tertiary care centers serve as critical hubs for the evaluation and management of complex colorectal lesions, drawing upon multidisciplinary expertise and advanced diagnostic tools. However, there remains a paucity of studies comprehensively detailing the histomorphological spectrum of colorectal lesions within tertiary care settings, particularly in specific demographic or clinical subsets.

Therefore, this study aims to address this gap by conducting a detailed analysis of the histomorphological spectrum of lesions in colorectal biopsies at our tertiary care centre. Through a retrospective review of pathological specimens and clinical data, we seek to elucidate the prevalence, histopathological features, and clinical implications of various colorectal lesions encountered in our patient population.

By enhancing our understanding of the histomorphological spectrum of colorectal lesions, this study endeavours to contribute valuable insights into diagnostic accuracy, therapeutic decision-making, and prognostic stratification in patients undergoing evaluation for colorectal pathology.

Objective:

To comprehensively investigate the histomorphological spectrum of lesions observed in colorectal biopsies.

MATERIALS AND METHODS

Study Design: A cross-sectional study enrolled a total of 65 patients who underwent colorectal biopsies at ICare Institute of Medical Sciences & Research, Haldia. The study design adhered to ethical guidelines, and approval was obtained from the Institutional Review Board (IRB) before commencement. Informed consent was obtained from all participants prior to their inclusion in the study.

Inclusion Criteria

1. Patients aged >18 years who underwent colorectal biopsies at ICare Institute of Medical Sciences & Research Haldia.
2. Patients with suspected or confirmed colorectal lesions based on clinical evaluation and/or lower gastrointestinal tract endoscopy.
3. Patients who provided informed consent for participation in the study.

Exclusion Criteria

1. Patients with incomplete clinical or histopathological data.
2. Patients with a history of prior colorectal surgery that could confound the interpretation of biopsy findings.
3. Patients with contraindications to biopsy procedures or anaesthesia.
4. Patients with colorectal lesions secondary to known metastatic malignancies from other primary sites.

Data Collection: Comprehensive data collection was carried out for each enrolled patient, encompassing clinical, radiological, and histopathological parameters. Clinical information such as age, gender, presenting symptoms, and relevant medical history were recorded. Lower gastrointestinal tract endoscopic findings were documented.

Histopathological Examination: Colorectal biopsy specimens obtained from enrolled patients were subjected to meticulous histopathological examination. Experienced pathologists performed the examination, ensuring accuracy and consistency in interpretation. Haematoxylin and eosin-stained sections were prepared from the biopsy specimens to assess the histomorphological characteristics of the lesions.

Data Analysis: Collected data were systematically analysed to elucidate the spectrum of lesions observed in colorectal biopsies. Descriptive statistics were employed to summarize the demographic, clinical, and histopathological characteristics of the study population. The prevalence of different types of colorectal lesions, along with their clinicopathological correlations, was investigated.

Quality Assurance: Collected data was compiled in MS Excel sheet. For qualitative data, frequency and percentage were used and quantitative data was represented in the form of mean and standard deviation.

Ethical Considerations: The study was conducted in accordance with the principles outlined in the Declaration of Helsinki, and applicable national and institutional guidelines. Patient confidentiality was strictly maintained, and data were anonymized to protect privacy.

RESULTS

Table 1: Age distribution among study population

Age in Year	Minimum	Maximum	Mean	SD
	21	76	49.33	±16.45

The age range of the participants varied from a minimum of 21 years to a maximum of 76 years. The mean age of the study population was 49.33 years.

Table 2: Gender Distribution

Sex	Frequency	Percentage
Male	33	50.8
Female	32	49.2
M : F	65	100.0

Out of 65 participants 33 were males (50.8%), while 32 (49.2%) females. The ratio of males to females in the study population was 1:0.96

Table 3: Distribution of Colonoscopic Lesions.

Type of Lesions	Frequency	Percentage
Non-neoplastic	54	83.1
Neoplastic	11	16.9
Total	65	100.0

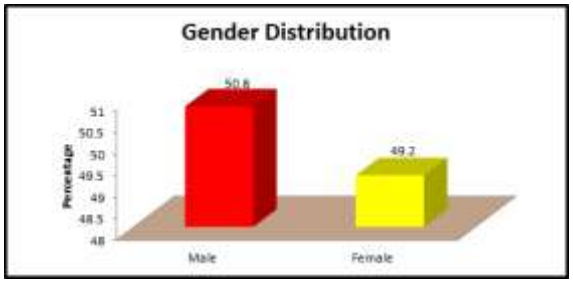

Figure 1: Gender Distribution

Out of a total of 65 lesions observed, 54 were classified as non-neoplastic, constituting 83.1% of the lesions. Conversely, 11 lesions were identified as neoplastic, representing 16.9% of the total lesions.

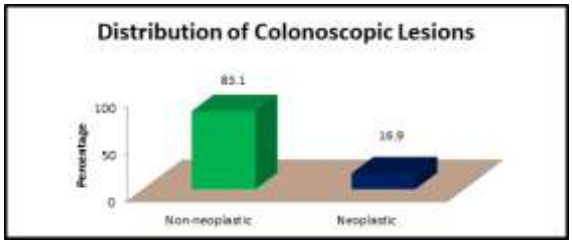

Figure 2: Distribution of Colonoscopic Lesions.

Table 4: Distribution of Non-Neoplastic Lesions

Non-Neoplastic Lesions	Frequency	Percentage
Chronic colitis	17	31.5
Ulcerative colitis	1	1.9
Chronic proctitis	7	12.9
Chronic Procto-colitis	29	53.7
Total	54	100.0

This table illustrates the distribution of non-neoplastic lesions among the study population. Chronic procto-colitis was the most prevalent, with 29 cases, representing 53.7% of the total non-neoplastic lesions. Chronic colitis accounted for 17 cases, comprising 31.5% of the lesions, while chronic proctitis and ulcerative colitis were observed in 7 (12.9%) and 1 (1.9%) cases, respectively.

Table 5: Distribution of Neoplastic Lesions

Neoplastic Lesions	Frequency	Percentage
Moderately Differentiated Adenocarcinoma	6	54.5
Intramucosal Adenocarcinoma	2	18.2
Tubulovillous adenoma	3	27.3
Total	11	100.0

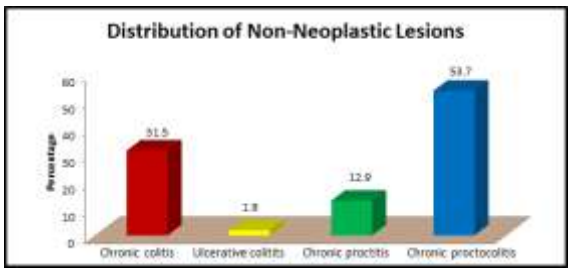

Figure3: Distribution of Neoplastic Lesions

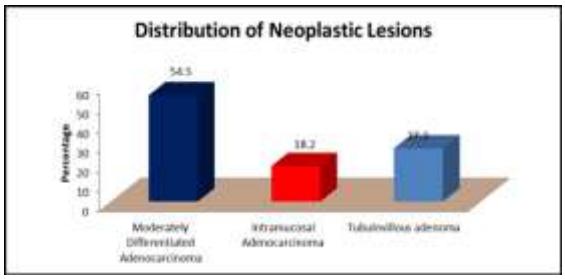

Figure 4: Distribution of Neoplastic Lesions

The distribution of neoplastic lesions included three types: moderately differentiated adenocarcinoma, intramucosal adenocarcinoma, and tubulovillous adenoma. Moderately differentiated adenocarcinoma had the highest frequency, accounting for 54.5% of cases, followed by tubulovillous adenoma with 27.3%, and intramucosal adenocarcinoma with 18.2%.

DISCUSSION

The range of colorectal conditions includes infections, inflammatory bowel diseases, polyps, and colorectal malignancies. Conclusive diagnosis for all of them necessitates an endoscopic biopsy.[4] Symptoms in colorectal lesions are not able to differentiate between neoplastic (cancerous) and non-neoplastic (non-cancerous) lesions. Therefore, colonoscopy is crucial in identifying lesions at an early stage.[5]Colonoscopic evaluation facilitates the visibility of these lesions and allows for the collection of specimens for histological analysis, hence aiding in the subsequent assessment and treatment.

In the present study we found: The age range of the participants varied from a minimum of 21 years to a maximum of 76 years. The mean age of the study population was 49.33 years. Out of 65 participants 33 were males 50.8%, while 32 (49.2%) were females. The ratio of males to females in the study population was 1:0.96.

Out of a total of 65 lesions observed, 54 were classified as non-neoplastic, constituting 83.1% of the lesions. Conversely, 11 lesions were identified as neoplastic, representing 16.9% of the total lesions. Our findings are compatible with studies carried out by Rajbhandari et al.[6]

In another study of Karve SH et al reported, the non-neoplastic lesions were more than neoplastic lesions.[4]

In the present study, we found chronic procto-colitis was the most prevalent, with 29 cases, representing 53.7% of the total non-neoplastic lesions. Chronic colitis accounted for 17 cases, comprising 31.5% of the lesions, while chronic proctitis and ulcerative colitis were observed in 7 (12.9%) and 1 (1.9%) cases, respectively.

Study conducted by Alici S et al. suggested that the presence of chronic colitis may represent early stages of inflammatory bowel diseases like ulcerative colitis and Crohn's disease.[7]

Our study shows the diagnosis of chronic colitis as the second common lesion which but Qayyum et al. found ulcerative colitis second most common lesion.[8]

In our study, moderately differentiated adenocarcinoma, intramucosal adenocarcinoma, and tubulovillous adenoma. Moderately differentiated adenocarcinoma had the highest frequency, accounting for 54.5% of cases, followed by tubulovillous adenoma with 27.3%, and intramucosal adenocarcinoma with 18.2%. Adenocarcinoma was the commonest malignant tumour of the colon and rectum which was compatible with studies done by Mohsin – ul – Rasool.[9]

CONCLUSION

The prevalence of chronic non-specific proctocolitis, hyperplastic polyps, and malignant tumours, including specific subtypes, underscores the complexity of colorectal pathology. The detailed histopathological analysis of inflammatory lesions enhances our understanding of their distinctive features, contributing to improved diagnostic precision and patient management in the clinical context of colorectal lesions.

REFERENCES

1. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2018;68(6):394-424.
2. Bhattacharya IS, Hawkins NJ, Ward RL. Pathological and molecular evaluation of colorectal cancer. Histopathology. 2020;76(3):373-386.
3. Bettington M, Walker N, Clouston A, Brown I, Leggett B, Whitehall V. The serrated pathway to colorectal carcinoma: current concepts and challenges. Histopathology. 2013;62(3):367-386.
4. Karve SH, Vidya K, Shivarudrappa AS, et al. The spectrum of colonic lesions: a clinic-0pathological study of colonic biopsies. Indian Journal of Pathology and Oncology 2015;2(4):189-209.
5. Pandey MS, Ashish Pandey A, Dombale VD. Histomorphological profile of colonoscopic biopsies: a two year study in a tertiary care hospital in South India. International Journal of Science and Research 2016;5(2):1513-1518.
6. Rajbhandari M, Karmacharya A, Khanal K, et al. Histomorphological profile of colonoscopic biopsies and pattern of colorectal carcinoma in Kavre district. Kathmandu University Medical Journal 2013;11(43):196-200.

7. Alici S, Aykan NF, Sakar B, et al. Colorectal cancer in young patients: characteristics and outcome. The Tohoku Journal of Experimental Medicine 2003;199(2):85-93.
8. Qayyum SA, Sawan AS. Profile of colonic biopsies in King Abdul Aziz University Hospital, Jeddah. J Pak Med Assoc 2009;59(9):608-611.
9. Mohsin-ul-Rasool, Mubeen B, Riaz-u-Saif A, et al. Histopathological study of neoplastic lesions of large intestine in Kashmir Valley, India. International Research Journal of Medical Sciences 2014;2(3):1097- 1000.