Histopathological Spectrum of Colonoscopic Biopsies: A three years study from Central India

Gargi Tignath[1], Akanksha Jain[2]*

[1]Senior Resident, Department of Pathology, Saraswati Medical College, Ashakhera Unnao, UP, India

[2]Senior Resident, Department of Pathology, Sri Aurobindo Medical College & PGI, Indore, MP, India

Correspondence Author: Dr. Akanksha Jain, Senior Resident, Department of Pathology Sri Aurobindo Medical College & PGI, Indore, MP, India

Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Background: Colonoscopy is performed by passing a flexible colonoscope through the anal canal into the rectum and colon. The cecum is reached in >95% of cases, and the terminal ileum can often be examined. Colonoscopy is the gold standard for diagnosis of colonic mucosal disease. Both macroscopic and microscopic appearance along with clinical correlation helps in definitive diagnosis of the lesion, which helps in early treatment and better outcome of the patient. Aim of our study was to assess the histopathological spectrum of colonoscopic biopsies received in last three years of a tertiary care centre of central India.

Materials & Methods: The present study included colonoscopic biopsies taken from colon and rectum, received in the Department of Pathology irrespective of patient's age.

Results: Out of a total 200 cases, 70 were non-neoplastic and 130 were neoplastic. In our study we observed that neoplastic lesions predominated over non-neoplastic lesions. Of 130 neoplastic lesions, 30 were benign and 100 were malignant. Malignant lesions were more in number than the benign lesions in our study.

Conclusion: The histomorphological profile of colorectal biopsies has a wide spectrum, ranging from infectious conditions, inflammatory disorders, precancerous lesions to colorectal malignancies. Inflammatory pathologies are found to affect the colorectal region most frequently. Therefore colorectal lesions need an accurate diagnostic approach, wherein interpretation of colorectal mucosal biopsies by histopathologists has now taken a cornerstone place in the workup and management of patients with colorectal lesions.

Key Words: Colon, biopsy, histopathology

Introduction

Colonoscopy is performed by passing a flexible colonoscope through the anal canal into the rectum and colon. The cecum is reached in >95% of cases, and the terminal ileum can often be examined. Colonoscopy is the gold standard for diagnosis of colonic mucosal disease. Colonoscopy has greater sensitivity than barium enema for colitis, polyps, and cancer. A variety of neoplastic and non-neoplastic disorders affect the large bowel and anal canal which are commonly encountered in clinical practice. These conditions encompass a spectrum of acute and chronic conditions.[1,2] They can be sites for infections, vascular disorders, ulcers, various inflammatory conditions and neoplasms which often require colonoscopic biopsy for their final diagnosis.[3,4] Biopsies are sought for specific diagnosis, for determining the

extent of the disease and its response to therapy and for detecting complications. Both macroscopic and microscopic appearance along with clinical correlation helps in definitive diagnosis of the lesion, which helps in early treatment and better outcome of the patient. Aim of our study was to assess the histopathological spectrum of colonoscopic biopsies received in last three years of a tertiary care centre of central India.

Materials and Methods

Study design

This is an Observational and Retrospective study.

Study setup

This study is conducted at Department of Pathology of a tertiary care centre.

Study duration

The duration of study was three years; January-2015 to December-2017.

Sampling

Purposive sampling technique is used for selection of desired samples according to inclusion criterion.

Sample size

100 subjects were recruited for the study after fulfilling inclusion criteria.

Inclusion criteria

The present study included colonoscopic biopsies taken from colon and rectum, received in the Department of Pathology irrespective of patient's age.

Exclusion criteria

Poorly fixed specimen and inadequate biosies were excluded from the study.

Methods

Demographic characters like age, sex, height, weight of all subjects were noted. A total of two hundreds (200) biopsies from patients attending the Gastroenterology OPD, who presented with lower gastrointestinal tract symptoms, were included in our study. Clinical details along with a detailed description of the colonoscopic

findings were obtained. The samples received in our Department were collected in 10% neutral buffered formalin, processed and embedded in paraffin with the mucosal surface being uppermost. 4µ thick serial sections were prepared. All tissues were stained with H&E and special stains like Periodic Acid Schiff (PAS), Reticulin, Ziehl Neelsen (ZN) along with Immunohistochemistry (IHC) were done as and when required. The diagnosis of colorectal biopsies was made on the basis of clinical presentation, colonoscopic findings and light microscopic features of H&E and special stained sections. The lesions were classified as non-neoplastic lesions, benign neoplastic lesions and malignant tumors. The tumors were classified as per WHO classification and observations were compared with other studies.

Ethical consideration

Prior to conduct of the present study, the protocol of the study was submitted to ethical and scientific committee of hospital. After getting due approval from these two committees, the present study was initiated. Also prior to conduct of study related procedure/investigation, a voluntary written informed consent was taken from the patient /legally acceptable representative.

Statistical technique

The demographic data of 200 subjects was analysed by statistical software, SPSS version 17.0. Continuous variables were compared with same parameters measured using two tailed paired t test with a p value of <0.05 being considered as significant.

Financial input and funding: The patient underwent procedures as per protocol laid down by our institution for management of such patients. Hence there was no financial burden on patient or institution. This project was not funded by any of pharmaceutical/diagnostic industry.

Results

A total of 200 colonoscopic biopsies were examined during the study period. Age of the patients ranged from

10-80 years with a median age of 44 years. Overall there was a male predominance with a M:F ratio of 1.42:1. Maximum number of cases were seen in age group of 41-50 years (30 cases) followed by a second highest peak in age group of 21-30 years (24 cases).

The colonoscopic biopsies were divided as non-neoplastic and neoplastic lesions. Out of a total 200 cases, 70 were non-neoplastic and 130 were neoplastic. In our study we observed that neoplastic lesions predominated over non-neoplastic lesions. Of 130 neoplastic lesions, 30 were benign and 100 were malignant. Malignant lesions were more in number than the benign lesions in our study.

In the present study of 284 colorectal biopsies, 70 cases were diagnosed as non-neoplastic lesions. Non specific colitis was the commonest type seen among non-neoplastic lesions with 35 cases (50%), followed by 18 cases of Ulcerative colitis.

Among 130 neoplastic lesions, 30 were benign lesions. Tubular adenoma and tubulovillous adenoma were the most common histological diagnosis among benign tumors.

We also observed that adenomas were more commonly present in sigmoid colon followed by rectum. Thus adenomas showed a left sided predilection.

In the present study, out of 100 malignant lesions, 40 cases (40%) were Moderately differentiated adenocarcinomas, 20 cases (20%) were Well differentiated adenocarcinomas, 10 cases (10%) were Poorly differentiated, 9 cases (9%) were Mucinous adenocarcinomas, 7 cases (7%) were Signet ring cell carcinomas, 6 cases (6%) were Non-Hodgkin Lymphoma and 1 case (1%) was Carcinoid tumor.

We observed that malignant lesions were more frequent in males 67(67%) than females 33(33%) with a male to female ratio of 2:1.

In the present study, rectum was the most common site for malignancies followed by sigmoid colon. We observed that malignancies commonly affected left side colon.

Discussion

Endoscopy is a crucial tool in the diagnosis and management of various lesions of colon and rectum. Recent widespread use of flexible endoscope has produced a dramatic expansion of our knowledge of the pathogenesis and evolution of disease processes affecting the gastrointestinal tract. Symptomatology of colorectal lesions is very non-specific and hence is the central role played by colonoscopy in the early detection of colonic lesions. Histopathological examination of colorectal biopsies reveal a spectrum of lesions ranging from non-neoplastic ones to neoplastic tumours including benign and malignant ones.

In the present study, 200 colonoscopic biopsies were received in our department, in the period between January-2015 to December-2017. In the present study, age range was observed to be wide, from 10 year to 80 years of age. Out of 130 neoplastic lesions, 30 were benign and 100 were malignant forming a ratio of benign to malignant lesions as 0.33:1. Malignant lesions were more frequent in males 67(67%) than females 33(33%) with a male to female ratio of 2:1.

Screening for colorectal cancer by colonoscopy with removal of precancerous lesions is a powerful and effective approach for reducing colorectal cancer incidence and mortality, therefore it is now considered as gold standard for the diagnosis of colorectal cancer.[5] Amongst 100 colonoscopic biopsies diagnosed as malignant lesions, 40 cases (40%) were Moderately differentiated adenocarcinomas, 20 cases (20%) were Well differentiated adenocarcinomas, 10 cases (10%) were Poorly differentiated, 9 cases (9%) were Mucinous adenocarcinomas, 7 cases (7%) were Signet ring cell carcinomas, 6 cases (6%) were Non-Hodgkin Lymphoma

and 1 case (1%) was Carcinoid tumor. These lesions showed male preponderance and majority of the patients were above 40 years similar to the observations of Phillipoet al.[6] In the present study, the patients less than 40 years of age tended to have poor prognostic tumors such as mucinous and signet ring cell carcinoma, this finding concurs with previous studies.[7] The presence of dysplasia in a colonic biopsy, a precursor to cancer, is a significant predictor not only of co- existant cancer but also of subsequent risk of developing colorectal cancer. With this attendant risk, it is generally accepted that when high grade dysplasia is found on biopsy, colectomy should be performed.[8]

Conclusion

The histomorphological profile of colorectal biopsies has a wide spectrum, ranging from infectious conditions, inflammatory disorders, precancerous lesions to colorectal malignancies. Inflammatory pathologies are found to affect the colorectal region most frequently. Therefore colorectal lesions need an accurate diagnostic approach, wherein interpretation of colorectal mucosal biopsies by histopathologists has now taken a cornerstone place in the workup and management of patients with colorectal lesions.

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