ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
Index Copernicus Value: 68 . 16
PubMed - National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 5, Issue – 5, September - 2020, Page No. : 116 - 121

Large Intestinal Tract Lesions; A Histopathological Study

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Citation this Article: Dr Shweta Bhagat, Dr Shabnam Sarfraz, Dr Kuldeep Singh, "Large Intestinal Tract Lesions; A Histopathological Study", IJMSIR- September - 2020, Vol – 5, Issue - 5, P. No. 116 – 121.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Introduction: Large intestine and anal canal is affected by both non-neoplastic and neoplastic lesions. A number of laboratory tests including biopsy is essential to arrive at a specific diagnosis for appropriate management. The aim is to study the histopathological spectrum of lesions of large intestine and anal canal and to correlate them with clinical parameters.

Material and Methods: A combined retrospective & prospective study was done in the department of pathology Govt. Medical College Jammu. A total of 99 specimens of large intestinal and 182 specimens of anal canal were included in this study. All tissues were fixed in formalin, stained with H&E and special stains like Periodic Acid Schiff (PAS), Reticulin, were done as and when required. Histopathological examination of endoscopic biopsied and resected specimens plays an important role in the early diagnosis of large intestinal and anal canal lesions.

Results: Out of the 99 cases of large intestine 42 were non-neoplastic, 57 were neoplastic lesions. 182 cases from Anal canal included 180 non-neoplastic and 2 neoplastic lesions. The non-neoplastic conditions included infective and ischemic lesions while neoplastic included benign and malignant lesions. Most of the cases presented with symptoms like abdominal pain, vomiting and constipation. Non-specific inflammation 33 (78.57%) cases were the most common non-neoplastic lesion of large intestine followed by colitis 4 (9.52%) cases and hirschsprung disease 3 (7.14%) cases. Juvenile rectal polyp 44 (91.67%) cases were the most common polyps of the large intestine, followed by hyperplastic polyp 2 (4.17%) cases, tubular adenoma and tubulovillous adenoma 1 case (2.08%) each. Majority of the malignant large intestinal tumours were adenocarcinoma 7 cases (77.78%), followed by non-Hodgkin's lymphoma and GIST 1 case (11.11%) each. Haemorrhoids 119 cases (66.11%) followed by fistula-in-ano 57 cases (31.67%) were the most common non–neoplastic lesions of the anal canal.

Conclusion: Adenocarcinoma is the most common histological variant of colon carcinoma. There is marked increase in the incidence of malignancies of colon, hence the approach to early diagnosis by carrying out biopsies and histopathology in clinically symptomatically suspicious patients should be utmost important for good management.

Keywords: Anal canal, Adenocarcinoma, Polyp, Adenoma.

Introduction

Gastrointestinal malignancies account for 12.9% of all malignant diseases [1]. Cancers of large bowel and anus account for 3% of all malignant diseases. Colorectal carcinoma is the third leading cancer worldwide, accounting for approximately 9% of all cancers. The estimated worldwide annual incidence of colorectal carcinoma is 1 million, which makes it the second most common carcinoma in females and third in males [2]. Generally, the incidence of colorectal carcinoma and the mortality rates are greater in developed nations of Western world [3], that is north America, Australia and Europe whereas the developing continents like Africa and Africa have lower rate of occurrence. Adenocarcinoma is the most common tumour representing 70% of all the malignancies arising in the gastrointestinal tract [4]. They arise as polyps and produce symptoms relatively early and at a stage generally curable by resection. Non neoplastic polyps are classified as hyperplastic, hamartomatous, juvenile and Peutz jeghers polyp, inflammatory and lymphoid polyp. Inflammatory bowel diseases like Crohns disease and Ulcerative colitis are premalignant conditions. The peak incidence of colorectal carcinoma is 60-70 years of age and fewer than 20 % of cases occur under 50 years**.** Colorectal carcinoma in patients under 40 years usually has a poor prognosis. The varied dietary and environmental exposures explain the geographic differences for the occurrence of colorectal cancers. Lack of physical activity, red meat diet, high fat diet with poor fibre may be related to the increase in incidence. Apart from that, dysplastic polyp, ulcerative colitis, granulomatous lesions are also found. Hirschsprung disease usually affect males with 80% diagnosed during first year of life and 10% in first present in adults. [5]. Large intestine and anal canal are sites for broad array of non-neoplastic and neoplastic diseases, which at times can lead to serious complications. With westernization of lifestyle, the incidence of colorectal carcinoma is increasing in many developing countries. About 60% of colorectal cancer occurs in developing countries. Five years survival rate in colorectal cancer is about 60-95% in the initial stages and decreases dramatically to 30% in stages where lymph node metastasis is detected [6]. Carcinoma of anus accounts for 1.5%of gastrointestinal cancers. Anal tumours tend to be most common in sixth and seventh decades of life and considered to have a slight female preponderance. These include squamous cell carcinoma, adenocarcinoma. Others being carcinoid, anal zone carcinoma and melanoma. Both macroscopic and microscopic appearance when correlated with clinical details help in a definitive diagnosis of lesion, which help in early treatment and better outcome of the patient.

Material and Methods

The present study was done during a period of 5 years (4 years retrospective and 1 year prospective) in a tertiary care centre in north India. The study included 99 Large Intestinal specimens and 182 anal canal lesions. Requisition forms, blocks and slides were retrieved from the archives in retrospective study. Clinical details were obtained from the proforma. The corresponding slides and tissue blocks were retrieved and microscopic analysis was carried out for re-establishing the diagnosis. The specimen and biopsies of large intestinal lesions for prospective study were fixed in 10% buffered formalin and then detail gross examination was done, histopathological processing and section blocks were made and stained with

hematoxylin and eosin and mounted in distyreneplasticiser xylene (DPX). Routine tissue processing was done. Special stains like Periodic Acid Schiff (PAS) and Reticulin was done wherever required. The final diagnosis was given after the detailed study of sections. Then, data was analysed and results were obtained.

Results

Our study included 99 cases of large intestine of which 42 were non-neoplastic, 57 were neoplastic lesions. 182 cases from Anal canal included 180 non-neoplastic and 2 neoplastic lesions. Benign tumours of large intestine are predominant in less than 10 years age group (72.91%) and malignant tumours are mostly seen in the age group of 40-60 years, both with male predominance. Most of the patients of the colorectal carcinoma were non-vegetarians. Majority of the cases presented with symptoms like abdominal pain, vomiting and constipation. Non-specific inflammation 33 (78.57%) cases were the most common non-neoplastic lesion of large intestine followed by colitis 4 (9.52%) cases and Hirschsprung disease 3 (7.14%) cases (Table 1). Juvenile rectal polyp 44 (91.67%) (Figure 1) cases were the most common polyps of the large intestine, followed by hyperplastic polyp 2 (4.17%) cases, tubular adenoma and tubule villous adenoma 1 case (2.08%) each (Table 2). Juvenile rectal polyps of the colorectum were the most common and majority of these polyps were seen in children. Majority of the malignant large intestinal tumours were adenocarcinoma 7 cases (77.78%) (Figure 2), followed by non-Hodgkin's lymphoma and GIST 1 case (11.11%) each [Table 3].

Table 1: Distribution of non-neoplastic lesions of large intestine

	No.	(%)
Non-specific inflammatory pathology	33	78.57
Colitis	04	9.52
Hirschsprung disease	03	7.14
Volvulus	02	4.76
Total	42	100

Table 2: Distribution of polyps in large intestine

	No.	%
Juvenile rectal polyp	44	91.67
Hyperplastic polyp	02	4.17
Tubular adenoma	01	2.08
Tubulo-villous adenoma	01	2.08
Total	48	100

Table 3: Neoplastic malignant lesions of large intestine

	No.	%
Adenocarcinoma	07	77.78
NHL	01	11.11
GIST	01	11.11
Total	09	100

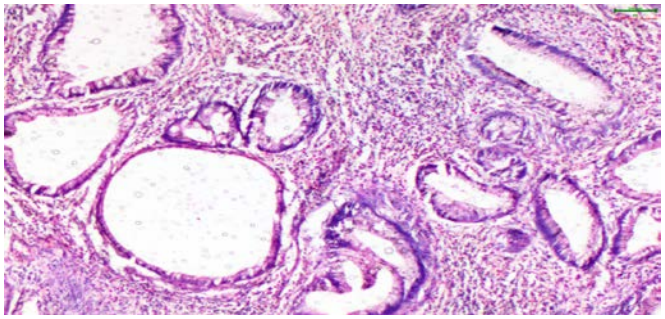

Figure 1: Juvenile rectal polyp showing numerous cystic and dilated crypts or glands, lamina propria infilterated by lymphocytes, plasma cells, eosinophils [H and E 40 × 10 X]

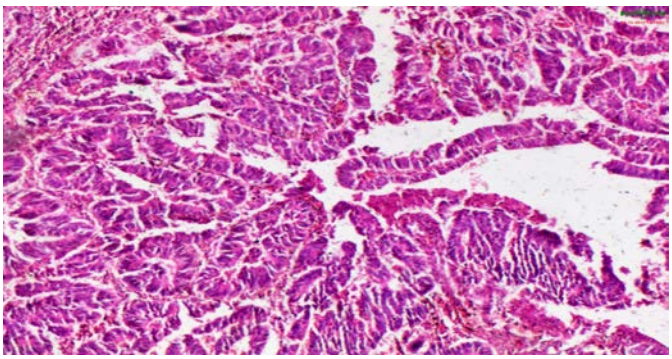

Figure 2: papillary adenocarcinoma infiltrating muscularis [H and E 40 × 10 X]

Total 182 cases of anal canal specimens included in the study. Majority of patients were in the age group of 30-60 years. Haemorrhoids 119 cases (66.11%) (Figure 3) followed by fistula-in-ano 57 cases (31.67%) (Figure 4) were the most common non–neoplastic lesions of the anal canal. Malignant tumours of anal canal included 1 case (50%) of squamous cell carcinoma and 1 case (50%) of basaloid carcinoma (Figure 5).

Table 4: Non-neoplastic lesions of anal canal

	No.	%
Haemorrhoids	119	66.11
Fistula-in-ano	57	31.67
Non-specific inflammatory pathology	03	1.67
Anal papillae	01	0.55
Total	180	100

Table 5: Distribution of malignant tumours of anal canal

	No.	%
Squamous cell carcinoma	01	50
Basaloid carcinoma with focal squamous differentiation	01	50
Total	02	100

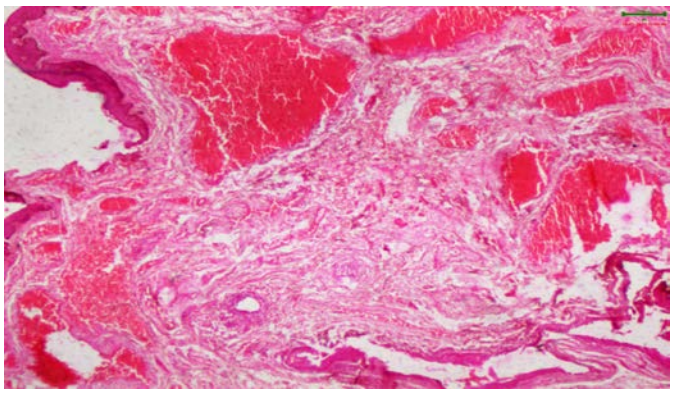

Figure 3: Haemorrhoids showing submucosal dilated and congested vessels [H and E 40 × 10 X]

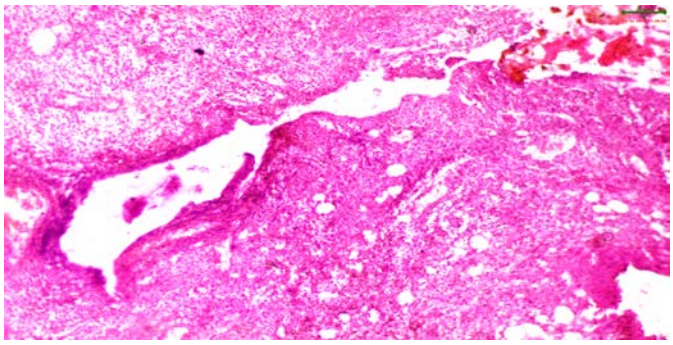

Figure 4: Fistula-in-ano [H&E.,100X]

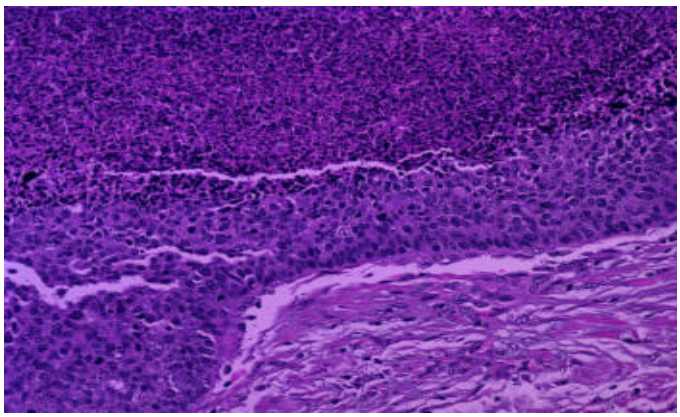

Figure 5: Basaloid carcinoma anus [H and E 40 × 10 X]

Discussion

In the present study, non-specific inflammatory lesions were predominant in large intestine (78.57%) followed by 3 cases (3.03%) of Hirschsprung disease. All 3 were less than 10 years old. Youngest was 4 days old neonate. Our study is comparable to another study in which 80% cases of Hirschsprung disease are males with 80% cases diagnosed during first year of life and

10% cases present in adults [5]. Adenocarcinoma (77.78%) was the most common colorectal malignancy followed by NHL and GIST each accounting for 11.11%. Majority of the carcinomas were well to moderately differentiated with a glandular pattern and variable amount of mucin secretion. 2 cases showed predominantly papillary and 4 cases showed predominantly tubular patterns of growth. This was also confirmed by a study conducted by Dabukoj *et al.* in which Adenocarcinoma was the commonest histological type (89.4%), with the majority either well-differentiated (62.5%) or moderately differentiated (25.6%) carcinomas [7]. Similar study also conducted by Mahalingashetti PB et al. in their study on intestinal resections at rural tertiary care centre observed that adenocarcinoma was the most common malignant tumour of large intestine [8]. Juvenile rectal polyps were the most common (91.67%), followed by Hyperplastic polyp (4.17%), tubular adenoma (2.08%) and tubulovillous adenoma (2.08%). This is comparable to another study Muto et al. in which 80% of gastrointestinal polyps were located in the large intestine, majority being in the rectosigmoid colon. Juvenile polyp was the most common histological type with a mean age of 6.8 years [9]. Sulegaon R et al. in their study on large intestinal lesions observed 38 cases of non- neoplastic and 77 cases of neoplastic lesions [10]. This is in contrast to our study where 42 cases were non-neoplastic and 57 cases were neoplastic lesions. Among lesions in anal canal, non-neoplastic lesions were found to be common. Haemorrhoids (66.11%) was common followed by Fistula in ano (31.67%); Squamous cell carcinoma was the most common malignant neoplastic lesion.

Conclusion

Colorectal Carcinoma was diagnosed especially in people of middle age and seen more in males. Large intestinal polyps were seen most commonly in children less than 10 years of age. The histopathological study depicted about 77.78% of colorectal malignancies presenting as well to moderately differentiated adenocarcinomas. As the incidence of colon carcinoma is increasing due to altered lifestyle, people with altered bowel symptoms, iron deficiency anaemia should be evaluated. The results also allow a reliable evaluation of the prevalence of these lesions in general population as this institution is the principal only tertiary care institution in this region, catering to the entire population

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