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HISTOPATHOLOGICAL STUDY OF NEOPLASTIC LESIONS OF LARGE INTESTINE

Pathology

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ABSTRACT

Background : The present study of 30 neoplstic cases of large intestinal lesions was carried out in the Department of Pathology of a tertiary care center from July 2012 to June 2017.

Aim: To study the histopathology of \ neoplastic lesions of large bowel .

Materials and Methods : All the biopsies and resected specimen fixed in 10% formalin for 24 hours. Sections were prepared and then stained with Haematoxylin & Eosin. Special stains like PAS, Reticulin and AFB were done whenever necessary.

Results: Among neoplastic lesions of large intestine malignant cases were found to be more common.

Conclusion: Biopsies from suspected lesions of small intestine help in early diagnosis while the extent of disease and assessment of prognosis can be made from the histopathological study of resected specimens. Immunohistochemistry plays an important role in identifying and differentiating the lesions with similar appearing pathologies .

KEYWORDS

Large intestine, Neoplastic lesion

INTRODUCTION:

Large intestine is prone for both non neoplastic and neoplastic lesions. They can be sites for infections, vascular disorders, ulcers, non-specific lesions, motility disorders and various inflammatory conditions and neoplasms[1].

Epithelial tumors of intestine are major cause of morbidity and mortality worldwide. Approximately 57% of cancers in digestive system are diagnosed each year in the large intestine[2].

MATERIALS AND METHODS

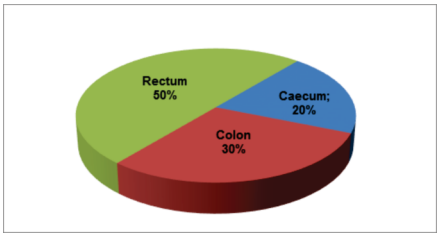
This study included 30 neoplastic cases of large intestine. The lesions received during these 5 years period were studied.

All the biopsies and resected specimen fixed in 10% formalin for 24 hours. Sections were prepared and then stained with Haematoxylin & Eosin. Special stains like PAS, Reticulin and AFB were done whenever necessary.

RESULTS:

Amongst the neoplastic lesions of large intestine, malignant lesions (80%) constituted the maximum number of cases with small percentage of (20%) benign lesions.

Graph 1-Site wise distribution of neoplastic lesions of large intestine



Neoplastic lesions of large intestine involved rectum (50%), colon (30%), caecum (20%) in descending order.

Table 1- Distribution of neoplastic large intestinal lesions according to histopathological diagnosis

Histological diagnosis	Number of cases	Percentage(%)
Benign Lesions		
Juvenile polyp	02	6.67
Adenomatous polyp	03	10.00
Infantile fibromatosis	01	3.33
Malignant lesions		
Adenocarcinoma	23	76.67
Leiomyosarcoma	1	3.33
Total	30	100

Out of all neoplastic large intestinal lesions adenomatous polyp (10%) was the most common benign neoplasm and adenocarcinoma (76.67%) was the most common malignant neoplasm.

Benign lesions also includes two cases (6.67%) of juvenile polyp and one rare case (3.33%) of Infantile fibromatosis. In malignant neoplasm a rare case (3.33%) of leiomyosarcoma was noted in the rectum.

BENIGN LESIONS:

In the present study three cases(10%) of adenomatous polyp were observed. In the present study two cases (6.67%) of juvenile polyp were observed.

In the present study one rare case (3.33%) of Infantile fibromatosis was observed. A 22 days male child was presented with abdominal distension and vomiting. USG showed intestinal obstruction. Immunohistochemical analysis showed that tumor cells were immunoreactive for Vimentin and rare cell immunoreactivity for smooth muscle actin and immuninegative for TLE1/S100 protein. Based on these a diagnosis of Infantile fibromatosis was made.

MALIGNANT LESIONS:

In the present study adenocarcinoma was the most common malignant lesion of large intestine. Amongst adenocarcinoma, the most common histologic type was moderately differentiated adenocarcinoma (52.17%).

We reported a single case (4.17%) of Leiomyosarcoma of rectum. The patient was a 77 years old female presented with pain in abdomen and per rectal bleeding. Histopathological diagnosis of Malignant spindle cell lesion was made. For definitive diagnosis Immunohistochemical analysis for smooth muscle actin (fig.25), Muscle specific actin (fig.24), h-caldesmon and immunonegative for desmin, CD117, DOG1,CD34, pancytokeratin. Based on these findings diagnosis of Leiomyosarcoma of rectum was confirmed

In the present study, adenocarcinoma constituted the highest number of cases(82.61%) amongst various histological types of adenocarcinoma of large intestine.

Table 2-Distribution of adenocarcinoma of large intestine with respect to histological grade.

Grade	Histological grade	Number of cases	Percentage (%)
I	Well differentiated adenocarcinoma	8	34.78
II	Moderately differentiated adenocarcinoma	12	52.17
III	Poorly differentiated adenocarcinoma	3	13.04
	Total	23	100

Moderately differentiated adenocarcinoma (52.17%) constituted

maximum number of cases of adenocarcinoma of large intestine .

Fig. 1: Photomicrograph showing cytoplasmic positivity of Vimentin for spindle cells in Infantile Fibromatosis. (100x)

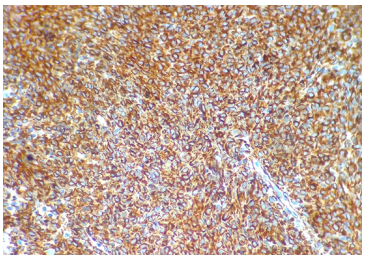
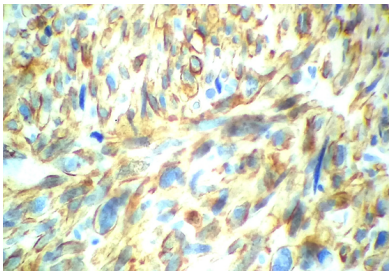


Fig. 2 : Photomicrograph showing cell membrane positivity of Muscle Specific Actin (MSA) for malignant spindle cells in Leiomyosarcoma of rectum. (400x)



DISCUSSION:

NEOPLASTIC LESIONS

In the present study out of 30 cases (46.15%) of neoplastic lesions of large intestine, 6 (20%) were benign and 24 were malignant (80%).

Table 1.Comparision of neoplastic lesions of large intestine

Lesions	Kakadiya M. et al[3] (2015) (n=101)	P.Sharma et al[2] (2015) (n=120)	H. Mundiya et al[5] (2017)(n=67)	P. Manthini et al[6] (2017) (n=56)	Present study (2017) (n=30)
Benign	4.95%	25.8%	12.90%	14.3%	20%
Malignant	95.05%	74.2%	87.10%	85.7%	80%

In the present study among neoplastic lesions of large intestine malignant neoplastic lesions were more common than benign neoplastic lesion. This finding was in accordance with H. Mundiya et al (2017), Kakadiya M.et al(2015),P. Manthini et al (2017)and P. Sharma et al(2015).

Table 2-Comparision of site wise distribution of neoplastic large intestinal lesions

Site	M. Lavanya[7] (2010) (%)	P. Sharma et al[4](2015) (%)	H. Mundiya et al[5](2017) (%)	Present study (%)
Caecum	10	1.12	7.47	20
Colon	10	73	43.28	30
Rectum	80	25.84	48.25	50

In neoplastic lesions of large intestine rectum is involved more commonly followed by colon, caecum in descending order. This finding was in conformity with H. Mundiya et al (2017) and M. Lavanya (2010). However P Sharma et al (2015) found colon as the most common site for neoplastic lesions of large intestine.

Benign lesions

In present study six cases (20%) of benign lesions of large intestine were noted. It included adenomatous polyp, juvenile polyp, and Infantile fibromatosis.

In the present study adenomatous polyp was the most common benign neoplasm of large intestine. This finding was consistent with the study of P. Manthini[6](2017) while S. Uplaonkaret al[8](2014)and H. Mundiya et al[5] (2017) found juvenile polyp as the most common benign neoplasm of large intestine.

Adenomatous polyp

- In the present study total three cases (10%) of adenomatous polyp were observed. Out of three cases of adenomatous polyp, two cases were of tubulo-villous adenoma and one case was of tubular adenoma with dysplasia.

The site for all the polyp was rectum. These findings were in accordance with P. Manthini et al(2017).

a)Juvenile polyp

In the present study two cases (6.67%) of juvenile polyp were found. P. Manthini et al (2017) also noted two cases(1.96%) of juvenile polyps. H.Mundiya et al (2017) in his study observed juvenile polyp as the most common(10.4%) benign neoplastic lesion in large intestine.

In the present study both cases of juvenile polyp were found in rectum and presented with per rectal bleeding. Similar observations were made by H. Mundiya et al[7](2017),Tony J.et al[9] (2007) and Dajani YF et al[10](1984).

C)Infantile fibromatosis

In the present study one rare case (16.67%)of Infantile fibromatosis was observed. The patient was a 22 days male child presented with abdominal distension and vomiting. USG showed intestinal obstruction.

Immunohistochemical analysis showed that tumour cells showed immunoreactivity for Vimentin and rare cell immunoreactivity for smooth muscle actin and immuninegative forTLE1/S100 protein . Based on these a diagnosis of Infantile fibromatosis was made.

Fatma Çaðlayan[11] (2003) also reported one case of Infantile fibromatosis. It was 3.7 kg newborn presented with suprapubic hemangiomatous mass and subcutaneous nodule in abdominal wall skin near the umbilicus.

Immunohistochemically, the lesion showed moderate smooth muscle actin (Dako-Clone 1A4) positivity in leiomyomatous areas; diffuse,strong vimentin (Dako-Clone Vim 3B4)positivity was also seen.

Malignant lesions

In the present study, amongst all neoplastic lesions of large intestine, malignant neoplastic lesions constituted maximum number of cases(80%) which includes adenocarcinoma and leiomyosarcoma.

Table3-Comparision of malignant neoplastic lesions of large intestine

Lesions	Mohsin-ul-Rasool et al[12](2014)(n=44)	R. Ntagirabiri et al[13] (2016)(n=16)	H. Mundiya et al[5] (2017)(n=51)	Present study (2017)(n =24)
Adenocarcinoma	98.45%	89.18%	92.16%	95.83%
Leiomyosarcoma	-	5.41%	-	4.17%
Lymphoma	0.67%	5.41%	-	-
Basaloid carcinoma	-	-	1.96%	-
GIST	0.44	-	3.92%	-
Malignant melanoma	-	-	1.96%	-
Carcinoids	0.44	-	-	-

In the present study adenocarcinoma was the most common malignant lesion of large intestine. This coincides with the findings of Mohsin-ul-Rasool et al(2014), H. Mundiya et al(2017) and R. Ntagirabiri et al(2016).

Amongst adenocarcinoma, the most common histologic type was moderately differentiated adenocarcinoma (52.17%). This is in accordance with the findings of Mundiya et al[5] (2017), Caliskan et al[14](2010) .

Our findings correlate with the results of Caliskan C et al[14](2010) and H. Mundiya et al[5](2017).

Leiomyosarcoma of rectum

Rectal leiomyosarcoma is an uncommon malignancy. Diagnosis is virtually impossible without proper immunohistochemistry.

We reported a single case (4.17%)of Leiomyosarcoma of rectum.The patient was a 77 years old female presented with pain in abdomen and per rectal bleeding. Histopathological diagnosis of Malignant spindle cell lesion was made. For definitive diagnosis Immunohistochemical analysis was done. It showed that tumor cells were immunoreactive for

Smooth muscle actin, Muscle specific actin, h-caldesmon and immunonegative for desmin, CD117, DOG1,CD34,pancytokeratin. Based on these findings diagnosis of Leiomyosarcoma of rectum was confirmed.

Gautam Chattopadhyay et al[15] (2009) also repoted one case of rectal leiomyosarcoma. The diagnosis of leiomyosarcoma was done on the basis of immunohistochemistry. The tumor was positive for smooth muscle actin and calponin but was negative for ckit, CD34, HMB-45,S-100,desmin and cytokeratin.

CONCLUSION:

This study conclude that various types of lesions occur in large intestine . Biopsies from suspected lesions of small and large intestine help in early diagnosis while the extent of disease and assessment of prognosis can be made from the histopathological study of resected specimens. Immunohistochemistry plays an important role in identifying and differentiating the lesions with similar appearing pathologies. So, this study asserts their importance of accurate histopathological diagnosis which will aid the clinician in insti tuting appropriate and many a time life saving measures, thus improving the survival of the patients.

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