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Histopathological study of benign lesions of large intestine – A cross sectional study

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Abstract

The present study was conducted at Department of Pathology J.N. Medical College, Belgaum. The present study reveals that the lesions of large intestine predominantly occur in the age group of 30 – 60 years. Majority of the lesions are found in males. Thus the distribution of lesions of large intestine according to age and sex and histopathological study helps us for early diagnosis, for appropriate treatment, for preventing complications and prognosis which in turn reduces mortality.

The present study was conducted at Department of Pathology J.N. Medical College, Belgaum. The present study reveals that the lesions of large intestine predominantly occur in the age group of 30 – 60 years. Majority of the lesions are found in males. Thus the distribution of lesions of large intestine according to age and sex and histopathological study helps us for early diagnosis, for appropriate treatment, for preventing complications and prognosis which in turn reduces mortality.

Key words: Intestine, Diagnosis, Pathology

Introduction

Genuine progress has been made in the diagnostic procedures of intestinal neoplasms and challenges taken up as reflected by increase in number of early diagnosis of large intestinal tumors. Barium enema was main stay of diagnosis of large bowel diseases in the past until colonoscopy became a practical tool in 1969.[1]

The large intestine from ceacum to anus can be effectively and accurately examined as a part of complete physical examination. An ultimate diagnosis of large bowel diseases, can only be made by direct observation of the abnormalities and if indicated, a biopsy. Different equipments like rigid proctosigmoidoscopy, flexible sigmoidoscopy,

colonoscopy and anoscopy are designed to examine the lesions of large intestine .

With the many imaging methods available for evaluation and often therapy of large intestinal disorders , colonoscopy has emerged as gold standard for diagnosis .[2]

The availability of flexible colonoscope permitting examination of the entire colon has greatly extended the ability to detect various polypoid and other mucosal tumors of the large bowel.[3] Patients with long standing inflammatory bowel disease are known to be at an increased risk of colorectal cancer ,although it is difficult to precisely estimate the risk.[2]

Objectives

1. To know the prevalence of benign lesions of large intestine.
2. To determine the distribution of benign lesions of large intestine according to age and sex.

Methods

This study is conducted at Jawaharlal Nehru Medical College, Belgaum. This study is conducted for a period of 4 years (Jan 2004 to Dec 2007) of which 3 years were retrospective and 1 year is prospective. The study includes 370 cases.

Study; The prospective study was done for a period of 1 year that is from January 2006 to December 2007. The cases included were the specimens that were received at Department of Pathology, J. N. Medical College, Belgaum. The clinical details were collected from the patients. For the retrospective study, the cases reported during January 2004 to December 2006 were taken from the records of Pathology department. The tissue samples included biopsies and resected specimens of large intestine.

Tissues were processed at Department of Pathology. The blocks were retrieved and recut. The sections were stained with Hematoxylin and Eosin stain. Whenever necessary, Periodic acid Schiff (PAS) and Dihydroxy-phenylalanine (DOPA) staining were done.

Fixation for light microscopy.[4]

All the specimens obtained were fixed in buffered 10% formalin. Fixation time was 12 to 24 hours.

Study by light microscopy

For light microscopy one slide from each block was routinely stained with H and E to arrive at a diagnosis.

***H and E staining*[5] and Methods of H and E staining.[4]**

Observations and Results

In the present study, the histopathological features of lesions of large intestine according to age and sex were analysed.

The study was carried out for a total period of four years from January 2004 to December 2007. A total of 370 surgical specimens were received of which 257 were resected specimens and 113 were biopsies.

Of the total 370 cases, most of the lesions of large intestine were observed in the age group of 30-60 years with male predominance i.e 278 cases.

The present study recorded 12 cases of congenital lesions, 237 cases of inflammatory lesions, 28 cases of tumor like lesions, 12 cases of benign tumors and 81 cases of malignant tumors of large intestine.

The prevalence of lesions of large intestine was 1.83%.

Table No-1. Nature of specimens

Nature of specimen	Number	Percentage
Biopsies	113	30.54
Resected specimen	257	69.45
Total	**370**	**100**

Among 370 cases, majority (257 specimens) are resected specimens accounting for 69.45% and biopsy specimens accounting for 30.54% (113 specimens).

Table No-2. Age and Sex distribution of lesions of Large intestine

Age group (yrs)	Males		Females		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
0-10	26	9.35	05	5.43	31	8.37
11-20	11	3.95	03	3.26	14	3.78
21-30	41	14.74	14	15.21	55	14.86
31-40	62	23.30	20	21.73	82	22.16
41-50	44	15.82	20	21.73	64	17.29
51-60	56	20.14	16	16.30	72	19.45
61-70	29	10.43	09	9.78	38	10.27
71-80	08	2.87	03	3.26	11	2.79
81-90	01	0.35	01	1.08	02	0.54
91-100	00	00	01	1.08	01	0.27
Total	**278**	**100**	**92**	**100**	**370**	**100**

Of the total 370 cases of lesions of large intestine, 278 are males and 92 are females. Most of the cases are noted in age group of 31-60 yrs.

Table No- 3. Distribution of lesions of Large intestine

Type of lesion	No. of cases	Percentage
Congenital	12	3.24
Inflammatory	237	64.05
Tumor like lesions	28	7.56
Benign	12	3.24
Malignant	81	21.89
Total	**370**	**100**

It is observed that inflammatory lesions are more common (i.e 237 cases) 64.05%,followed by malignant lesions (i.e 81 cases) 21.89%.Tumour like lesions are accounting for 7.56%(28cases).Benign and congenital lesions are less commonly observed.

Table No- 4. Distribution of lesions of Large intestine in different age groups

Age (Yrs)	Congenital		Inflammatory		Tumour like lesion		Benign		Malignant	
	No	%	No	%	No	%	No	%	No	%
0 – 10	10	83.33	01	0.42	19	67.85	01	8.33	02	2.46
11 – 20	02	16.66	07	2.95	04	14.28	00	00	01	1.23
21 – 30	00	00	49	20.67	02	7.14	02	16.66	06	7.40
31 – 40	00	00	66	27.84	00	00	03	25	12	14.81
41 – 50	00	00	41	17.29	00	00	00	00	19	23.45
51 – 60	00	00	48	20.25	00	00	02	16.66	19	23.45
61 – 70	00	00	18	7.59	01	3.57	04	33.33	14	17.28
71 – 80	00	00	06	1.26	02	7.14	00	00	06	7.40
81 – 90	00	00	01	0.42	00	00	00	00	01	1.23
91-100	00	00	00	00	00	00	00	00	01	1.23
Total	**12**	**100**	**237**	**100**	**28**	**100**	**12**	**100**	**81**	**100**

As evident from the above table, it is observed that congenital lesions are more common in the age group of 0 – 10years (83.33%) i.e 10 cases, followed by 11 – 20 years age group i.e 2 cases accounting for 16.66%.

Inflammatory lesions are more common in the age group of 31-40 years i.e 66 cases accounting for 27.84%.

Tumor like lesions are more common in the age group of 1-10 years i.e 19 cases accounting for 67.85%.

Benign tumors are more commonly observed in the age group of 61-70 years i.e 4 cases(33.33%), followed by 31-40 years age group i.e 3 cases(25%).

Malignant tumors are more common in the age group of 41-60 years i.e 19 cases accounting for 23.45%.

Table No – 5. Sex distribution of lesions of Large intestine

Lesions	Sex	
	Male	**Female**
Congential	11(3.95%)	01(1.08%)
Inflammatory	179(64.38%)	58(63.04%)
Tumor like lesion	24(8.63%)	04(4.34%)
Benign	10(3.59%)	02(2.17%)
Malignant	54(19.42%)	27(29.34%)
Total	**278(100%)**	**92(100%)**

It is observed that congenital (3.95%), inflammatory(64.38%), tumor like lesions(24%), benign(10%) and malignant(54%) lesions are common in males than females.

Table No-6. Inflammatory lesions of Large intestine

Histopathological type	**No. of cases**	**Percentage**
Ulcerative colitis	45	18.98
Crohn's disease	1	0.42
Ischemic colitis	2	0.84
Lymphocytic colitis	1	0.42
Tuberculosis	2	0.84
Chronic non specific fistulous tract	99	41.77
Hemorrhoids	65	27.42
Chronic non specific proctitis	6	2.53
Pilonidal sinus	16	6.75
Total	237	100

As evident from the above table, the most common inflammatory lesion of the large intestine is chronic non specific fistulous tract i.e 99 cases (41.77%), followed by hemorrhoids i.e 65 cases (27.42%). 45 cases (18.98%) of ulcerative colitis are observed, followed by 16 cases(6.75%) of pilonidal cases. Crohn's disease, lymphocytic colitis, ischemic colitis, tuberculosis and chronic non specific proctitis are less commonly observed.

Table No-7. Tumor like lesions of Large intestine

Histopathological type	Number	Percentage
Juvenile polyp	24	85.71
Hyperplastic polyp	01	3.57
Inflammatory polyp	03	10.71
Total	28	100

The most common histopathological type of tumor like lesions of large intestine is juvenile polyp i.e 24 cases (85.71%), followed by inflammatory polyp i.e 3 cases (10.71%).Hyperplastic polyp are less commonly observed.

Table No-8. Benign tumors of Large intestine

Histopathological type	Number	Percentage
Adenoma		
Tubular adenoma Villous adenoma Tubulovillous adenoma	09 01 02	75.00 8.33 16.66
Total	12	100

It is observed that, the most common adenomas of the large intestine are tubular adenoma i.e 9cases (75%), followed by tubulovillous adenoma i.e 2 cases (16.66%).Villous adenoma are less commonly seen

Discussion

In the present study total surgical specimen received were 20,210 of which 370 cases were lesions of large intestine.

Present study emphasizes on over all prevalence of lesions of large intestine in all age groups and distribution of lesions of large intestine according to age and sex.

In the present study, the prevalence of lesions of large intestine was 1.83%.

Congenital lesions of large intestine

In the present study, total of 12 cases of Hirschsprung's disease were studied.

Table No-9. Comparison of age wise distribution of Hirschsprung's disease

Age at presentation	Anupama et al [6]		Jung PM [7]		Present study	
	No of cases	%	No of cases	%	No of cases	%
0-28 days	16	64	70	51.1	07	58.3
1month - 15years	09	36	67	48.9	05	41.6

As evident from the table, age of presentation ranges from 50 -60 % in the neonatal period and 40% in the post neonatal period . In the present study 58% of cases presented in the neonatal period which correlates with that of Jung and Anupama et al who also reported the cases in same range.

Table No-10. Comparison of sex wise distribution of Hirschsprung's disease

Sex	Anupama et al [6]		Jung PM [7]		Present study	
	No of cases	%	No of cases	%	No of cases	%
Male	17	68	114	83.2	11	91.6
Female	08	32	23	16.7	01	8.3

Although present study shows male predominance in accordance with other studies, the percentage is higher than that reported by others.

Inflammatory lesions of large intestine

In the present study, maximum number of cases were inflammatory lesions (237 cases).

Table No- 11. Comparison of age and sex wise distribution of IBD

	Gismera S et al [8]		Monsen [9]		Present study	
	No.	%	No.	%	No.	%
Age(mean)	37.5yr		40yr		40yr	
Gender						
Male	536	52.8	681	53.4	26	57.7
Female	482	47.2	593	46.5	19	42.2

As evident in the above table, peak age of inflammatory bowel disease in the present study is noted in the 4th decade which correlates with the compared study. Present study shows male preponderance which is in accordance with the compared studies.

Table No- 12. Comparison of age and sex wise distribution of Tuberculosis

	Palmer et al [10]		LeungVKS et al [11]		Present study	
	No.	%	No.	%	No.	%
Age(mean)	34yr		46.5yr		50.5yr	
Gender						
Male	20	47.6	13	59.0	02	100
Female	22	52.3	09	40.9	00	00

As evident from the above table, peak age of presentation of intestinal tuberculosis is in the range of 30- 50 years. The present study encountered 2 cases of intestinal tuberculosis with peak age of 40-50 years which correlates with Leung VKS et al study.[11]

In the present study, there is male preponderance which correlates with Leung et al, with percentage being higher. But in study of Palmer KR et al[10] there is female preponderance which does not correlate with the present study.

Abcarian et al, studied 1023 cases of perianal abscess and fistulas in age range of 10 -82 years (mean ,46years) with male to female ratio of 2:1.[12] In the present study a total of 99 cases ,with age range of 20-75years (mean ,47.5years) with male to female ratio of 2.5:1 which correlates with the above study.

Dia D et al,[13] studied 168 cases of hemorrhoids with mean age of presentation 39.6 years and male to female ratio of 1.66:1.[72] In the present study a total 65 cases with mean age of presentation 40 years and male to female ratio 2:1 which is in accordance with the study compared.

In a study by Hegele A et al,[14] a total of 38 cases of pilonidal sinus were studied with mean age of presentation as 27 years.[14] Male accounts for 33 cases and female for 5 cases with male preponderance. In the present study, 16 cases with mean age of presentation as 20 years. Male accounts for 10 cases and female 6. So present study correlates in terms of age and sex with above study.

Tumor like lesions of large intestine

Table No-13. Comparison of age and sex wise distribution of Tumor like lesions

	Mandhan et al [15]		Waitakayakul et al [16]		Present study	
	No.	**%**	**No .**	**%**	**No.**	%
Age(mean)	5.2yr		5.1yr		5.5yr	
Gender						
Male	100	64.9	50	53.7	22	78.5
Female	54	35.0	43	45.4	06	21.3

In the present study the peak age of presentation is 5.5 years ,which is in accordance with the studies compared .

Although male preponderance is seen in all the three studies, percentage is higher in the present study.

Benign lesions of large intestine

Table No-14. Comparison of age and sex wise distribution of Benign tumors

	Roldan et al [17]		Present study	
	Number.	**%**	**Number.**	%
Age(mean)	67.9yr		40.1yr	
Gender				
Male	68	46.2	09	75
Female	79	53.7	03	25

Roldan et al studied 147 cases, in which benign lesions account for 114 cases with mean age of 67.9 years. Male sex accounts for 68 cases and female for 79 cases with female preponderance.[17] In the present study, 12 cases of benign lesions with mean age of presentation 40.1years which is lesser than the compared study. In the present study male accounts for 9 cases with male preponderance,and it does not correlate with the study quoted .

Table No-15. Comparison of histopathological type of Adenomas

Type of adenoma	Roldan et al[17]	Willams et al[18]	Present study
Tubular	20.4%	96.2%	75%
Tubulovillous	43.6%	3.3%	16.6%
Villous	13.6%	0.41%	8.3%

Above table compares the types of benign lesions. In the present study tubular variety is common which correlates with study by Williams et al[18], but in study by Roldan et al[17], tubulovillous variety is common which does not correlate with the present study.

Conclusion

The total surgical specimens received in our department in these fours years were 20,210 and the prevalence of lesions of large intestine in all age groups was 1.83%. Of the total 370 cases studied, 257(69.45%) were resected specimens and 113(30.54%) were biopsies. A total of 370 lesions of large intestine were analysed, of which 12(3.24%) were congenital lesions, 237(64.05%) inflammatory lesions, 28(7.56%) tumors like lesions, 12 (3.24%) benign tumors and 81(21.89%) were malignant tumors. The inflammatory lesions were the most common lesions of large intestine in this study. Among them 99(41.77%) were chronic non specific fistulous tract, 65(27.2%) hemorrhoids, 46(19.40%) inflammatory bowel disease, 16(6.75%) pilonidal sinus, 06(2.53%) chronic non specific procititis, 2(0.84%) tuberculosis, 2(0.84%) ischemic colitis and 1(0.42%) was lymphocytic colitis.

Hirschsprung's disease was the only congenital lesion of large intestine found in our study. Of total 12 cases, 7(58.3%) presented in the neonatal period and 5(41.6%) presented in the post neonatal period till 15 years of age. The lesions were predominantly found in males. Chronic non specific fistulous tract were commonly seen in the age range of 20-75 years (mean, 47.5Years) with male predominance.

Hemorrhoids were found with mean age of 39.6 years with male predominance. Inflammatory bowel disease (ulcerative and crohn's disease) were seen predominantly in the fourth decade with male predominance which accounted for 57.7%. There were two cases of tuberculosis with mean age of presentation 50.5%. Both the cases were found in males. Pilonidal sinus presented with mean age of 27 years .These lesions were commonly found in males which constituted 78.5% in our study. Juvenile polyps were the most common histopathological type of tumor like lesions. We encountered 24 (85.71%) of juvenile polyps, 3(10.71%) inflammatory polyp and 1(3.57%) was hyperplastic polyp.

The peak age of presentation in our study was 5.5 years and lesions were found more in males which accounted for 78.5%. The tubular adenoma was the most common histopathological type of benign tumors. Among the benign tumors 9 (75%) were tubular

adenoma 2(16.66%) tubulovillous adenoma and 1(8.33%) was villous adenoma. The peak age of presentation of benign tumors was 40.1years with male predominance accounting for 75%.

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