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Histopathological spectrum of lower gastrointestinal tract lesions

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Abstract
Broadly the whole gastrointestinal tract can be divided into upper and lower segments by taking the insertion of ligament of Treitz as a landmark. Lower gastrointestinal tract diseases are responsible for a great amount of morbidity. The microscopic analysis and the determination of histological types are thus helpful in deciding treatment options, predicting prognosis and conducting epidemiological studies and research. It is also useful to monitor the course of disease, extent of disease, to detect complications and asses response to therapy, also helping the surgeons to decide further management prior to resection, especially in malignant cases. An observational retrospective study of various biopsies was done at Pathology Department of B.J. Medical college, Ahmedabad, Gujarat, India. In the duration from January 2023 to September 2023. In this study, the specimens of small intestine, large intestine, appendix, rectum and anus were included. A total of 500 specimens were analysed. Results: Non-neoplastic lesions were more common than neoplastic lesions (473 out of 500). Lesions were more common in 2nd decade with male preponderance. most non-neoplastic lesions (473) were acute appendicitis (148), followed by chronic appendicitis (78) non-specific inflammation (63). Out of 27 neoplastic lesions, most common were of adenocarcinoma (13 cases) followed by neuroendocrine tumors. A wide variety of neoplastic and non-neoplastic lesions were diagnosed in the present study. The most common non-neoplastic lesion was acute appendicitis. and the most common neoplastic lesion was adenocarcinoma.

Keywords: Lower gastrointestinal lesions, acute appendicitis, adenocarcinoma

Introduction
Gastrointestinal tract is extending from oral cavity to anus. It divides into upper and lower GIT by ligament of Treitz at the duodenojejunal flexure. Anatomically lower GIT consists of small intestine, appendix, colon, rectum and anus. Disorders of lower GIT could be congenital disorders, infective, inflammatory or neoplastic lesions. Histopathology is one of most sensitive and specific method for early detection of GIT lesions and play important role in diagnosis. It is also useful to monitor the course of disease, extent of disease, to detect complications and asses response to therapy. So, histopathology is considering gold standard investigation for GI lesions. By precise histopathological examination of the margins of the excised specimen, adjacent lymph nodes and the adjacent tissues, exact grading and staging of the malignant lesion can be given.

Aims and Objectives
- To study the prevalence of various lower GIT neoplastic and non-neoplastic lesions.
- To give site-wise, symptoms wise, age-wise and gender wise distribution of lesions.

Material and Methodology
Type and duration of study: Study type is an observational study and study duration is January 2023 to September 2023.

Setting: A study was carried out at the Histopathology section of the Pathology Department of Civil Hospital, B.J. Medical College, Ahmedabad, Gujrat.

Sample size: 500 specimens.

Sampling method: Specimens were received and findings were noted. Specimens were fixed in 10% neutral buffered formalin and gross examination was done the following day after 24 hours of fixation. Specimens were processed and embedded in paraffin. Sections were cut with microtome and they were stained with Haematoxylin and eosin and Special stains were done in required cases. Microscopic findings were evaluated.

Data collection: Clinical records of the patient were collected from electronic database maintained in the department.

Statistical analysis: Results were interpreted as percentages and presented in tables.

Results

Table 1: Age-wise distribution of lower GI lesions

Age group	No. of cases	Percentage
0-10 year	48	9.6%
11-20 year	69	13.8%
21-30 year	113	22.6%
31-40 year	97	19.4%
41-50 year	51	10.2%
51-60 year	71	14.2%
61-70 year	41	8.2%
71-80 year	10	2.0%
Total	500	100%

Among 500 cases incidence were more common in 2nd decades and 3rd decades and less incidence presented in 7th decade.

Table 2: Gender-wise distribution of GIT lesions

Gender	No. of cases	Percentage
Male	307	61.4%
Female	193	38.6%

Among 500 cases Male were commonly affected than female.

Table 3: Distribution of non-neoplastic and neoplastic lesions

	cases	Percentage
Non-neoplastic	473	94.6%
Neoplastic	27	5.4%
Total	500	100%

The table shows that among all the 500 cases, non-neoplastic lesions 473 cases (94.6%) are far more common than neoplastic lesions 25 cases (5.4%)

Table 4: Site-wise distribution of GIT lesions

Site	cases	Percentage
Small intestine & cecum	106	21.2%
colon	67	13.4%
Ileum-colon	16	3.2%
Appendix	248	49.6%
Rectum	21	4.2%
Anal-canal	42	8.4%

The table shows among 500 cases, 50.2% cases from appendix which followed by small intestine and caecum, colon, anal canal and rectum.

Table 5: Distribution of cases with respect to chief complaints of the patients

Symptoms	Number of cases	Percentage
Abdominal pain	187	37.4%
Abdominal distension	32	6.4%
Mass per abdomen	17	3.4%
Discharge from anal canal	51	10.2%
Constipation	23	4.6%
Diarrhoea	64	12.8%
Bleeding per rectum	126	25.2%

Table 6: Distribution of non-neoplastic lesions

Lesions	cases	Percentage
Congenital lesions		
Hirschsprung's diseases	6	1.26%
Meckel's diverticulum	4	0.84 s%
Inflammatory lesions		
Non-specific inflammation	63	13.31%
Gangrene	23	4.86%
Inflammation with perforation	40	8.45%
Inflammation with ulceration	6	1.26%
Diverticulitis	6	1.26%
Necrotising enterocolitis	1	0.21%
Infective disease		
Ulcerative colitis	1	0.21%
Crohn's diseases	2	0.42%
Infective lesions		
Tuberculous inflammation	10	2.11%
Amoebiasis	8	1.69%
Typhoid enteritis	2	0.42%
Appendicular lesions		
Acute appendicitis	148	31.2%
Chronic appendicitis	78	16.49%
Suppurative appendicitis	13	2.74%
Perforated appendicitis	5	1.05%
Polypoidal lesions	9	1.90%
Others		
Fistula	19	4.01%
Haemorrhoids	23	4.86%
Stricture	1	0.21%
Sinus tract	1	0.21%
Rectal pouch	1	0.21%
Intussusception	2	0.42%
Gastrointestinal stromal tumour	1	0.21%
total	473	100%

Table Shows that out of 473 non-neoplastic lesions, most non-neoplastic lesions were acute appendicitis (31.2%), followed by chronic appendicitis (16.49%) non-specific inflammation 63 (13.3%).

Table 7: Distribution of neoplastic lesions

Lesions	Cases	Percentage
Mucinous neoplasia	2	7.40%
Adenocarcinoma	13	48.14%
Mucinous type adenocarcinoma	2	7.40%
Neuroendocrine tumours	3	11.11%
Mesenchymal tumour	1	3.70%
Melanoma	1	3.70%
Signet-ring adenocarcinoma	2	7.40%
GIST	1	3.70%
Poorly differentiated Carcinoma squamous cell carcinoma	1	3.70%
Squamous cell ca.	1	3.70%
Total	27	100%

In neoplastic lesions adenocarcinoma of intestine (48.14%) were most common followed by neuroendocrine tumours (11.11%).

Discussion

In our study of 500 cases of lower GIT lesions were studied.

Table 8: Age wise comparison of lesions

Age group (Years)	Jasmin Haridas Jasani *et al.*	Present study
0-10	28 (4.66%)	48 (9.6%)
11-20	85 (14.16%)	69 (13.8%)
21-30	146 (24.33%)	113 (22.6%)
31-40	146 (24.33%)	97(19.4%)
41-50	97 (16.16%)	51(10.2%)
51-60	58 (9.66%)	71(14.2%)
61-70	28 (4.66%)	41 (8.2%)
71-80	10 (1.66%)	10 (2.0%)
81-90	2 (0.33%)	-
total	600	500

On comparison in both study Highest cases were noted in 21-30 Year of age group and least cases were noted in 71-80 year of age group.

Table 9: Gender wise comparison of lesions

	Jasmin Haridas Jasani et a	Present study
Male	384 (64.0%)	307 (61.4%)
Female	216 (36.0%)	193 (38.6%)

Male are more commonly get affected than female. On Comparison with Jasmin Haridas Jasani *et al*., also male was more commonly affected.

Table 10: Comparison of neoplastic and non-neoplastic lesions with other study

lesions	Patel VK. *et al.*	Jasmin Haridas Jasani *et al.*	Present study
Non neoplastic	572 (95.34%)	570 (95.0%)	473 (94.6%)
Neoplastic	28 (4.66%)	30 (5.0%)	27 (5.4%)
Total	600	600	500

Non-neoplastic (94.6%) lesions were far more common than neoplastic (5.4%) lesions in present study.

On comparison with Patel VK. *et al*. study of 600 cases in which 95.34% lesions were non-neoplastic and neoplastic lesions were 4.66%. in Jasmin Haridas Jasani *et al*. study of 600 cases in which non-neoplastic lesions were 95.0% and neoplastic lesions were 5.0%. which is comparable with present study.

Table 11: Site-wise comparison of lesions

Site	Patel VK. *et al.*	Present study
Small intestine & caecum	158 (26.33%)	104 (21.2%)
Appendix	249 (41.5%)	248 (49.6%)
colon	93 (15.50%)	67 (13.4%)
Rectum	61 (12.2%)	21 (4.2%)
Anal canal	39 (6.5%)	42 (8.4%)
Ileum-colon	-	16 (3.2%)

Most common site for lesions is appendix, on comparison with Patel VK. *Et al*. most common site for lower GIT lesions was appendix.

Table 12: Comparison of histological types of lower gastrointestinal neoplasms

Types of neoplasm	Patel VK. *et al.*	Jasmin Haridas Jasani *et al.*	Present study
Adenocarcinoma	46.42%	50%	48.14%
Mucinous adenocarcinoma	17.85%	16.67%	7.40%
Signet ring adenocarcinoma	10.7%	10.0%	7.40%
GIST	14.28%	13.33%	3.70%
Squamous cell carcinoma	7.14%	6.67%	3.70%

In Patel VK. *et al*. and Jasmin Haridas Jasani *et al*. studies adenocarcinomas are most common neoplastic lesions, in present study adenocarcinoma was most common.

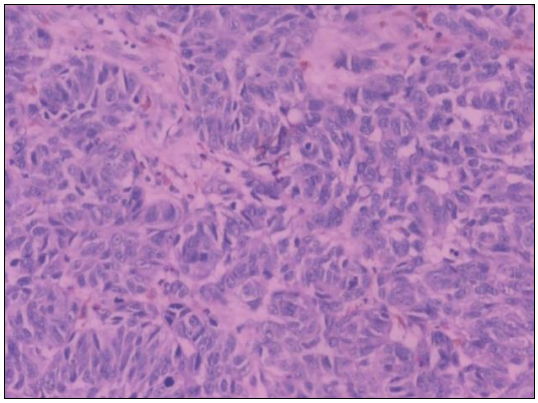

Fig 1: Melanoma of rectum, malignant cells with pigment, 20X, H&E stain

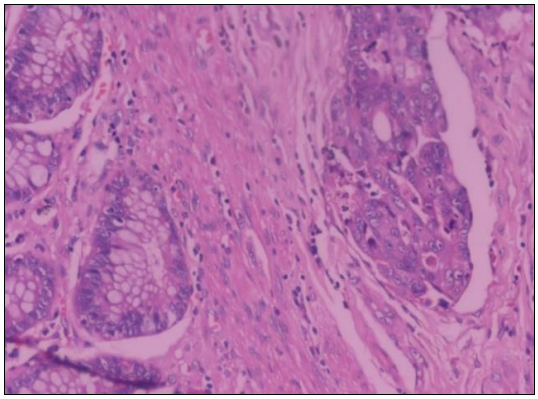

Fig 2: Adenocarcinoma of colon, Irregular tubules with nuclear pleomorphism are seen. 20x, H & E stain

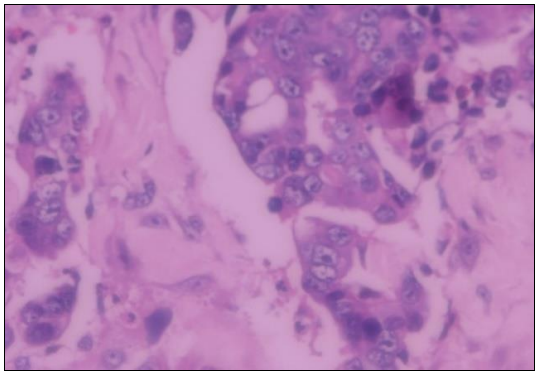

Fig 3: Adenocarcinoma, 40x, H&E stain

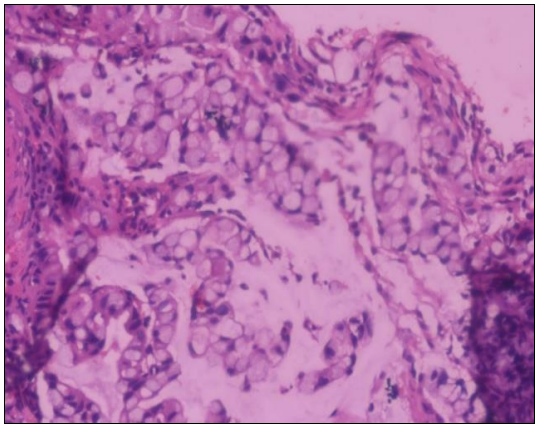

Fig 4: Mucinous type of adenocarcinoma, Cells have intracellular mucin, 20x, H&E stain

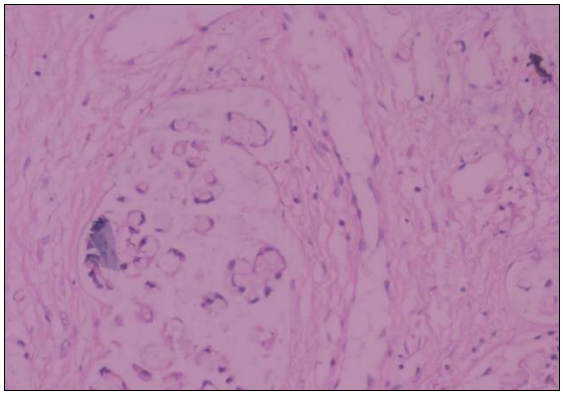

Fig 5: Signet ring adenocarcinoma, Cells have intracellular mucin and displaced nuclei 20x, H&E stain

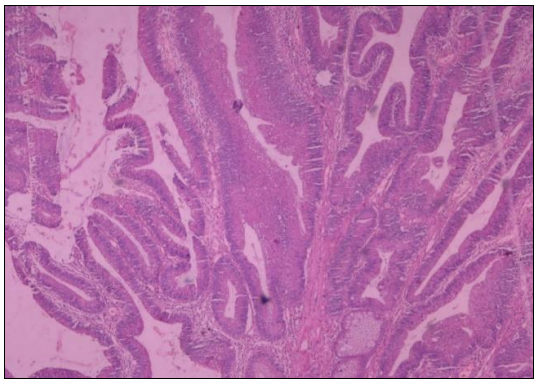

Fig 6: Tubulo-villous adenoma with adenocarcinoma, composed of finger like processes lamina propria covered by tall columnar epithelium. 10x, H E stain

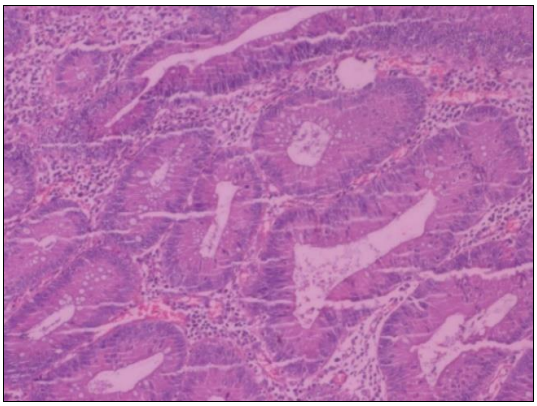

Fig 7: Tubulo-villous adenoma with adenocarcinoma, 20x, H&E stain

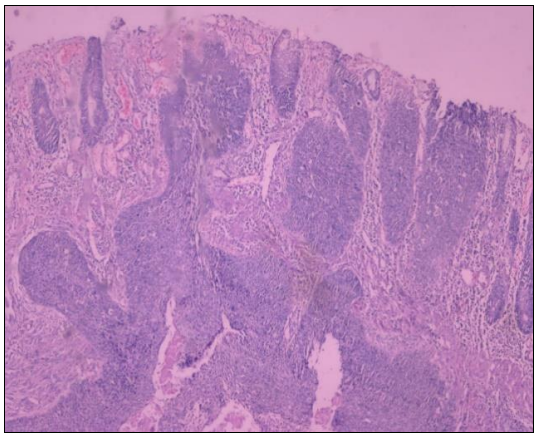

Fig 8: Poorly differentiated squamous cell carcinoma, 10x, H&E stain

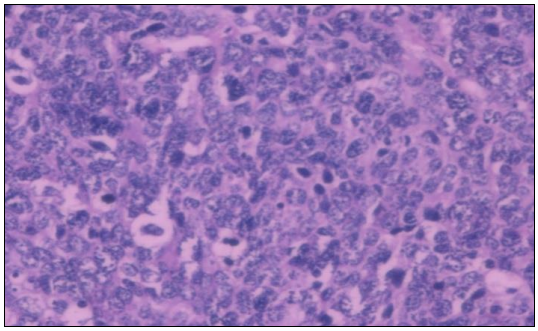

Fig 9: Poorly differentiated squamous cell carcinoma, few mitotic figures, 40x, H&E stain

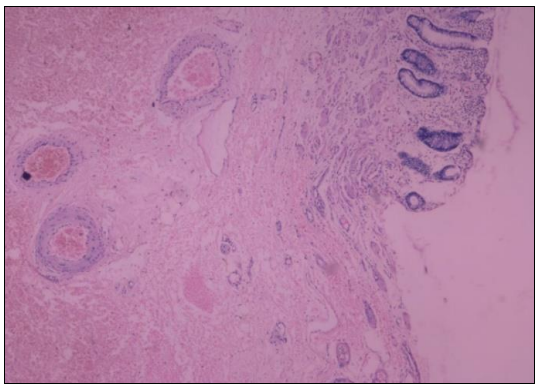

Fig 10: Thrombosed Haemorrhoids, 10x, H & E stain

Conclusion

A wide verity of neoplastic and non-neoplastic lesions was diagnosed in present study. Male were more affected than female.

Non-neoplastic lesions were more common compare to neoplastic lesions. The most common non-neoplastic lesion was appendicular lesions and the most common neoplastic lesion was adenocarcinoma.

Histopathological findings need to be correlate with clinical history and colonoscopy findings so that clinician can implement appropriate treatment at the earliest for better patient care and survival

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Not available.

Author's Contribution

Not available.

Conflict of Interest

Not available.

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Not available.

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