



ISSN (P): 2617-7226  
ISSN (E): 2617-7234  
[www.patholjournal.com](http://www.patholjournal.com)  
2024; 7(3): 155-158  
Received: 08-06-2024  
Accepted: 09-07-2024

**Dr. Dhruvi Pareshbhai Pandya**  
Resident Doctor, Department  
of Pathology, Narendra Modi  
Medical College & Sheth LG  
General Hospital, Maninagar,  
Ahmedabad, Gujarat, India

**Dr. Swati Biren Parikh**  
Professor and Head,  
Department of Pathology,  
Narendra Modi Medical College  
& Sheth LG General Hospital,  
Maninagar, Ahmedabad,  
Gujarat, India

**Dr. Biren Jitendra Parikh**  
Associate Professor,  
Department of Pathology,  
Narendra Modi Medical College  
& Sheth L.G. General Hospital,  
Maninagar, Ahmedabad,  
Gujarat, India

**Dr. Kartavya Jatin Mistry**  
Resident Doctor, Department  
of Pathology, Narendra Modi  
Medical College & Sheth LG  
General Hospital, Maninagar,  
Ahmedabad, Gujarat, India

**Dr. Khushi Biren Parikh**  
MBBS Doctor, Smt. NHL  
Municipal Medical College,  
Ahmedabad, Gujarat, India

**Corresponding Author:**  
**Dr. Dhruvi Pareshbhai Pandya**  
Resident Doctor, Department  
of Pathology, Narendra Modi  
Medical College & Sheth LG  
General Hospital, Maninagar,  
Ahmedabad, Gujarat, India

## Histopathological spectrum of intestinal lesions: A study at tertiary care hospital in Gujarat

**Dr. Dhruvi Pareshbhai Pandya, Dr. Swati Biren Parikh, Dr. Biren Jitendra Parikh, Dr. Kartavya Jatin Mistry and Dr. Khushi Biren Parikh**

**DOI:** <https://doi.org/10.33545/pathol.2024.v7.i3c.595>

### Abstract

**Introduction:** The disorders of gastrointestinal tract are responsible for a great deal of morbidity and mortality and are one of the most commonly encountered problems in clinical practice. Infections, inflammatory diseases, and tumour affect the small intestine accounting for a majority of diseases. The definitive diagnosis of gastrointestinal lesions largely depends on the histopathological confirmation and is one of the basis for planning proper treatment regimen.

**Aim and Objectives:** The objective of this study was to observe the histopathological spectrum of intestinal lesions, to evaluate age and sex wise distribution of intestinal lesions and to compare results with other studies.

**Materials and Methods:** An observational study was carried out from January 2022 to December 2022 at Narendra Modi Medical College and Sheth L.G. General Hospital, Maninagar, Ahmedabad. The tissue samples included biopsies and resected specimens of intestine received from various clinical departments. Autolyzed specimens or tissues were excluded from the study. A total of 88 cases were included in present study. Histopathological examination of these cases was carried out and data were recorded and further analyzed. The results were expressed in numbers and percentages.

**Observation and Results:** Out of 88 cases, 5(5.7%) lesions were neoplastic and 83(94.3%) cases were non-neoplastic. Non-neoplastic lesions included tuberculous inflammation, intestinal gangrene and other inflammatory lesions. Non-neoplastic lesions were mainly found in small intestine while large intestine and rectum harbored most of the neoplastic lesions.

**Conclusion:** The study emphasizes the need for early diagnosis of the disease through histopathology, which when correlated clinically will help the surgeon/clinician to implement the appropriate treatment and improve the survival of the patients.

**Keywords:** Intestinal lesions, neoplastic, non-neoplastic, histopathology

### Introduction

The small intestine and large intestine account for the majority of gastrointestinal tract [1]. They are the sites of a broad array of diseases [2]. Broadly, the whole gastrointestinal tract can be divided into upper and lower segments by taking the insertion of the ligament of Treitz as a landmark. The ligament of Treitz is a suspensory muscle of the duodenum, a thin muscle connecting the junction between the duodenum, jejunum and duodeno-jejunal flexure to the connective tissue surrounding the superior mesenteric artery and coeliac artery [3]. It is a site for infections, vascular disorders, ulcers, various inflammatory conditions and neoplasms [4]. The benign lesions of the lower gastrointestinal tract are frequently found and are responsible for a large number of morbidities. Nearly 75% of the total length of the gastrointestinal tract is made up by small bowel and it constitutes more than 90% of the mucosal surface area [5]. These include both neoplastic and non-neoplastic, such as inflammatory lesions, polyps, cancerous growths, with some of the inflammatory lesions being premalignant. The diseases of gastrointestinal tract are more common than any other system of the body. Intestinal neoplasm is a common form of neoplasm in India and world over. It is a leading cause of death in the developed world, although more than half cases of carcinoma occurs in developing world it further emphasizes proper documentation of histopathologically diagnosed neoplasm in the gastrointestinal tract.

## Materials and Methods

An observational study was carried out from January 2022 to December 2022 at Narendra Modi Medical College and Sheth L.G. General Hospital, Maninagar, Ahmedabad. The tissue samples included biopsies and resected specimens of intestine received from various clinical departments. Autolyzed specimens or tissues were excluded from the study. A total of 88 cases were included in present study. All the specimens obtained were fixed in buffered 10% formalin. Sections were processed by routine paraffin embedding technique & stained with Hematoxylin and Eosin stain. Special stains like Giemsa, Zeihl Neelson, Alcian blue and Periodic Acid Schiff stains were used as and when necessary. Slides were examined and histopathological diagnoses were given. The diagnosis, typing of and staging of tumors were made following the latest guidelines of World Health Organization. The collected data were recorded in Microsoft Excel spreadsheet and were analyzed. The results were expressed in numbers and percentages.

## Observation and Results

The study consisted of 88 cases, with a majority being male (63.6%, N=56) and the remaining being female (36.3%, N=32). The majority of cases (20.4%, N=18) were concentrated in the 3rd and 4th decades of life, whereas the youngest age group (1-10 years) was the least affected, with only 1 case (1.13%) reported. (Table 1).

The study examined a total of 88 cases of intestinal lesions, and the overwhelming majority, 94.3% (N=83), were found to be non-neoplastic. This suggests that the vast majority of the cases were non-cancerous and may have been caused by factors such as inflammation, infection, or other non-malignant conditions.

In contrast, neoplastic lesions, which are abnormal growths of tissue, accounted for a relatively small proportion of the total cases, at 5.68% (N=5). However, it's important to note that even though neoplastic lesions were less common, they can still have significant clinical implications.

The neoplastic lesions were further classified into two subcategories: benign and malignant. Benign neoplastic lesions, which are non-cancerous growths, accounted for 1.13% (N=1) of the total cases. Malignant neoplastic lesions, which are cancerous growths, accounted for 4.57% (N=4) of the total cases. This highlights the importance of accurate diagnosis and treatment of neoplastic lesions, as malignant lesions can have serious consequences if left untreated. (Table 2).

The study's findings showed a significant predominance of non-specific inflammation, which affected 68.2% (N=60) of the total cases, encompassing both non-neoplastic and neoplastic intestinal lesions. This suggests that inflammation is the most common underlying pathology in intestinal lesions.

### The remaining cases were distributed among various conditions, including:

- Intestinal perforation, which accounted for 13.6% (N=12) of the cases, indicating a significant proportion of cases with severe intestinal damage.
- Gangrene, which affected 5.7% (N=5) of the cases, highlighting the presence of tissue death due to inadequate blood supply.
- Tuberculosis, which comprised 4.6% (N=4) of the

cases, indicating a notable presence of this infectious disease in the intestinal lesions.

- Ulcer, which accounted for 2.3% (N=2) of the cases, suggesting a smaller but still significant presence of ulcerative lesions.

Notably, the rarest condition observed in the study was small intestinal submucosal lipoma, which accounted for only 1.1% (N=1) of the total cases. This benign tumor, which arises from the submucosal layer of the small intestine, was the least common condition among all the intestinal lesions studied. (Table 3).

The distribution of cases across intestinal sites revealed a predominance of small intestine involvement (75%, N=66), with fewer cases affecting the large intestine (23.86%, N=21) and a solitary case in the rectum (1.13%, N=1).

Non-neoplastic lesions were most commonly found in the small intestine (73.50%, N=61), followed by the large intestine (25.30%, N=21), with the rectum being the least affected site (1.20%, N=1).

Neoplastic lesions were solely confined to the small intestine, with all 5 cases occurring in this region, and none in the large intestine or rectum. (Table 4).

## Discussion

The lower gastrointestinal tract can be affected by various benign lesions, including congenital anomalies such as Hirschsprung's disease, intestinal atresia, and malrotation with volvulus, as well as conditions like coeliac disease, ulcers, benign inflammatory lesions, benign polyps, lipomas, neurofibromas, and others<sup>[6]</sup>. Malignancies in the lower gastrointestinal tract are primarily comprised of adenocarcinomas, with smaller occurrences of squamous cell carcinomas, small cell carcinomas, and hematopoietic malignancies. Adenocarcinoma stands out as the most prevalent malignant lesion in this region. The development of colonic adenocarcinoma involves a complex array of molecular events, characterized by genetic and epigenetic abnormalities. Notably, two distinct genetic pathways contribute to its formation: the APC/ $\beta$ -catenin pathway, linked to the WNT signaling pathway and the traditional adenoma-carcinoma sequence, and the microsatellite instability pathway, associated with defects in DNA mismatch repair. Additionally, a third group of colon cancers exhibits increased CpG island methylation without microsatellite instability, highlighting the heterogeneity of molecular mechanisms underlying colonic adenocarcinoma<sup>[7, 8]</sup>. Adenocarcinoma can manifest in various gross forms, including flat, stenosing, ulcerative, infiltrative, and polypoid lesions. Upon microscopic examination, adenocarcinoma can be classified into three grades based on the cellular arrangement and degree of tubular (acinar) formation, which provides insight into the tumor's differentiation and aggressiveness.

In the present study, 61 cases of non-neoplastic small intestinal lesions were examined, with 53 (86.88%) classified as other inflammatory lesions which included a range of conditions such as acute enteritis, chronic enteritis, and ulcerative lesions, 4 (6.55%) as tuberculosis, and 4 (6.55%) as gangrene. The consistent finding across studies done by Khan *et al.*<sup>[9]</sup>, Pooja Patel *et al.*<sup>[10]</sup> and Nanavati M, *et al.*<sup>[11]</sup> is the predominance of other inflammatory lesions among non-neoplastic small intestinal lesions, with tuberculosis and gangrene being less common. This

highlights the importance of considering inflammatory lesions in the diagnosis and management of small intestinal disorders. The similarity in findings across studies suggests that the present study's results are consistent with existing literature and contribute to our understanding of the spectrum of non-neoplastic small intestinal lesions. (Table 5). The present study examined 88 intestinal lesions, with a majority being non-neoplastic (83, 94.31%) and a smaller proportion being neoplastic (5, 5.68%). This finding is consistent with previous studies, including Krishnappa Rashmi *et al*<sup>13</sup>, which reported 56% non-neoplastic and 44% neoplastic lesions among 100 cases, Patel VK, *et al.* <sup>[12]</sup>, which found 95.34% non-neoplastic and 4.66% neoplastic lesions among 600 cases, and Nanavati M, *et al.* <sup>[11]</sup>, which identified 78.5% non-neoplastic and 21.5% neoplastic lesions among 200 cases, all of which demonstrate a predominance of non-neoplastic lesions similar to the present study. This consistency suggests that non-neoplastic lesions are more common than neoplastic lesions in the intestine, across different study populations and sample sizes.

**The similarity in findings across studies can be attributed to several factors like**

- Prevalence of non-neoplastic conditions: Non-neoplastic lesions, such as inflammatory and infectious conditions, are more common in the general population.
- Diagnostic accuracy: Histopathological examination,

used in all studies, is a reliable method for diagnosing intestinal lesions, reducing the likelihood of misclassification.

- Study population: The studies may have similar demographic characteristics, such as age, sex, and geographic location, which could influence the types of lesions encountered.

The consistency of findings across studies highlights the importance of considering non-neoplastic lesions in the differential diagnosis of intestinal lesions, and underscores the need for accurate histopathological diagnosis to guide effective management and treatment (Table 6).

**Tables**

**Table 1:** Distribution of intestinal lesions according to age and sex of the patients

Age (years)	Male	Female	Total	Percentage (%)
1-10	01	00	01	1.13%
11-20	05	03	08	9.09%
21-30	11	07	18	20.4%
31-40	15	03	18	20.4%
41-50	08	05	13	14.7%
51-60	09	06	15	17.04%
61-70	04	07	11	12.5%
>70	03	01	04	4.54%
Total	56	32	88	100%

**Table 2:** Distribution of intestinal lesions according to nature of lesions

Nature of intestinal lesions	No. of cases	Percentage (%)
Non-Neoplastic	83	94.3%
Benign Neoplastic	01	1.13%
Malignant Neoplastic	04	4.57%
Total	88	100%

**Table 3:** Distribution of neoplastic and non-neoplastic lesions according to histopathology diagnosis

Diagnosis	No. of cases	Percentage (%)
Tuberculosis	04	4.6%
Gangrene	05	5.7%
Ulcer	02	2.3%
Perforation	12	13.6%
Lipoma	01	1.1%
Carcinoma	04	4.5%
Other Inflammatory Lesions	60	68.2%
Total	88	100%

**Table 4:** Distribution of intestinal lesions according to type and site of the lesions

Site	Non-Neoplastic	Neoplastic	Total	Percentage (%)
Small Intestine	61	05	66	75%
Large Intestine	21	00	21	23.9%
Rectum	01	00	01	1.1%
Total	83	05	88	100%

**Table 5:** Comparison of etiology of non-neoplastic small intestinal lesions with other studies

Etiology	Khan <i>et al.</i> <sup>[9]</sup>	Pooja Patel <i>et al.</i> <sup>[10]</sup>	Nanavati M <i>et al.</i> <sup>[11]</sup>	Present study
Tuberculosis	02(28.6%)	03(8.3%)	06(15.4%)	04(6.55%)
Gangrene	00(0%)	05(13.9%)	04(10.2%)	04(6.55%)
Other Inflammatory Lesions	05(71.4%)	28(77.8%)	29(74.4%)	53(86.88%)
Total	07(100%)	36(100%)	39(100%)	61(100%)

**Table 6:** Comparison of Non neoplastic and Neoplastic lesions of intestine with other studies

Nature of intestinal lesions	Nanavati M, <i>et al.</i> [11]	Patel VK, <i>et al.</i> [12]	Krishnappa Rashmi, <i>et al.</i> [13]	Present study
Non neoplastic	157(78.5%)	572(95.34%)	56(56%)	83(94.31%)
Neoplastic	43(21.5%)	28(4.66%)	44(44%)	05(5.68%)
Total	200(100%)	600(100%)	100(100%)	88(100%)

### Conclusion

The present study and previous studies share a common finding: the presence of various intestinal lesions, both non-neoplastic and neoplastic, which can manifest with nonspecific symptoms, making diagnosis challenging. This similarity highlights the importance of timely and accurate histopathological diagnosis, correlated with clinical findings, to facilitate early intervention and improve patient outcomes. This similarity underscores the significance of a multidisciplinary approach, combining clinical evaluation, histopathological examination, and timely intervention, to enhance patient care and outcomes in cases of intestinal lesions.

### Acknowledgements

We would like to thank and acknowledge all our senior faculties who have helped in completing our study.

### Conflict of Interest

Not available

### Financial Support

Not available

### References

- Masgal M, Vaddadi V, Patil A, Anita M. Histopathological spectrum of intestinal lesions. *J Diagn Pathol Oncol.* 2018;3(4):330-34.
- Nanavati MG, Parikh JH, Gamit KS. A histopathological study of intestinal lesions. *Int J Sci Res.* 2014;3(9).
- Gray H, Standring S. *Gray's anatomy: the anatomical basis of clinical practice.* 2005:1357-71.
- Large intestinal lesions with clinicopathological correlation. *J Clin Diagn Res.* 2015;9(11):30-4.
- Xynopoulos D, Mihas AA, Paraskevas E, Dimitroulopoulos D, Heuman DM, Mihas AA. Small bowel tumours. *Ann Gastroenterol.* 2002;15(1):18-35.
- Rosai J. *Rosai and Ackerman's surgical pathology e-book.* Elsevier Health Sciences. 2011.
- Hinoi T, Tani M, Lucas PC, Caca K, Dunn RL, Macri E, *et al.* Loss of CDX2 expression and microsatellite instability are prominent features of large cell minimally differentiated carcinomas of the colon. *Am J Pathol.* 2001 Dec;159(6):2239-48.
- McGregor DK, Wu TT, Rashid A, Luthra R, Hamilton SR. Reduced expression of cytokeratin 20 in colorectal carcinomas with high levels of microsatellite instability. *Am J Surg Pathol.* 2004 Jun;28(6):712-8.
- Khan Z, Khan R, Usman SI, Afroz N, Harris SH. Spectrum of intestinal lesions: a clinicopathological study in a tertiary care centre. *IP Arch Cytol Histopathol Res.* 2023;8(4):236-240.
- Patel P, *et al.* Histopathological study of distribution of non-neoplastic and neoplastic lesions. *IP Arch Cytol Histopathol Res.* 2019 Apr-Jun;4(2):138-142.
- Nanavati M, Parikh J, *et al.* Histopathological study of intestinal lesions. *Int J Sci Res.* 2014;3(9).

- Patel VK, Goyal AD. Histopathological study of lower gastrointestinal tract lesions. *Trop J Pathol Microbiol.* 2021;7(4):194-200.
- Krishnappa R, *et al.* Histopathological spectrum of upper gastrointestinal tract. *Int J Med Res Health Sci.* 2013;2(3):418-424.

### How to Cite This Article

Pandya DP, Parikh SB, Parikh BJ, Mistry KJ, Parikh KB. Histopathological spectrum of intestinal lesions: A study at tertiary care hospital in Gujarat. *International Journal of Clinical and Diagnostic Pathology.* 2024;7(3):155-158.

### Creative Commons (CC) License

This is an open-access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.