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Original Research Article

Evaluation of Prevalence of Gastric Lesions among Patients in a Tertiary Care Center- A Retrospective Histopathological Study

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Conflict of interest: Nil

Abstract:

Introduction: In clinical practice gastrointestinal lesions are commonly encountered by physicians. The lesions may either belong to non-neoplastic or neoplastic category. Prompt detection of the lesions help in early management of the lesions successfully.

Aim: To assess the epidemiology and prevalence of spectrum of neoplastic and non-neoplastic gastric lesions using histopathology.

Materials and Methods: This cross-sectional, retrospective study was done for duration of 1yr in a Tertiary Care Centre from Feb 2023 to Jan 2024. 326 patients record from the Department of General Pathology along with paraffin embedded tissue blocks from resected specimens and biopsies of stomach.

Results: 32% of patients were in the age range of 40-50years, the ratio of males was twice that of females (2:1). All specimens obtained in the current study were from resections, incisional and excisional biopsies. 73% were inflammatory lesions followed by 19% benign tumors and only 8% were malignant tumors. 68% of inflammatory gastric lesions occurred in the pylorus and antrum, 46% of benign gastric tumors occurred in fundus and cardia, and 71% of malignant gastric tumors occurred in pylorus and antrum. In inflammatory lesion 43% were chronic gastritis with H pylori, 78% benign gastric tumors were hyperplastic polyp and 71% of malignant gastric tumors were adenocarcinomas of which 65% were moderately differentiated adenocarcinomas.

Conclusion: Histopathological evaluation still remains the gold standard used for accurate early detection of GI tract lesions especially malignant one hence it helps in their early management. Our study of gastrointestinal tract lesions throws a light on early diagnosis by histopathology beneficial for the patients.

Keywords: Adenocarcinomas, Chronic gastritis, Hyperplastic polyp, Gastric lesions.

Introduction

The diseases of the gastrointestinal tract are most commonly seen in day-to-day clinical practice and encompasses lesions from oesophagus, stomach, appendix, intestine and colorectal areas.[1] Stomach is the most dilated portion of the digestive system and positioned between oesophagus superiorly and small intestine inferiorly. It is a hollow large muscular organ to hold food and acts as a reservoir of food. [2]

Lesions of the stomach are part of gastrointestinal lesions and affect the normal functioning of the stomach. The pathologies of the stomach range from congenital anomalies to inflammatory conditions to neoplastic lesions both benign and malignant. The biopsies or resected specimens are assessed histopathologically for proper identification of the lesion and thus aids in determining the extent and severity of the disease. It also helps in monitoring the course of the disease and premalignant changes, response to therapy and early detection of complications. [3] Thus the aim of the current study was to assess the epidemiology and prevalence of spectrum of neoplastic and non-neoplastic gastric lesions using histopathology.

Materials and Methods

The current study was a single centre, retrospective, cross sectional study conducted on 326 patients in Department of General Pathology of Tertiary Care Centre. The study spanned for over a year from Feb 2023 to Jan 2024 and paraffin embedded tissue blocks from resected specimens, incisional and excisional biopsies of stomach were selected from the database of archives along with demographic and clinical data.

All the biopsies and resected specimens of stomach received in the Department of General Pathology in the age range of 20-80yrs were included in the current study. The lesions from other part of GIT like oesophagus and lesions of GIT beyond stomach

and specimens from patients in 1st and 2nd decade of life were excluded from the current study. The paraffin embedded sections of formalin fixed tissue specimens were obtained from the archives of the Department of General Pathology. Sections of 5µm were prepared using a semiautomatic microtome and stained with Haematoxylin and Eosin. The slides were assessed histopathologically by an experienced General Pathologist. The details of age, gender, site of lesion and histopathological diagnosis was tabulated and the values were statistically analysed and expressed as percentile.

Results

The current study was a cross-sectional retrospective study conducted on a total of 326 specimens obtained from resection or incisional and excisional biopsy of stomach. Out of which 32% (102) were 41-50yrs of age and only 7% (24) were in the age range of 71-80yrs. (Table 1) (Chart 1)

Table 1: showing age distribution of gastric lesions in the study

	Total no of cases (326)	Percentage
21-30	34	10%
31-40	45	14%
41-50	102	32%
51-60	64	20%
61-70	57	17%
71-80	24	07%

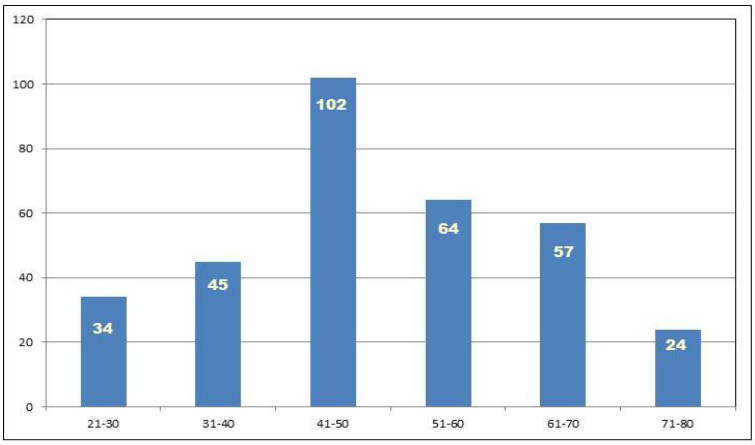

Chart 1: Bar graph showing the age distribution of gastric lesions in the study

Among 326 patients with gastric lesions 66% (214) were males and 34% (112) were females and the M:F was close to 2:1. (Chart 2)

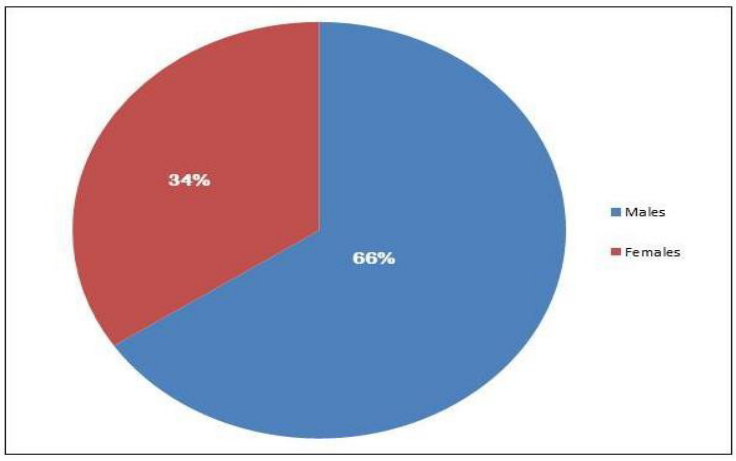

Chart 2: Pie chart showing gender distribution of gastric lesions in the study

Among 326 gastric lesions 73% (239) of the cases were inflammatory, followed by 19% (63) benign gastric tumors and 8% (24) were malignant gastric carcinomas. Out of 239 inflammatory gastric lesions 68% (161) occurred in pylorus and antrum followed by body in 24% (58) and fundus and car-

dia in 8% (20). Among 63 benign tumors 46% (29) were seen in fundus and cardia followed by pylorus and antrum in 37% (23) and body in 17% (11) cases. Out of 24 malignant tumors 71% (17) occurred in pylorus and antrum and 29% (07) occurred in body. (Table 2) (Chart 3)

Table 2: showing site specific distribution of gastric lesions in the study

Location	Inflammatory 73% (239)	Benign Tumors 19% (63)	Malignant tumor 8% (24)
Fundus & Cardia	20 (8%)	29 (46%)	-
Body	58 (24%)	11 (17%)	7 (29%)
Pylorus and antrum	161 (68%)	23 (37%)	17 (71%)

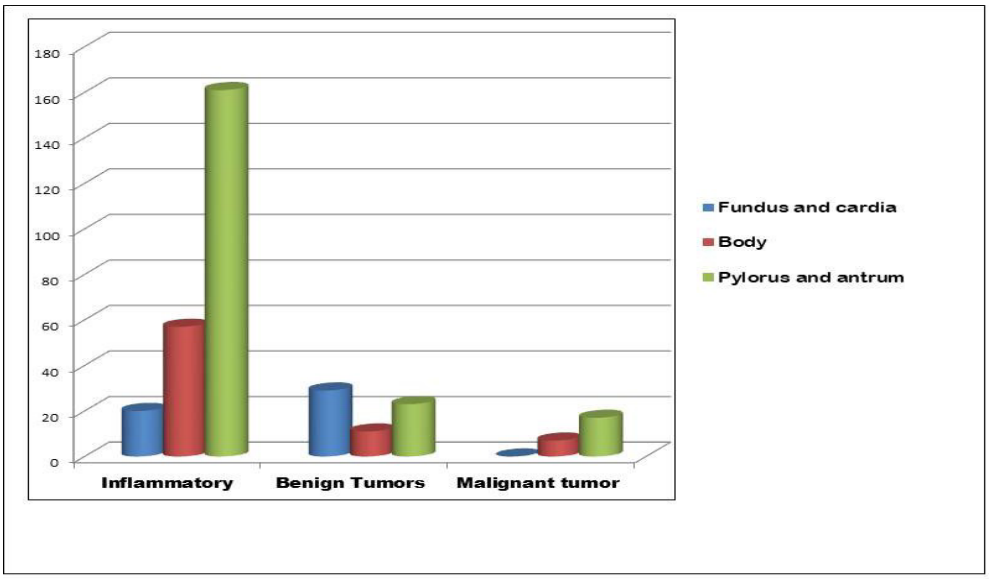

Chart 3: Bar graph showing site specific distribution of gastric lesions

Out of 239 cases of inflammatory gastric lesions 43% (101) were chronic gastritis with Helicobacter pylori (Fig 1) and 3% (7) were gastric ulcers. Among 63 cases of benign gastric tumors 78% (49) were hyperplastic polyp (Fig 2) and 22% (14) were fundic gland polyp. Out of 24 malignant gastric tumors 71% (17) were adenocarcinoma and 29% (07) were diffuse carcinoma. Among 17 adenocarcinomas 65% (11) cases were diagnosed as moderately differentiated (Fig 3) and 23% (04) cases as well differentiated and 12% (02) cases as poorly differentiated. (Table 3)

Table 3: showing distribution of inflammatory, benign and malignant gastric tumors

Inflammatory lesions of stomach	No of cases (239)	Percentage (%)
Chronic gastritis with H pylori	101	43%
Chronic non-specific gastritis	87	36%
Acute non-specific gastritis	19	08%
Chronic gastritis with intestinal metaplasia	15	06%
Chronic gastritis with low grade dysplasia	10	04%
Gastric ulcer	7	03%
Benign tumors of stomach		
	No of cases (63)	**Percentage (%)**
Hyperplastic polyp	49	78%
Fundic gland polyp	14	22%
Malignant tumors of stomach		
	No of cases (24)	**Percentage (%)**

Adenocarcinoma	17 Well differentiated- 04 (23%) Moderately differentiated-11 (65%) Poorly differentiated-02 (12%)	71%
Diffuse carcinoma	07	29%

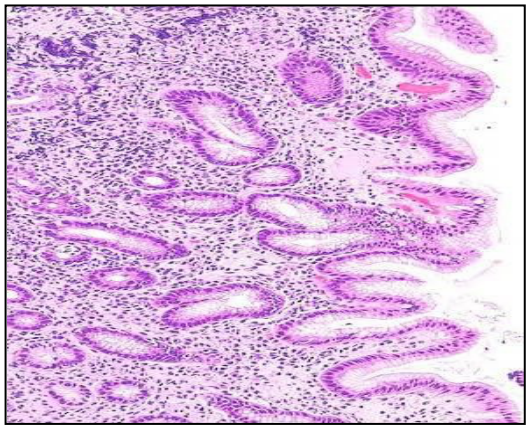

Figure 1: histopathology shows gastric mucosa with mild acanthosis along with edema and chronic inflammatory cell infiltrate (Chronic gastritis; H&E; 10x)

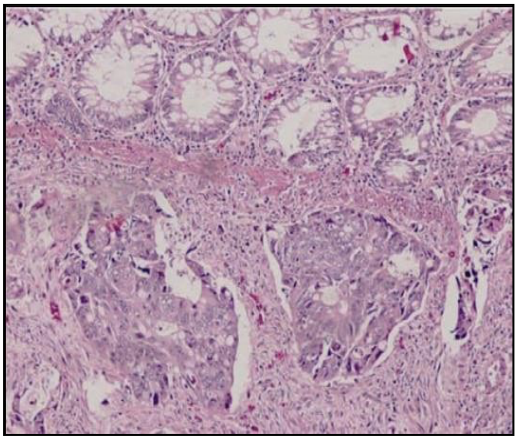

Figure 2: histopathology shows proliferation of gastric mucosa characterized by elongated tortuous gastric glands extending deep into the lamina propria (Hyperplastic polyp; H&E 40x)

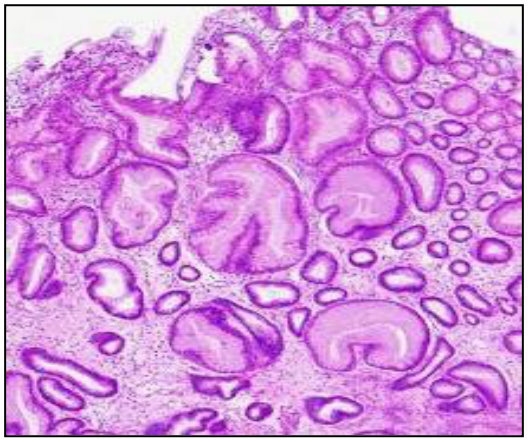

Figure 3: histopathology shows malignant gastric glands composed of irregular nest of polygonal tumor cells invading into underlying connective tissue stroma (Moderately differentiated Adenocarcinoma; H&E; 40x)

Discussion

Stomach shares embryological origin with other parts of the GIT but differs in that stomach is adapted primarily for secretion and not absorption and has an acidic environment. Non- neoplastic gastric lesions diffusely involve the stomach and may be either due to inflammation, atrophy, hypertrophy, ulcers, fibrosis etc. The common clinical presentations of gastric lesions are persistent abdominal pain, dysphagia, anorexia, nausea, hematemesis, dyspepsia, weight loss etc. [4] The lesions occurring in the stomach are a component of GIT which are commonly encountered by practitioner and are associated with high rate of morbidity and mortality.[5]

The gastric lesions are broadly classified as neoplastic and non-neoplastic and show a wide variation when viewed under histopathology. The definitive diagnosis of gastric lesions rests on histopathological confirmation and forms the base for planning proper treatment.[6] Thus the aim of the current study was to the epidemiology and prevalence of spectrum of neoplastic and non-neoplastic gastric lesions using histopathology.

It was noted that majority of the patients in the current study were in the age range of 40- 50yrs and the least patients noted were in the age group of 70-80yrs. This finding of the study was consistent with findings of Quershi 2007 and Tarun Mittal 2020. Although in general it is noted that the age range for gastric lesions is in middle age. [7,8] In this current study majority of the participants were males and the male: female was close to 2:1. This finding was similar to the studies of Shennak MM 1997, Sharma 2015, Veerendrasagar 2020, and Sunil Kumar Mahto 2024. We agree with Sunil Mahto who suggested that the ratio favouring men may be due to the fact that men are more likely than women to be exposed to risk factors and stress. [9-12]

The specimens in the current study were obtained from resections or incisional and excisional biopsies. In the current study the most common site from where specimen was obtained was from pylorus and antrum and the least common site was fundus and cardia. This finding is consistent with Krishnappa Rashmi 2013 and Tarun Mittal 2020.[8,13] The pyloric antrum of the stomach if different from fundus in that pyloric antrum has less glandular volume, twice the amount of leucocytes and have different histological structure. In the present study majority of the lesions occurring in the stomach were inflammatory lesions followed by benign and malignant lesions. This finding of the current study was similar to the findings of most studies like Rashmi 2013 and Aruna E 2020. However these findings contradicted with findings of Meshram 2020 who found that malignant lesions were the most common gastric lesion. [13-15] among the inflammatory gastric lesions, chronic gastritis with H pylori was the most common lesion and gastric ulcer was the least common lesion. This finding of our study is similar to the studies of Rani D 2019 and Dutta R 2023. However, these findings contradicted the studies of Bhat N 2018, Bhargavi 2019 and Aruna 2020. [14,16-19] The prevalence of H Pylori gastritis is variable in studies and might be dependent on variable like age, gender, geographic areas, race, ethnicity and socioeconomic status. The rates appear to be higher in developed countries and its incidence is decreasing followed by improvement in hygiene, availability of good antibiotics and antacids and also as H pylori may be missed in routine H&E staining.[20] In the current study, among the benign gastric tumors hyperplastic polyp was more common than fundic gland polyp. This is consistent with findings of Parikh 2024 and suggested a strong inflammatory nature of hyperplastic gastric polyps. However findings of Rani D 2019 found fundic polyp to be more common than hyperplastic polyp and was in contrast to the findings of this study. [16,20]

In the current study the most common malignant gastric tumor was adenocarcinoma followed by diffuse carcinoma and pylorus was the most commonly affected site and fundus and cardia was the least common site. Moderately differentiated adenocarcinoma was seen more commonly followed by well differentiated and poorly differentiated adenocarcinoma. This was consistent with findings of most of the studies like Rajesh Thakur 2016, Ganga H 2018. [21,22]

Gastrointestinal tract is the most common extranodal site involved by lymphoma with the majority being Non-Hodgkin type. Although lymphoma can involve any part of the gastrointestinal tract, the most frequent sites in order of its occurrence are the stomach followed by small intestine and ileocecal region. But in the current study there were no cases of lymphoma reported. [23]

Limitations

The current study was a retrospective study instead of randomised clinical trial. In this study histopathology was the only diagnostic tool details of endoscopy were not available. A thorough examination on the presence of H pylori with high accuracy in cases of chronic gastritis may be helpful. A larger sample size with patients from various demographic areas may shed more light on the actual prevalence of gastric lesions. Furthermore, incorporation of molecular and genetic tests may help better understand the underlying mechanism.

Conclusion

Gastrointestinal lesions are encountered commonly in the practice. Gastric lesions are seen commonly

in 4-6th decade of life and occur more commonly in males than females. Gastric lesions are found commonly in the pylorus and antrum followed by body, cardia and fundus. Non-neoplastic gastric lesions are more common than the neoplastic lesions. Chronic gastritis is the most commonly noted inflammatory gastric lesion and hyperplastic polyp is the most common benign gastric tumor. Adenocarcinoma was the most common malignant gastric tumor and moderately differentiated adenocarcinomas was the common variant.

References

1. Bamanikar S, Sankawade D, Bamanikar A, Gore C, Chandanwale S, Buch A, et al. Histomorphology Spectrum of Gastrointestinal Lesions in A Tertiary Care Centre. Acta Scientific Cancer Biol. 2019; 3(12):4–11.
2. Hosoda K, Watanabe M, Yamashita K. Re-emerging role of macroscopic appearance in treatment strategy for gastric cancer. Ann Gastroenterol Surg. 2019 Mar; 3(2):122- 129.
3. Shepherd NA, Valori RM. The effective use of gastrointestinal histopathology: guidance for endoscopic biopsy in the gastrointestinal tract. Frontline gastroenterology. 2014; 5:84-7.
4. Schmocker RK, Lidor AO. Management of Non-neoplastic Gastric Lesions. Surg Clin North Am. 2017 Apr; 97(2):387-403. doi: 10.1016/j.suc.2016.11.011. PMID: 28325193.
5. Mishra R, Vahikar S, Shrivastava, Kumari Mitra S , Mishra V. Histopathological spectrum of gastrointestinal lesions in patients undergoing gastrointestinal endoscopic biopsies-A Prospective study. Tropical Journal of Pathology and Microbiology 2022; 8(1):22-28.
6. Machhi NA, Jethwani DP, Dhruva GA, Tejas HV. Histopathological Study of Gastrointestinal Lesions: Two Year study. Journal of Cardiovascular Disease Research 2023; 14(12):1565-1575.
7. Qureshi NA, Hallissey MT, Fielding JW. Outcome of index upper gastrointestinal endoscopy in patients presenting with dysphagia in a tertiary care hospital-A 10 years review. BMC Gastroenterol. 2007; 7(1):43. Doi: 10.1186/1471-230x-7-43.
8. Mittal T, Niranjan J, Prathima S. Histopathological spectrum of upper gastrointestinal endoscopic biopsies of neoplastic lesions: A retrospective study. IP Journal of Diagnostic Pathology and Oncology 2020; 5(4):410–414.
9. Shennak MM, Tarawneh MS, Al-Sheikh TM. Upper Gastrointestinal Diseases in Symptomatic Jordanians: A Prospective Endoscopic Study. Ann Saudi Med. 1997; 17(4):471–4. Doi: 10.5144/0256- 4947.1997.471.
10. Sharma S, Makaju R, Dhakal R, Purbey B, Gurung RB, Shrestha R. Correlation between endoscopic and histopathological findings in gastric lesions. Kathmandu University Med J 2015; 13:216.
11. Veerendrasagar RS, Nandish VS. Histopathological spectrum of lesions of upper gastrointestinal tract endoscopic biopsies. Int J Clin Diagnost Pathol. 2020; 3(1):39-42.
12. Mahto SK, Murmu SK, Kumar A, Paswan MK, Gupta SK, Venkatesh N. A Hospital-Based Cross-Sectional Study on the Histopathology of Upper Gastrointestinal Tract Endoscopic Biopsy in Dyspeptic Patients. Cureus 16(5): e59508. DOI 10.7759/cureus.59508.
13. Rashmi K, Horakerappa MS, Karar A, Mangala G. A study on histopathological spectrum of upper gastrointestinal. Int J Med Res Health Sci. 2013; 2(3):418-424.
14. Eslavath A and Kalyan C. Prospective study on histopathological spectrum of upper gastrointestinal tract lesions in a teaching hospital of Southern India. J Clin Diagn Res. 2020; 14(11):EC37-EC41. https://doi.org/10.7860/JCDR/2020/46021.14281
15. Meshram S, Parate S, Tathe S, Randale A, Bhatkule M. Histomorphological spectrum of gastric lesion in endoscopic biopsies: An institutional experience. JMSCR. 2020; 8(5):99-103.
16. Rani D, Bhuvan S and Gupta A. A study of morphological spectrum of upper gastrointestinal tract lesions by endoscopy and correlation between endoscopic and histopathological findings. Indian J Pathol Oncol. 2019;6(1):28-34.
17. Dutta R, Pall S and Dutta S. A histopathological study of upper GI endoscopic biopsy specimens in relation to endoscopic findings in North Bengal population. Int J Clin Stud Med Case Rep. 2023; 30(4):1-6.
18. Bhat N, Sheikh BA, Mir JN, Reshi R, Wani LA and Farooq S. Histopathological study of upper gastrointestinal endoscopic biopsies-one year prospective study. Br Biomed Bull. 2018; 6(2):315.
19. Bhargavi M, Manjunath HK, Geethamani V, Dharani VC, Sushma TA, Akshatha B. Histomorphological analysis of upper gastrointestinal endoscopic biopsies: A retrospective study of 106 cases. National Journal of Laboratory Medicine. 2019; 8(4):PO04-PO07.
20. Parikh BJ, Chilani AH, Nayak RC, Mistry KJ, Gediya PP, Parikh KB. Histopathological spectrum of lesions of upper gastrointestinal tract – A study of endoscopic biopsies. Asian Journal of Medical Sciences 2024; 15(4): 211-217.
21. Thakur RY, Nikumbh DB, Swami SY. Clinico Histopathological Overview of GIT Lesions in a Rural Hospital. Indian Journal of Pathology and Oncology, April-June 2016; 3(2); 305-314.
22. Ganga H Indudhara PB. Histopathological

spectrum of lesions of upper gastrointestinal tract: A study of endoscopic biopsies. nternational Journal of Clinical and Diagnostic Pathology 2018;1(2):21-25.
23. Papaxoinis G, Papageorgiou S, Rontogianni D, Kaloutsi V, Fountzilas G, Pavlidis N.et al. Economopoulos T. Primary gastrointestinal non-Hodgkin's lymphoma: a clinicopathologic study of 128 cases in Greece. A Hellenic Cooperative Oncology Group study (HeCOG). Leuk Lymphoma 2006; 47: 2140-2146.