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Original Research Paper

Pathology

HISTOPATHOLOGICAL SPECTRUM OF UPPER GASTROINTESTINAL LESIONS

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ABSTRACT

Background: Lesions of the upper gastrointestinal (GI) tract which include Esophagus, Stomach, and Proximal duodenum encompass a wide spectrum of non-neoplastic and neoplastic conditions. Histopathology remains the gold standard for diagnosis and classification. **Methods:** T This was a prospective study conducted in the Department of Pathology, J. L. N. Medical College, Ajmer, over a period of one year and one month. All the endoscopic biopsies and resected specimens of the Esophagus, Stomach, and Duodenum were included. Tissue was processed, sectioned, and stained with H&E. Special stains and IHC were applied as required. **Results:** A total of 366 cases were studied. Non-neoplastic lesions accounted for 277 (75.68%) and neoplastic lesions for 89 (24.32%), out of which 29 (7.92%) are benign and remaining 60 (16.39%) are malignant. The Esophagus showed Squamous cell carcinoma 37 (10.11%) as the most frequent neoplastic lesion, which followed by inflammatory pathology 16 (5.56%) %) as the most common non-neoplastic lesion. In the Stomach, inflammatory pathology 97 (26.50%) was the predominant non-neoplastic lesion, while in the Duodenum, inflammatory pathology 104 (28.41%) predominated among non-neoplastic conditions. In Stomach and Duodenum, Adenocarcinoma is the most common malignancy with 8 (2.18%) and 2 (0.54%) cases respectively. Conclusion: The study highlights the spectrum of upper GI lesions. Histopathology plays a pivotal role in accurate diagnosis and guiding management. **Conclusion:** The many forms of anemia can only be diagnosed using peripheral smear, RBC indices and histogram. A combined approach using PBS, RBC indices, and histograms ensures greater diagnostic accuracy in geriatric patients, where anemia is often multifactorial and can mimic natural aging.

KEYWORDS : GI Lesions, Histopathology, Inflammation, Malignancy.

INTRODUCTION

The upper gastrointestinal (GI) tract, which includes the esophagus, stomach, and proximal duodenum, is a frequent site of diverse pathological conditions ranging from inflammatory to malignant lesions. These are an important cause of morbidity and mortality worldwide[1].

India is harboring 0.31% of cancerous conditions worldwide, where gastric cancers come 8th in rank affecting, 0.01% of the world population[2]. Occurrence of esophageal cancer is more than 0.6 million new cases, and deaths due to the same is 0.54 million worldwide in 2020. Duodenal cancers are rare, comprising only 0.3% of all gastrointestinal tumors[3].

In general, inflammatory lesions of the GIT are more common, followed by malignant lesions, while benign neoplasms are rare. Leading inflammatory lesions are acute gastritis and duodenitis, while the pattern of malignant lesions varies from one geographic location to another, depending on genetic factors and several environmental factors[4].

Clinical, radiological, and gross examinations are not enough to differentiate lesions affecting upper gastro-intestinal tract. Endoscopic biopsy with histo-pathological study is essential for diagnosing upper GI lesions. Special stains and IHC features also help to reach to conclusion.

Characteristic pathologic feature not only suggests a specific diagnosis but also reveal the extent and severity of the disease and prognosis. The present study include both neoplastic and non-neoplastic lesions, and both endoscopic biopsies and excised specimens across all three anatomical sites, providing a comprehensive overview[5].

METHODS

A prospective observational study was carried out from January 2024 to December 2024 at Department of Pathology, Jawahar Lal Neharu Medical College and associated group of hospitals, Ajmer.

A total of 288 cases were included in the present study. The tissue sample included 281 biopsies and 7 resected specimens of esophagus, stomach, and proximal duodenum from various clinical departments. Inadequately preserved specimens, autolysed specimens, and lesions outside upper GI tract were excluded from the study.

All specimens were fixed in 10% buffered formalin for 14-16 hrs. Gross features of specimens were noted, and multiple sections were taken. Routine tissue processing was done, and sections stained with hematoxylin and eosin[6]. Special stains like Giemsa, Zeihl Neelson, Alcian blue, Periodic Schiff stains were used as and when necessary.

After a detailed study of the sections under light microscope, final diagnosis was given. Lesions were classified into non-neoplastic and neoplastic using WHO 2019 classification[7].

RESULTS

Table 1: Distribution of Upper Gastrointestinal Lesions According to Gender of the Patient

	Male	Female	Total
Cases	215	151	366
Percentage	58.74	41.26	100

This study consisted of 366 cases, with the majority being male (58.74%, N=215) and the remaining being female (41.26%, N=151). Male to female ratio was 1.42:1.

Table 2: Distribution of Upper Gastrointestinal Lesions According to Gender and Type of Specimen

Upper GI Specimen	No. of Cases in Male	No. of Cases in Female	Total	Percentage
Resceted	7	5	12	3.28
Endoscoipc Biopsy	208	146	354	96.72
Total	215	151	366	100

Out of total 354 specimens recived, resected specimen constitutes only 12 (3.28%) cases while remaining 354 (96.72%) were endoscopic biopsies. This show preference for less invasive endoscopic biopsy over resection.

Table 3: Distribution of Upper Gastrointestinal Lesions According to Age and Gender of Patient

Age (In Years)	Male	Female	Total	Percentage
1 – 10	1	2	3	0.82
11 – 20	7	19	26	7.10
21 – 30	17	30	47	12.84
31 – 40	33	28	61	16.67
41 – 50	47	20	67	18.31
51 - 60	38	30	68	18.58
61 - 70	44	16	60	16.39
71 - 80	19	4	23	6.29
81 - 90	9	2	11	3.00
91 -100	0	0	0	0
TOTAL	215	151	366	100

Maximum number of cases were seen in the Fifth decade (18.58%) followed by the Fourth decade (18.31%). Oldest age group was the Eighth decade with 11 cases while youngest age group was the First decade with 3 cases.

Table 4: Distribution of Upper Gastrointestinal Lesions According to Type of Lesions

Upper GI Lesions		No. of Caese In Male	No. of Cases In Female	Total	Percentage
Non Neoplastic Lesions		165	112	277	75.68
Neoplastic Lesions	Benign	15	14	29	7.92
	Malignant	35	25	60	16.39
Total		215	151	366	100

Non-neoplastic lesions comprised 277 (75.68%), while neoplastic lesions comprised 89 (24.31%), out of which 29 (7.92%) were benign, while remaining 60 (16.39%) were malignant.

Table 5: Distribution of Upper Gastrointestinal Lesions According to the Location and Type of Lesions

Upper GI Lesions	Non Neo-plastic Lesions	Neoplastic Lesions		Total	Percentage
		Benign	Malignant		
Esophagus	22	15	39	76	20.77
Gastro-esophageal Junction	3	0	3	6	1.64
Stomach	103	13	15	131	35.79
Duodenum	149	1	3	153	41.80
Total	277	29	60	366	100

Duodebum had the highest number of cases, predominantly non-neoplastic (149 out of 153). Followed by stomach, esophagus, and gastroesophageal junction with 131, 76, and 6 cases.

Table 6: Distribution of Non-Neoplastic Lesions According to Histology

Upper GI Lesions (Non Neoplastic)	No. of Caese in Male	No. of Cases in Female	Total	Percentage
Inflammatory Pathology	146	81	227	81.94
Celiac Disease	14	25	39	14.08
Ischemic Bowel Disease	4	3	7	2.53
Tubercular Pathology	1	2	3	1.08
Barrett's Esophagus	0	1	1	0.36
Total	165	112	277	100

Among non-neoplastic lesions, inflammatory pathology was most prevalent, with 227 cases, followed by celiac disease, ischemic bowel disease, tubercular pathology, and Barrett's esophagus.

Table 7: Distribution of Neoplastic Lesions According to Histology

Upper GI Lesions	No. of Caese in Male	No. if Cases in Female	Total	Percentage
Benign Neoplastic Lesions				
Polyp	7	5	12	13.48
Squamous Cell Papilloma	5	6	11	12.36
Esophageal Glandular Dysplasia	3	2	5	5.62
Intestinal Metaplasia	0	1	1	1.12
Total	15	14	29	32.58
Malignant Neoplastic Lesions				
Squamous Cell Carcinoma	22	19	41	46.07
Adenocarcinoma	10	4	14	15.73
Adenosquamous Carcinoma	2	0	2	2.25
Poorly Defferentiated Carcinoma	1	1	2	2.25
Gist	0	1	1	1.12
Total	35	25	60	67.42
Total Neoplastic Lesions	50	39	89	100

Out of 89 neoplastic cases, 60 (67.42%) were malignant, and 29 (32.58%) were benign. Among benign lesions, polyp (N=12, 13.48%) were the most common entity, followed by squamous cell papilloma, esophageal glandular dysplasia, and intestinal metaplasia being relatively uncommon. Malignant lesions showed a clear predominance of squamous cell carcinoma (N=41, 46.07%), making it the most common malignancy, followed by adenocarcinoma, adenosquamous carcinoma, and poorly differentiated carcinoma.

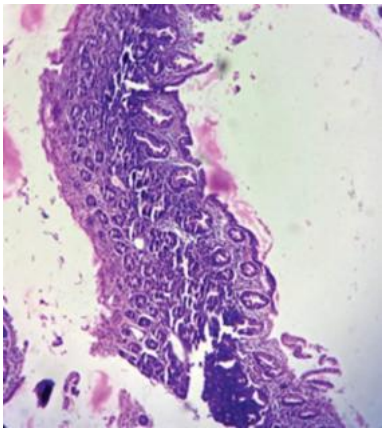

Fig 1: Photomicrograph Shows Celiac Disease (H & E Staining, 40x X 10x)

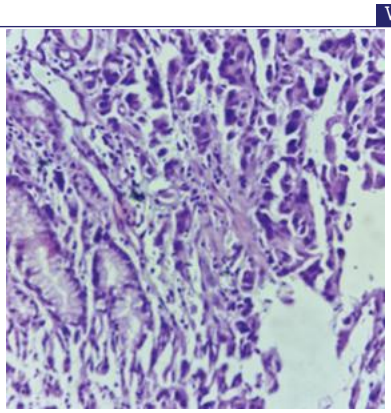

Fig2: Photomicrgraph Shows Adenocarcinoma (H & E Staining, 40x X 10x)

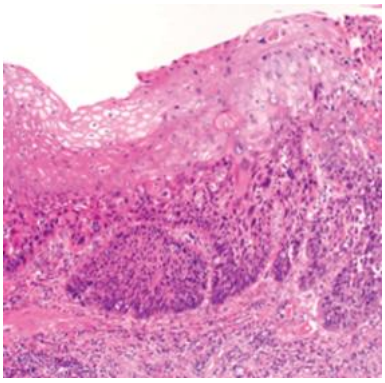

Fig 3: Photomicrograph Shows Squamous Cell Carcinoma (H & E Staining, 40x X 10x)

Fig 4: Photograph Shows Esophageal Growth Grossly

DISCUSSION

Upper gastrointestinal tract harbors a vast spectrum of diseases, which include noth neoplastic and non-neoplatic and variables like age, socioeconomic group, enviormental factors.

In the present study, male preponderance wae seen with M:F ratio 1.42:1. This was in accordance with study done by Deepa Rani et al. (2018)[8] which show 1.5:1. Our study had age range of First decade to Eighth decade years which was comparable with study of Hirachand et al. (2018)[9] where age range was Second decade to Eighth decade.

The present study examined 366 upper gastrointestinal lesions, with majority being non-neoplastic (N=277, 75.68%). The study of Shraddha Koirala et al. (2024)[10], identified 124 (80%) non-neoplastic and 31 (20%) neoplastic lesions among 155 cases, and Abilash SC et al. (2016)[11], identified 156 (78%) non-neoplastic and 44 (22%) neoplastic lesions among 200 cases. This demonstrate a predominace of non-neoplastic lesions like the present study.

In our study, inflammatory lesions (N=227, 81.94%) was the most common non-neoplastic lesion. This was comparable with the study of Bisaria D et al. (2018)[12] where 153 (76.5%) were non-neoplastic lesion, among which commonest was inflammatory lesion.

In this study, out of a total 89 were neoplastic lesions, polyps accounted for 12 cases (13.48%), making them the most common type among benign neoplastic lesions. This was followed by squamous papilloma. These results are comparable to those of other similar studies.

In the present study, 60 (67.42%) cases of malignant lesions were seen out of which Squamous cell carcinoma constituted the maximum number of cases (N=41, 46.07%), followed by Adenocarcinoma (N=14, 15.73%). These results were in concordance with Bjanarkar U. et al. (2021)[13], where Squamous cell carcinoma was the most common malignant lesion constituting 38 (19%) cases. Therefore, Squamous cell carcinoma stands out as the most prevalent malignant lesion in our region.

This consistency suggests that non-neoplastic lesions are more common than neoplastic lesions in the intestine, across different study population and sample sizes.

CONCLUSION

This study documents the histopathological spectrum of upper gastrointestinal lesions. Overall, non-neoplastic inflammatory lesions constituted the predominant diagnostic category, while a broad range of malignant neoplasms was also encountered across different anatomical sites of the upper gastrointestinal tract.

Histopathological analysis remained central to definitive diagnosis, tumor characterization, and grading, while adjunct special stain, and immunohistochemistry contributed to diagnostic precision where required.

These findings underscore the pivotal role of gastrointestinal biopsy with histopathological evaluation in the early detection, accurate classification, and optimal management of upper gastrointestinal lesions, ultimately facilitating improved prognostic stratification and patient outcomes.

Source of Funding
None
Conflict of Interest
None
Ethical Approval
The study was approved by the Institutional Ethics Committee

REFERENCES

1. Parvathidevi GK, Chaithra H, Sriharsha HV. Histopathological spectrum of gastrointestinal lesions - In a tertiary care centre. IP Arch Cytol Histopathology Res 2023;9(1):17-22.
2. Koirala et al. Histopathological Spectrum of the Upper Gastrointestinal Tract Endoscopic Biopsies at a Tertiary Hospital: A Descriptive Cross-sectional Study, J Nepal Med Assoc 2024;62(275):453-7
3. Shu-Jung Tsai et al. Benign esophageal lesions: Endoscopic and pathologic features. World J Gastroenterol 2015; 21(4): 1091-1098
4. Bamanikar S et al. Histomorphology Spectrum of Gastrointestinal Lesions in A Tertiary Care Centre. Acta Scientific Cancer Biology,2019; 3 (12) : 04-11.
5. Gore RM, Mehta UK, Berlin JW, Rao V, Newmark GM. Upper gastrointestinal tumours: diagnosis and staging. Cancer Imaging. 2006;6(1):213–7.)
6. Bancroft DJ, Layton C. The Hematoxylins and Eosin. Bancroft's Theory and Practical of Histological Techniques, 8th ed. China: Elsevier; 2019.
7. International agency for research on cancer, World Health Organization, Lyon France, WHO classification of tumour 5th edition – Digestive system tumours, 2019; The Authors. Histopathology published by Jhon Wiley and Sons Ltd.
8. Deepa Rani et al. Indian Journal of Pathology and Oncology, January-March, 2019;6(1):28-34
9. Hirachand et al. Histopathological spectrum of upper gastrointestinal endoscopic biopsies JBPKIHS 2018;1(1),67-
10. Shraddha Koirala et al. J Nepal Med Assoc 2024;62(275):453-7
11. Abilash SC et al., Sch. J. App. Med. Sci., May 2016; 4(5E):1807-1813
12. Bisaria D. Assessment of histomorphological spectrum of upper gastrointestinal lesions. J Adv Med Dent Scie Res 2018;6(2):155-157.
13. Ujwala Bhanarkar & Monalisa Dash. Histopathological Spectrum of Upper Gastric Endoscopic Biopsies: An Institutional Experience of Two Years, Retrospective Study. SAS J Med, 2021 Jun 7(6): 230-233.