IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 21, Issue 2 Ser.15 (February. 2022), PP 32-37
www.iosrjournals.org

Histopathological spectrum of lesions in gastro-intestinal endoscopic biopsies – A retrospective study in a tertiary care centre.

[1]Suryakala Chappa, [2*]Mercy Mrudula Dasari, [3]Basumitra Das, [4]Monica Molli
[5]Susan Sangeet

[1] Assiatant Professor, [2] Assistant Professor, Department of Pathology, Andhra Medical College, Visakhapatnam, Andhra Pradesh, INDIA
**Corresponding author: Dr. Mercy Mrudula Dasari*
Assistant Professor, Department of Pathology, Andhra Medical College, Visakhapatnam, Andhra Pradesh, INDIA

Abstract:
Background: Upper gastrointestinal tract disorders are commonly encountered problems in the clinical practice with a high degree of morbidity and mortality. Endoscopic biopsy is a common procedure performed in the hospital and gastrointestinal endoscopy in combination with biopsy plays an important role in the exact diagnosis of these disorders for further management. The aim is to study the histopathological spectrum of upper and lower gastrointestinal tract lesions.
Materials and Methods: *This is a hospital based observational study for a period of three years in a tertiary care centre from July 2018 to June 2021.*
Results: *Out of 488 endoscopic biopsies studied 311 (63.7%) were male and 177(36.3%) were female. The youngest patient was 6 years female child and the oldest was 85 years old female. The commonest age group presented were in their 6th decades of life. Mean age being 47.5 years. Among 488 cases 265 were upper gastrointestinal endoscopic biopsies and 223 were colonoscopic biopsies. Stomach 146 (29.9%) was most common site for upper gastrointestinal tract and and colon 122 cases (25%) was common site for lower gastrointestinal tract. Benign lesions (79.5%) were more common than malignant (20.5%) in both upper and lower gastrointestinal tract except in oesophagus where malignant lesions (52.3%) are more common, squamous cell carcinoma being the commonest and adenocarcinoma is common in stomach and lower gastrointestinal tract.*
Conclusion: *Endoscopy helps in visualization and biopsy of the lesions from sites that were inaccessible without a major resection. A thorough knowledge of the spectrum of these lesions helps in making a proper and early diagnosis for better patient management.*
Keywords: *Gastrointestinal tract, Endoscopy, colonoscopy, Histopathology*

Date of Submission: 13-02-2022 Date of Acceptance: 28-02-2022

I. Introduction:

Upper gastrointestinal tract disorders are commonly encountered problems in the clinical practice with a high degree of morbidity and mortality. Endoscopic biopsy is a common procedure performed in the hospital for a variety of benign, malignant, infections and inflammatory lesions. The upper gastrointestinal flexible fiber optic endoscopy was first used in 1968 and proved to be a major breakthrough in the diagnosis of gastrointestinal tract lesions. [1] Endoscopic biopsy is a convenient procedure and no major surgery is required. Reaching the inaccessible sites in the gastrointestinal tract is facilitated by the use of an endoscope or colonoscope which helps in direct visualization of the lesion and taking of biopsy from the suspicious site. It is not only used to diagnose malignant and inflammatory lesions but also for monitoring the course, extent of disease, response of the therapy and early detection of complications. [2] It forms a large proportion of the specimens that are analyzed in the pathology department and considered as the current gold standard for accurate assessment of patients with symptoms of gastrointestinal tract disease.

The study aims to determine the spectrum of histopathological lesions of the gastrointestinal tract, to know the frequency of the lesions among different age groups and sex, to assess the frequency of the lesions according to site and to correlate endoscopic findings with histopathology.

II. Materials And Methods:

This is a hospital based observational study for a period of three years in the Department of Pathology, Andhra Medical College, Visakhapatnam from July 2018 to June 2021. The clinical details and endoscopic findings of all the cases were recorded from registers. The biopsies were fixed in formalin, routinely processed and embedded in paraffin wax. Histopathological examination of haematoxylin and eosin stained slides were done and the results were tabulated and analyzed. Gastrointestinal tract endoscopic biopsies of all ages and sex were included in the study and resection specimens, Liver and gall bladder specimens and inadequate biopsies were excluded from the study.

III. Results:

In the present study, 488 gastrointestinal biopsy samples were studied out of which 311 (63.7%) were male and 177(36.3%) were female. The youngest patient was 6 years female child and the oldest was 85 years old female. The commonest age group presented were in their 6th decades of life (Table 1), Mean age being 47.5 years.

Table 1: Age-wise and Sex-wise distribution

Age group	Males	Females	Total (%)
0-10	1	2	3 (0.6%)
11-20	16	4	20(4.0%)
21-30	33	25	58(11.88%)
31-40	58	31	89(18.23%)
41-50	52	55	107(21.92%)
51-60	81	33	114(23.3%)
61-70	56	20	76(15.5%)
>71	14	7	21(4.3%)
Total	311	177	488(100%)

Site wise distribution of lesions was among 488 biopsies 265 were upper gastrointestinal endoscopic biopsies and 223 were colonoscopic biopsies. Among these 63 (12.9%) were esophageal, 146 (29.9%) gastric, 56 (11.4%) were duodenal, 19 (3.8%) were ileum and 204 (41.8%) were colorectal biopsies. (Table 2)

Table 2: Site-wise distribution of lesions

Site	Number (%)	Benign	Malignant
Oesophagus	63 (12.9%)	30	33
Stomach	146 (29.9%)	110	36
Duodenum	56 (11.4%)	45	11
Ileo-caecal	30 (6.1%)	29	01
Colon	122 (25%)	110	12
Rectum	71(14.5)	64	07
Total	488 (100%)	388 (79.5%)	100 (20.5%)

3.1 Upper Gastrointestinal biopsies

Oesophageal biopsies: Out of 63 oesophageal biopsies 33 (52.3%) were malignancies (31 squamous cell carcinomas (fig 3) and 2 cases were adenocarcinoma), 19 cases showed non-specific inflammation, 8 cases showed dysplastic changes, 2 cases of Barrett's oesophagus and 1 case of hyperplastic polyp. (Table 3)

Stomach biopsies: Out of 146 biopsies from stomach, 92(63.01%) cases were non-specific inflammation, 36 (24.6%) cases were malignant (33 cases adeno carcinomas (fig 5) ,2 cases squamous cell carcinomas and one case of lymphoma), 11 cases of hyperplastic polyps (fig 2), 2 cases were adenomatous polyp (fig 1), 4 cases show dysplastic changes and one case was of Strongyloides stercoralis infection. Most of the malignant lesions were from antrum of stomach. All cases of squamous cell carcinomas were from gastro oesophageal junction. (Table 3)

Duodenal biopsies: Out of 56 duodenal biopsies, 34 (60.7%) cases were non-specific inflammation, 11(19.6%) cases were adenocarcinomas, 4 cases were hyperplastic polyps, and one case of lympho-proliferative lesion. (Table 3)

3.2 Lower gastrointestinal biopsies

Ileo-caecal biopsies: Out of 30 cases from ileo-caecal region, 21 (70%) cases were non-specific inflammation, 3 cases were of tuberculosis, and 2 cases of inflammatory bowel disease, one case each of lymphocytic ileitis and lymphoproliferative lesion, adenomatous polyp and adenocarcinoma. (Table 4)

Colon biopsies: Out of 122 biopsies from colon region most of the lesions about 77 (63.1%) cases were non-specific colitis, 17 (13.9%) cases of lymphocytic colitis, 7 (5.7%) cases of adenocarcinoma, 1 case of adenomatous polyp, 2 cases of hyperplastic polyp, 4 cases of polyp with dysplastic change, 12 (9.8%) cases of inflammatory bowel disease, 2 cases of tuberculosis. (Table 4)

Rectal biopsies: Out of 71 biopsies from rectum most of the lesions about 31 (43.6%) cases were non- specific colitis, 12 (16.9%) cases of adenocarcinoma (fig 4), 3 (4.2%)cases of lymphocytic colitis, 3(4.2%) cases of adenomatous polyp, 4 (5.6%)cases of hyperplastic polyp, 2(2.8%) cases of inflammatory polyp, 5(7.0%) cases of polyp with dysplastic change, 4(5.6%) cases of inflammatory bowel disease, 1 case of tuberculosis (fig 6) and 6 (8.4%)cases of solitary rectal ulcer syndrome. (Table 4)

Table 3: Histopathological spectrum of lesions in upper gastrointestinal endoscopic biopsies

Histopathological diagnosis	Oesophagus	Stomach	Duodenum
Non-specific inflammation	19 (30.1%)	93(63.6%)	34(60.7%)
Squamous cell carcinoma	31 (49.2%)	2 (1.3%)	Nil
Adenocarcinoma	2 (3.17%)	33(22.6%)	11(19.6%)
Dysplastic mucosa	8 (12.6%)	4(2.6%)	3(5.3%)
Polyps	1 (1.5%)	13(8.9%)	4(7.1%)
Miscellaneous	2(3.17%) Barrett's	1 (lymphoma)	3 (5.3%) (celiac),1 (lymphopoliferative)
Total	63 (100%)	146 (100%)	56 (100%)

Table 4: Histopathological spectrum of lesions in colonoscopic biopsies:

Histopathological diagnosis	Ileo-caecal	Colon	Rectum
Non specific inflammation	21(70%)	77(63.1%)	31(43.6%)
Adenocarcinoma	1(3.3%)	7(5.7%)	12(16.9%)
Polyps	1(3.3%)	7(5.7%)	14(19.7%)
Ulcerative colitis	1(3.3%)	10(8.2%)	3(4.2%)
Crohn's disease	1(3.3%)	2(1.6%)	1(1.4%)
Tuberculosis	3(10%)	2(1.6%)	1(1.4%)
Miscellaneous	2(6.6%) (lymphoproliferative)	17(14%) (lymphocytic colitis)	6(8.4%) (SRUS),3(4.2%) (lymphocytic colitis)
Total	30 (100%)	122 (100%)	71 (100%)

The common clinical presentation of patients who underwent upper gastrointestinal endoscopic biopsy (total 265cases) was dyspepsia in 34(12.8%) cases, followed by dysphagia in 30 (11.3%) cases and upper GI bleeding in 25(9.4%) cases.

The common clinical presentation of patients who underwent colonoscopy (total 223cases) was chronic diarrhea in 66(29.5%) cases, followed by bleeding per rectum in 32 (14.3%) cases.

Among 488 cases, 133 cases were clinically suspected for malignancy and endoscopy showed growth in 110 cases, 10 cases with ulcer, 2 cases with stricture, 6 cases with polyp and 5 cases of normal mucosa. 54 cases were clinically suspected for inflammatory bowel disease and endoscopy show aphthous ulcers in 21 cases, erosions in 23 cases, 4 cases show erythematous mucosa and 6 cases show normal mucosa.

IV. Discussion:

Gastrointestinal tract lesions are commonly encountered specimens in histopathology. They are broadly categorized as upper and lower gastrointestinal lesions based on site. Histopathological study of endoscopic biopsies plays a role in early detection of malignant lesions and to follow up the disease course. [1] The risk of gastrointestinal malignancies increases with advancing age and use of endoscopic biopsies have led to early detection of these lesions. In the present study, a total of 488 endoscopic biopsies from upper and lower gastrointestinal tract were evaluated over a period of 3 years

In the present study, out of 488 cases, most of the cases were males 311cases (63.7%) (Table-1). The male to female ratio is 1.9:1, the reason could be probably males are more exposed to risk factors than females and greater attendance of male patients to the outpatient department of the hospital. Similar findings were observed in study done by Shanmugasamy K et al[2] with a ratio of 1.5:1 and Bilal A Sheikh et al [3] with similar ratio of 1.9:1

In the present study the most common age group presented were in 6^{th} and 5^{th} decades (23.3%) and (21.9%) respectively (Table-1). Similar findings were observed in the study done by Sharma S et al [4]

In the present study, site wise distribution of lesions among upper gastrointestinal endoscopic biopsies stomach was most common (29.9%). Similar finding was observed in Siddiqui et al[1] and among lower gastrointestinal biopsies colon (25%) was the most common site involved. Similar findings were observed in Venkatesh, et al. [6]

The most common presenting symptom among patients with upper gastrointestinal lesions in the present study was dyspepsia (12.8%) and common presenting symptom among lower gastrointestinal biopsies (29.5%) cases were chronic diarrhea. These findings were similar to the study done by Syed imtiaz et al [7]

4.1 Correlation between endoscopic biopsies and histopathology report:

Out of 63 biopsies from oesophagus, endoscopy showed growth in 38 cases out of which 31cases (81.5%) were reported as malignant lesions. 11 cases show ulcer in endoscopy out of which 2 cases were reported as malignancy. 7 cases show stricture on endoscopy where all the lesions were of non specific inflammation and 7 cases show mucosal erosion out of which 1 case was reported as Barrett's oesophagus. The most common malignancy in oesophagus was moderately differentiated squamous cell carcinoma similar to the study done by Somani et. al [5.]

Out of 146 biopsies from stomach endoscopy revealed growth in 54 cases and ulcer in 48 cases out of which 26 cases (48.1%) and 9 cases (18.7%) were reported as malignancy respectively. 27 cases showed erythematous mucosa out of which one case reported as malignancy in histopathology. 17 cases showed polyp in endoscopy whereas histopathology showed polyp only in 14 cases.

The most common malignancy in stomach was adenocarcinoma (22.6%) (Table 3) followed by squamous cell carcinoma (1.3%) similar to study done by Bilal sheik et al [3] . Most of the malignacies were from pyloric end of the stomach similar to the study done by Krishnappa et al. [8] Squamous cell carcinoma of stomach was from gastro oesophageal junction.

Out of 56 biopsies from duodenum 22 cases show growth in endoscopy (Table 4) out of which 10 (45.4%) were reported as malignant, 6 cases show ulcer in endoscopy out of which 2 were reported as malignant. 4 cases show atrophic mucosa out of which 3 cases were reported as celiac disease.

Out of 30 biopsies from ileo-caecal region one case was reported as adenocarcinoma (fig 4) which show growth on endoscopy. 5 cases show apthous ulcers in the mucosa out of which 2 cases were reported as Inflammatory bowel disease. One case was reported as tuberculous ileitis which showed erthematous mucosa (fig 6).

Out of 122 biopsies from colon, endoscopy revealed growth in 10 cases out of which 6 (60%) were diagnosed as malignancy.18 cases show polyp in endoscopy where 14 were reported as polyp and 2 as malignancy. 12 cases show apthous ulcers in endoscopy out of which 3 were reported as inflammatory bowel disease. 26 cases show erosion in mucosa, out of which 4 reported as malignancy. On endoscopy 56 cases show normal mucosa which were reported as lymphocytic colitis and non specific colitis.

Out of 71 biopsies from rectum, 20 cases revealed growth in endoscopy out of which 12 cases (60%) were reported as malignancy. 14 cases show ulcer in endoscopy where 6 cases were reported as solitary rectal ulcer syndrome. 14 cases show polyp in endoscopy and all were reported as polyp in histopathology. 16 cases show erosions in mucosa where one case was reported as Tuberculosis (fig 6).

In the present study upper gastrointestinal endoscopic findings show correlation with histopathology for malignant lesions in 47% cases whereas the correlation of malignant lesions by colonoscopy with histopathology in lower gastrointestinal tract was about 60%. These findings were similar to Mahmuda S et al,[9] and Kabbur RR et al [10]

The cases in which endoscopy findings were not correlated with histopathology were advised repeat biopsy from the lesion proper. Selection of appropriate biopsy site with proper fixation and processing of the tissue helps in arriving at correct diagnosis and better management of the patient. Selecting multiple sites of biopsies from abnormal looking areas helps in more accurate diagnosis, avoids inadequate biopsies and reduces repeat biopsy.

PHOTOGRAPHS:

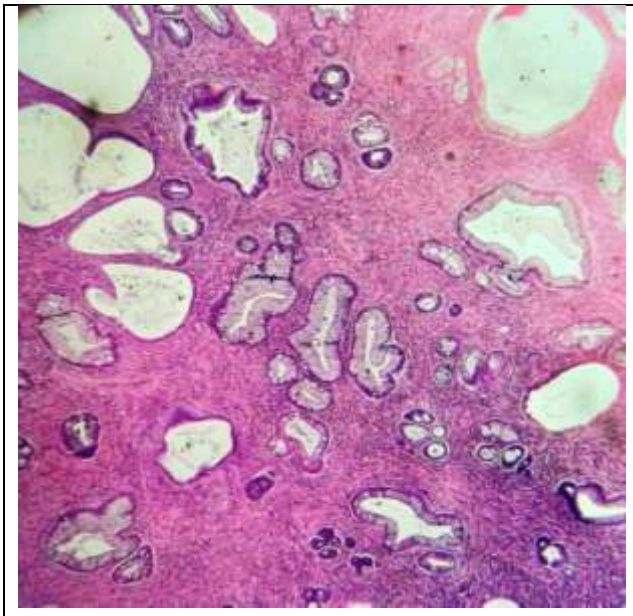

Fig1: Adenomatous polyp with cystically dilated glands(H&E40X)

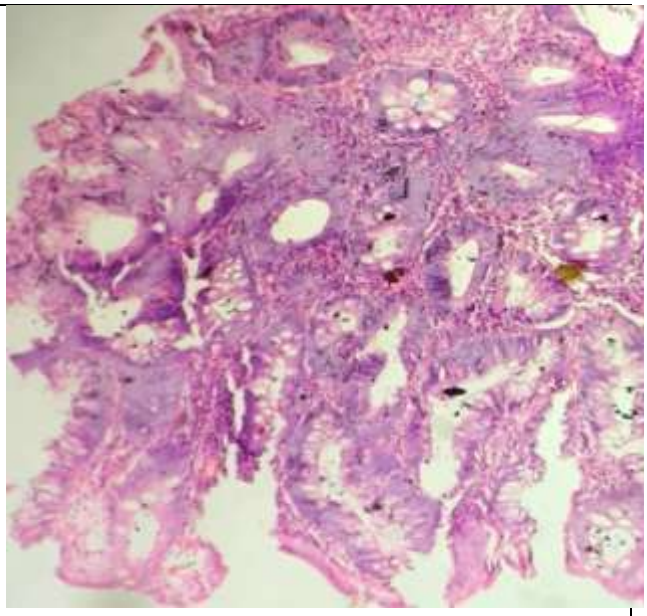

Fig 2:Hyperplastic polyp with glands showing goblet cells(H&E10X)

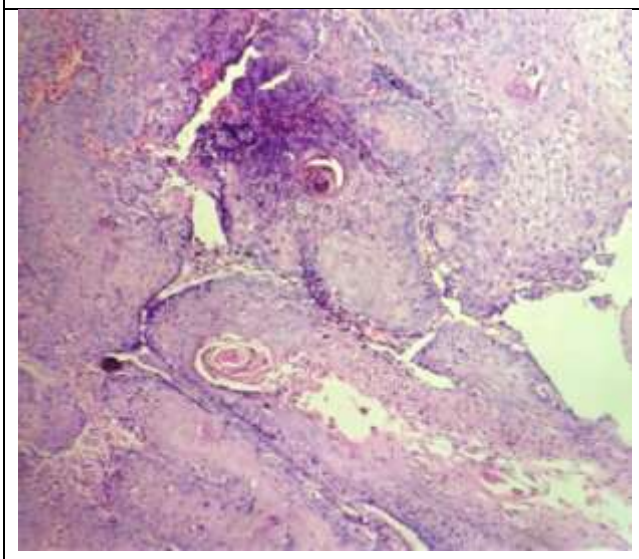

Fig 3: microphotograph from oesophagus well differentiated squamous cell carcinoma with keratin pearls(H&E40X)

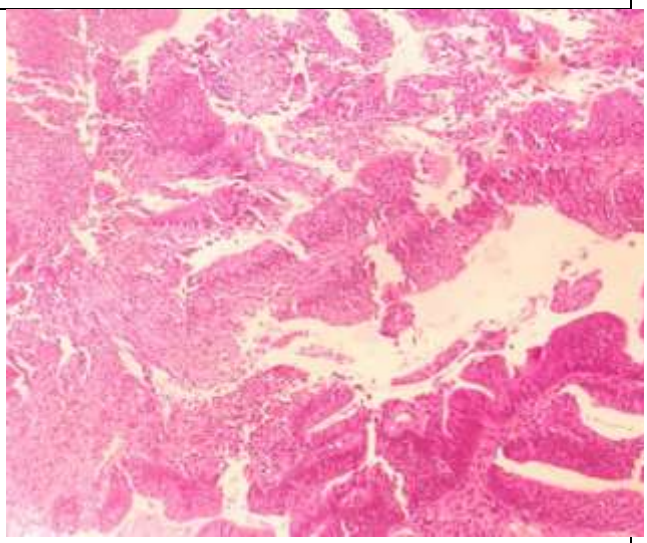

Fig 4: microphotograph of papillary adenocarcinoma rectum with papillary and glandular pattern(H&E10X)

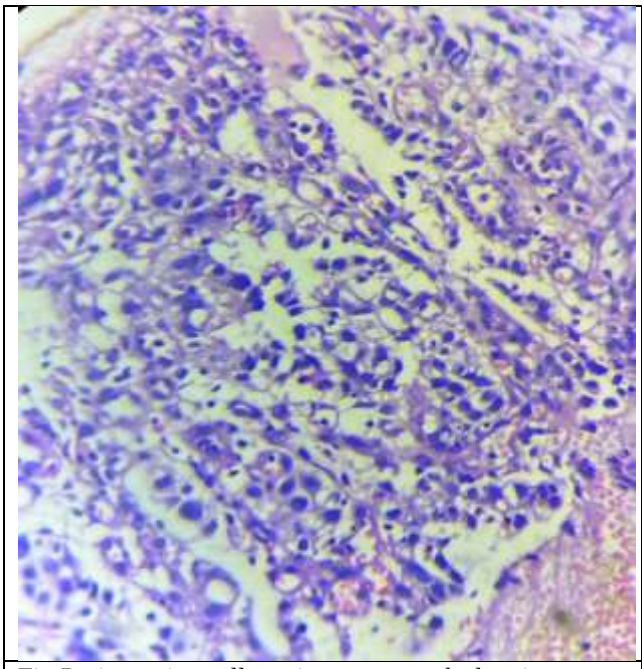

Fig 5: signet ring cell carcinoma stomach showing mucin filled cells with eccentric hyperchromatic nuclei (H&E40X)

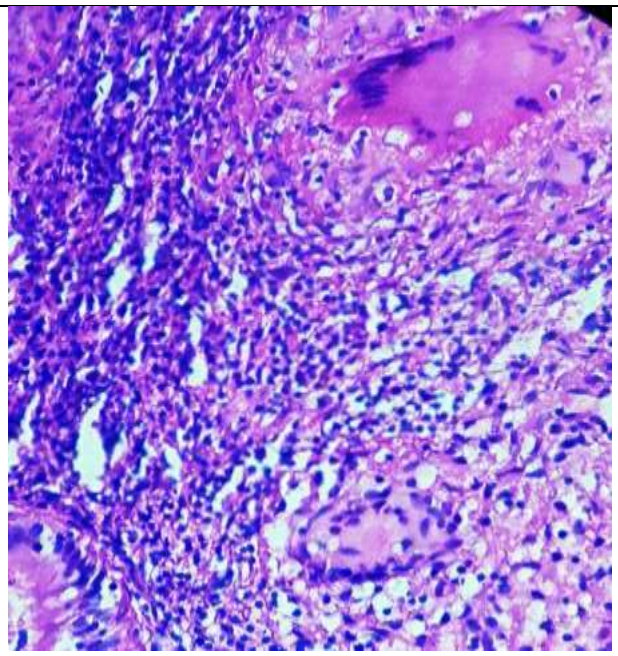

Fig 6: Tb intestine showing granulomas and Langhans giant cells(H&E40X)

V. Conclusion:

To conclude, a variety of neoplastic and non neoplastic lesions were observed with wide range of age, sex and site distribution. Adequacy of the material and taking multiple biopsies from suspected lesions aids with definite diagnosis and reduces chances of error. Endoscopic biopsy with histopathological examination aids greatly in arriving at an accurate diagnosis of non neoplastic and neoplastic lesions. It also aids the clinician for early detection of these lesions and appropriate management.

References:

[1]. Siddiqui B, Faridi SH, Shehwar D, Ahmed S, Mazumder MA (2020) A Study of Age-Wise Spectrum of Gastrointestinal Biopsies with Endoscopic Correlation a 5-Year Experience from a Tertiary Health Care Centre in North India. Int J Pathol Clin Res 6:113. doi.org/10.23937/2469-5807/1510113

[2]. Shanmugasamy K, Bhavani K, Anandraj VK, Narashiman R, Kotasthane DS. Clinical correlation of upper gastrointestinal endoscopic biopsies with histopathological findings and to study the histopathological profile of various neoplastic and non-neoplastic lesions. J Pharm Biomed Sci 2016;06(04): 220–224

[3]. Bilal A Sheikh , Shaista M Hamdani , Roohi Malik . Histopathological spectrum of lesions of upper gastrointestinal tract – A study of endoscopic biopsies. www.gjmedph.org Vol. 4, No. 42015

[4]. Sharma S, Kumari K, Sharad S, Shah G, Neelam . Histopathological spectrum of lesions in gastrointestinal endoscopic biopsy: A prospective study of 500 cases. Indian J Pathol Oncol 2020;7(3):384-391.

[5]. Somani. Histopathological Study of The Upper Gastrointestinal Tract Endoscopic Biopsies. Ann Pathol Lab Med. 2018;5(8):684–8.

[6]. Venkatesh V, Thaj RR (2019) Histopathological spectrum of lesions in gastrointestinal endoscopic biopsies: A retrospective study in a tertiary care center. World Journal of Pathology 8: 1-6

[7]. Syed Imtiyaz Hussain,Ruby Reshi, Gulshan Akhter, Ambreen Beigh(2015) clinic histopathological study of upper gastrointestinal tract biopsies- IJCRR vol 7, issue 16, august 2015

[8]. Krishnappa R, Horakerappa MS, Ali K, Gouri M. A study on histopathological spectrum of upper gastrointestinal tract endoscopic biopsies. Int J Medical Res Health Sciences . 2013;2(3):418–24.

[9]. Mahmuda S, Bashar MF, Yesmin N, Khatun MA. Correlation between Histopathological and Endoscopic Findings of Stomach Growth. Mymensingh Med J. 2016 Jan;25(1):138-40.

[10]. Kabbur RR, Vidya K, Reddy K M. Histomorphological study of colonoscopic biopsies in patients presenting with chronic diarrhea. IP Arch Cytol Histopathology Res 2021;6(3):166-172.

Suryakala Chappa, et. al. "Histopathological spectrum of lesions in gastro-intestinal endoscopic biopsies – A retrospective study in a tertiary care centre." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 21(02), 2022, pp. 32-37.