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# Histopathological evaluation of upper gastrointestinal endoscopic biopsies in a tertiary care Centre

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**Abstract**
**Introduction:** Upper gastrointestinal pathology is one of the causes for gastrointestinal mortality and morbidity. The histopathological study of endoscopic biopsies from the upper gastrointestinal tract helps to permit early and exact diagnosis of the existing disease and also in further management of patients.
**Aim and Objectives:** The present study is done to analyse the prevalence of various upper gastrointestinal lesions received in our institution and their histopathological findings for early diagnosis which helps in better patient management.
**Materials and Methods:** A study was conducted in all upper gastrointestinal endoscopic biopsies received in our hospital from June 2016 to May 2017. The patient of all ages and both sexes who underwent endoscopic biopsy was included and analysed on haematoxylin and eosin stained sections.
**Results:** A total of 259 cases were studied. Patient's age ranging from 21 to 74 years was taken. Males were more prevalent. Stomach was the commonest site of endoscopic biopsies. The histopathology revealed non-neoplastic lesions 173 (66.80%) and neoplastic lesions 86 (33.20%). Most common non-neoplastic lesion was 51 cases of chronic non specific gastritis. In neoplastic lesions of stomach, adenocarcinoma was the commonest.
**Conclusions:** Endoscopic procedure along with histopathological interpretation still remains as a mainstay of diagnostic modality. So Histopathology is considered as gold standard for the diagnosis of endoscopically detected lesions which helps in early detection of mucosal lesions, both benign and malignant. Histopathology acts as a powerful diagnostic tool in better management and survival of patients.

**Keywords:** Endoscopy, gastritis, histopathology, upper gastrointestinal biopsy

## 1. Introduction
The pathological conditions of upper gastrointestinal tract (GIT) are responsible for a wide range of morbidity and mortality and are one of the commonest entities in routine clinical practice [1]. The flexible fiberoptic gastroscope use has become a part of routine gastroenterological practice. It helps to take a direct look of upper gastrointestinal mucosa and also targeted biopsies can be taken under direct vision. Endoscopic visualisation helps in clinical diagnosis and histopathological correlation of biopsy specimen. Histopathological examination of the biopsy tissue is needed for accurate final diagnosis [2]. Endoscopy plays an important role in the early diagnosis of GIT lesions like metaplasia, dysplasia, atypia and carcinoma in situ and even non neoplastic lesions. Evaluation of dyspepsia, GERD (gastroesophageal reflux disease), odynophagia, Barrett oesophagus, dysplasia, peptic ulcer disease, gastric and oesophageal carcinoma are indications for upper GI tract endoscopic biopsy. It also provides an opportunity for a broad range of treatment options as well as potential for possible cure, [3] monitoring the course of the disease, response to therapy and to prevent the complications [2, 4]. Endoscopy can also detect gastric mucosal lesions at an early stage especially atrophy, intestinal metaplasia and dysplasia so as to prevent progress of lesions to invasive cancer [5]. Acid peptic disease is the most common condition affecting the gastrointestinal tract for which multiple etiological factors have been described and proposed [6]. The most common presenting complaint of these patients is heart burn and upper abdominal pain. Gastritis is simply defined as inflammation of the gastric mucosa. Inflammation may be predominantly acute with neutrophilic inflammation or chronic with lymphocytes or plasma cells predominating and associated intestinal metaplasia and atrophy.

The identification of Helicobacter pylori (H.pylori) infection in the gastric biopsies is very important. H. pylori cause inflammatory as well as neoplastic lesions like adenocarcinoma and gastric lymphoma. So H.pylori is known as viral carcinogens [7]. So it is important to diagnose the infection and treat it, as malignancy can be prevented. The histomorphological changes associated with H. pylori induced infections are variable. They are graded according to the updated Sydney system [1]. In India incidence of H.pylori infection and chronic gastritis is high, so early detection by histopathological examination of biopsies can help the patients in early treatment and prevention from malignancy. Worldwide, gastric adenocarcinoma is the most common cancer of stomach, so early detection of malignancy greatly improves the survival rate of the patients [8]. Present study was undertaken to determine the various spectrum of upper gastro intestinal lesions from oesophagus, stomach and duodenum with the help of endoscopic biopsies, to make definite histopathological diagnosis of various lesions and its incidence in a tertiary care centre hospital.

## 2. Aim and Objectives

1. To analyse the incidence of various upper gastrointestinal tract lesions with the help of endoscopic biopsies.
2. To study the histopathological presentation of different spectrum of lesions for early diagnosis and better treatment.

## 3. Material and Methods

A retrospective study was conducted from June 2016 to May 2017 in the Department of Pathology in Sri Muthukumaran Medical College, Hospital and Research Centre in all upper gastrointestinal endoscopic biopsies. 259 biopsies were taken during the period of one year. Patient of all ages and both sexes who have undergone endoscopoic biopsy were included in the study. Clinical data including age, sex and clinical symptoms were taken from case records of patients and documented. All the biopsies were analysed and counted for number of fragments. The biopsy specimens were fixed in 10% formalin and routinely processed. Paraffin wax sections were cut at 4 micron thickness and stained with Haematoxylin and Eosin (H&E) stain. Special stains were done whenever necessary. Majority of the endoscopic biopsies were taken from different parts of the stomach predominantly from pylorus and body with abnormal mucosa or growth. Biopsies from oesophagus were taken from middle and lower part which showed thickened mucosa, ulcerated area and growth. Duodenal biopsies were commonly taken from second part of duodenum (D2). The H& E sections were examined for various histopathological features present in it. The non neoplastic lesions from various sites of upper GIT were analysed and reported. Neoplastic lesions were analysed and the tumors were classified according to the WHO classification of gastrointestinal tumors. The data was entered and descriptive analysis was done using microsoft excel software.

**3.1 Inclusion Criteria:** All upper gastrointestinal tract endoscopic biopsies received in our department were included in the study

### 3.2 Exclusion Criteria

1. Biopsies received with incomplete history.
2. All lesions of the oral cavity and pharynx.
3. All lesions below the second part of duodenum.

## 4. Results

In our study, 259 cases of upper gastrointestinal endoscopic biopsies were analysed. The patient's age ranged from 21 to 74 years. High incidence was observed between fourth and fifth decade with average age of 46 years. (Fig: 1) The histopathology of all endoscopic biopsies revealed about 173 numbers of non neoplastic cases and 86 neoplastic cases. (Table: 1) Among the 259 upper gastrointestinal endoscopic biopsies, oesophageal biopsies were 84 (32.43%), gastric biopsies were 136 (52.51%) and duodenal biopsies were about 39 (15.06%). (Table:2) Gastric biopsies were more common. Among the non-neoplastic lesions, commonly the age ranged from 21 years to 36 years and in neoplastic lesions 45 to 74 years. The study showed males had slightly high frequency of the upper gastro intestinal disease than females both in neoplastic and non neoplastic lesions with 157 cases of males and remaining females. (Fig:2) The non neoplastic lesions were more common in all sites of upper GIT. (Table:3) In various non neoplastic oesophageal lesions, hyperplastic squamous epithelium was common followed by chronic inflammatory changes. 10 cases showed reflex oesophagitis and no specific pathology was seen in 8 cases. Squamous cell carcinoma was common neoplastic lesion occurring in oesophagus. Our study had 15 cases. (Table: 4) The commonest site of gastric biopsy was pylorus 83(61.03%) followed by body 40(29.41%) and fundus 13 (9.56%). (Fig: 3) The majority of the patients were biopsied for either gastritis or tumors of stomach. Among the 136 lesions of the stomach 39 cases were neoplastic and 97 cases were non neoplastic. Adenocarcinoma was the most common neoplastic lesion. Most common non-neoplastic lesion noted was 51 cases of chronic non specific gastritis followed by 28 cases of chronic active gastritis with H.Pylori. Chronic gastritis with intestinal metaplasia was noted in 4 cases and atrophic gastritis in 3 cases. (Table: 5)The histopathology of 39 duodenal lesions showed 28 cases of non neoplastic lesions among them 15 cases of chronic non specific duodenitis was common presentation. Adenocarcinoma occurred commonly among neoplastic lesions with 8 cases. (Table:6)

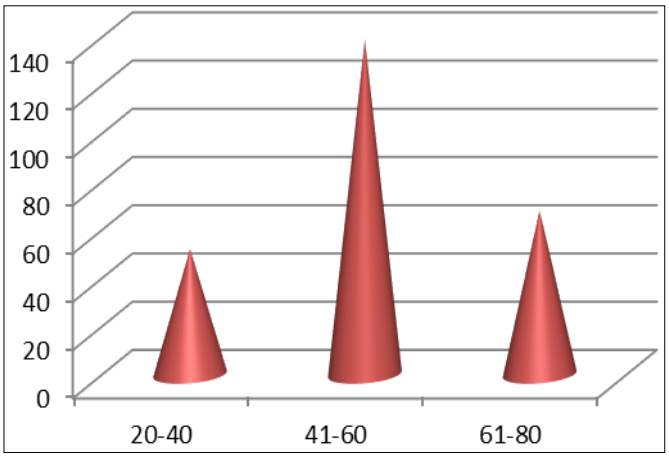


**Fig 1:** Age wise distribution of upper GIT biopsies

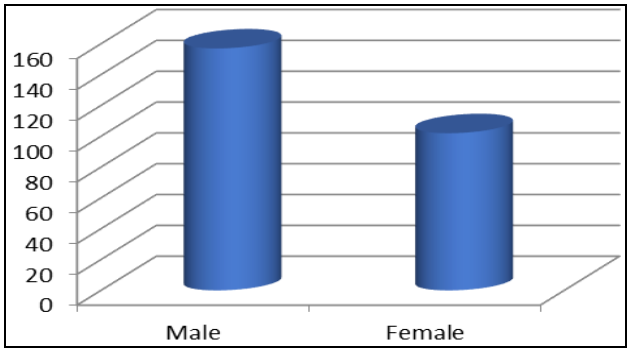


**Fig 2:** Sex distribution in upper GIT lesions

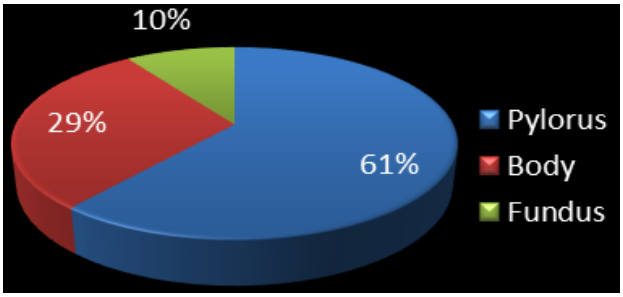


**Fig 3:** Various site of gastric biopsies

**Table 1:** Types of lesions in upper gastrointestinal tract

| S.no | Type of lesions | No of cases | Percentage |
|---|---|---|---|
| 1. | Non neoplastic | 173 | 66.80 |
| 2. | Neoplastic | 86 | 33.20 |
| | Total no of cases | 259 | 100 |

**Table 2:** Various site of biopsy in upper gastrointestinal tract

| S.no | Site of biopsy | No of cases | Percentage |
|---|---|---|---|
| 1. | Stomach | 136 | 52.51 |
| 2. | Oesophagus | 84 | 32.43 |
| 3. | Duodenum | 39 | 15.06 |
| | Total no of cases | 259 | 100 |

**Table 3:** Spectrum of upper GIT lesions based on histopathology

| S.no | Upper GIT lesions | No of cases |
|---|---|---|
| **1.** | **Stomach** | |
| | Non neoplastic | 97 |
| | Neoplastic | 39 |
| **2.** | **Oesophagus** | |
| | Non neoplastic | 62 |
| | Neoplastic | 22 |
| **3.** | **Duodenum** | |
| | Non neoplastic | 28 |
| | Neoplastic | 11 |
| | Total | 259 |

**Table 4:** Histopathological findings in oesophageal biopsies

| S. no | Oesophageal lesions | No of cases |
|---|---|---|
| | **Non neoplastic lesions** | |
| 1. | Hyperplastic epithelium | 29 |
| 2. | Chronic inflammatory changes | 15 |
| 3. | Reflux esophagitis | 10 |
| 4. | No specific pathology | 8 |
| | **Neoplastic lesions** | |
| 1. | Dyslasia | 7 |
| 2. | Squamous cell carcinoma | 15 |
| | Total | 84 |

**Table 5:** Histopathological lesions in gastric biopsies

| S.no | Stomach lesions | No of cases |
|---|---|---|
| | **Non neoplastic lesions** | |
| 1. | Chronic non specific gastritis | 51 |
| 2. | Chronic active gastritis with H. pylori | 28 |
| 3. | Chronic gastritis with intestinal metaplasia | 4 |
| | Atrophic gastritis | 3 |
| 4. | Gastric ulcer | 2 |
| 5. | Acute on chronic gastritis | 2 |
| 6. | No specific pathology | 7 |
| | **Neoplastic lesions** | |
| 1. | Polyps | 8 |
| 2. | Adenocarcinoma | 31 |
| | Total | 136 |

**Table 6:** Distribution of various duodenal Lesions

| S.no | Duodenal lesions | No of cases |
|---|---|---|
| | **Non neoplastic lesions** | |
| 1. | Chronic non-specific duodenitis | 15 |
| 2. | Duodenal ulcer | 7 |
| 3. | No specific pathology | 6 |
| | **Neoplastic lesions** | |
| 1. | Tubular adenoma | 3 |
| 2. | Adenocarcinoma | 8 |
| | Total | 39 |

## 5. Discussion

Upper gastrointestinal tract diseases are one of the commonest entities in surgical practice. Endoscopy is regarded as the most sensitive and specific diagnostic method for the early detection of GIT malignancies, inflammatory lesions and also for therapy if needed. There has been a decrease in deaths due to gastric cancer because of early detection which has in turn improved the management of the disease. The need to differentiate benign and inflammatory lesions and to detect malignant cases at an early stage has led to the increase in obtaining mucosal biopsies from upper GIT [9]. In our study of 259 cases, there were 86 neoplastic cases and 173(66.80%) non neoplastic cases. Incidence of non neoplastic lesions was more than neoplastic lesions which correlated with studies done by Sadhana L Kothari *et al.* with 76.5% of non neoplastic lesions. The common site for upper gastrointestinal endoscopic biopsy in our study was stomach with 136, followed by esophagus 84 cases and duodenum 39 biopsies. The study was similar to Abilash SC *et al.* studies which showed high incidence in stomach with 51% [5]. Sheik Bilal A *et al.* Krishnappa Rashmi *et al.* and Memon F *et al.* studies also showed stomach was the commonest site for biopsy followed by oesophagus and duodenum [1, 10, 11]. The sex distribution showed male preponderance when compared to female patient. Similar findings were observed in study done by Krishnappa Rashmi *et al.* Hussain *et al.* and Uma Rani *et al.* [10, 12, 13]. The gender ratio favoring males could be due to the fact that males are exposed to more risk factors than female. In our study, the age range was between twenty one years and seventy four years. High incidence was observed between the age group of fourth and fifth decade which correlated to study done by Shanmugasamy K *et al.* [14].The age-related difference could be due to varied exposure to the risk factors among the different age groups especially in relation to the dietary habits of both qualitative and quantitative. Out of 84

esophageal biopsies, 22 cases were neoplastic and 62 were non neoplastic. The non neoplastic lesions were more than neoplastic lesions which was similar to studies done by Krishnappa Rashmi *et al*. and Kamath *et al*. [10, 15]. Hyperplastic epithelium was common in non neoplastic lesions in Kamath *et al*. study which correlated with our study having 29 cases. Among the malignant cases,15 biopsies showed squamous cell carcinoma which was common (Fig:4-A), similar to study done by Krishnappa Rashmi *et al*. Kamath *et al*. and Sadhana L Kothari [10, 15, 16].

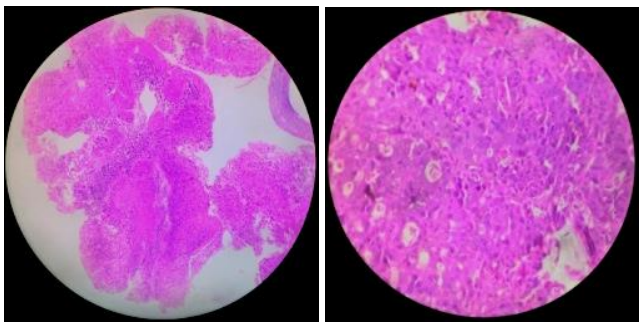

**Fig 4:** A- H&E,10X - Moderately differentiated squamous cell carcinoma of oesophagus. B: H&E, 40X: Adenocarcinoma with malignant cells arranged in glandular pattern – Stomach

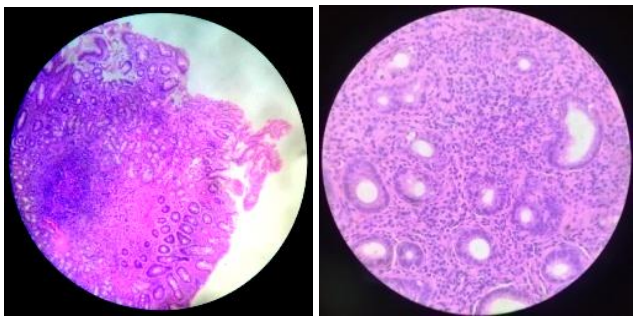

**Fig 5:** A- H&E, 10X: Gastric mucosa with lymphoid aggregate in lamina propria. B - H&E, 40 X: Chronic non specific gastritis showing chronic inflammatory infiltrate in the lamina propria.

In our present study, majority of cases were gastric biopsies which is similar to studies done by Venugopal *et al*. and Keerthana Jonnalagadda *et al*. [17, 18]. Among the 97 non-neoplastic lesions, the most common benign lesion observed in our study was 51 cases of chronic non specific gastritis (Fig:5) followed by 28 cases of H. pylori associated gastritis which is similar to Kamath *et al*. Rupendra *et al*. and Shreesha Khandige *et al*. [15, 19, 20]. 4 cases was chronic gastritis with intestinal metaplasia, 3 cases atrophic gastritis, 2 cases gastric ulcer and acute on chronic gastritis. Among the 39 cases of neoplastic lesions, only 31 cases of gastric biopsies were diagnosed to have malignancy on histopathology and the remaining 8 cases showed benign polyp features. The common histological type of neoplastic lesion was adenocarcinoma (Fig:4-B) which correlated to Memon F *et al*. Kamath *et al*. Sk Md Jaynul Islam *et al*. and Neha *et al*. and studies [11, 15, 21, 22]. The pylorus was the most common site of gastric adenocarcinoma this finding is compatible with study conducted by Krishnappa Rashmi *et al*. [10]. The studies done by Abhilash SC *et al*. Memon F *et al*. Aparajita A *et al*. and Gulia SP *et al*. reported a lower incidence of malignancy when compared to non neoplatic lesions which correlated with our study [5,11,23, 24].

Duodenal biopsies were the least site of biopsies with 39 numbers of cases among the upper gastrointestinal tract.15 cases of chronic non specific duodenitis was the commonest non-neoplastic lesions, this finding correlated to Krishnappa *et al*. Hussain *et al*. and Neil A Shepherd *et al*. study which also had inflammatory condition more common than malignancy[10,12,25]. Among the neoplastic lesion 3 cases of tubular adenoma and 8 cases adenocarcinoma was present which was similar to the study done by Kamath *et al*. [15]. Non neoplastic lesions were more in comparison with neoplastic lesions in duodenum like other sites of biopsies.

## 6. Conclusion

A variety of non-neoplastic and neoplastic lesions were reported in the present study across a wide age and site distribution. The combination of endoscopy and biopsy is a powerful diagnostic tool for better diagnosis and patient management so endoscopy is incomplete without biopsy. In our study there was male predominance. Commonest site of biopsies received was from the stomach next oesophagus. Chronic non specific gastritis was the commonest lesion noted in non neoplastic lesions and adenocarcinoma was the commonest neoplastic lesion in the endoscopic gastric biopsies. Non neoplastic lesions were more common than neoplastic lesions in upper GIT. So histopathology of upper gastrointestinal biopsies, detects early mucosal lesions and H. pylori infections. It helps in reducing the progression to invasive carcinomas, better treatment management of patients and their survival.

## 7. Reference


1. Sheikh BA, Hamdani SM, Malik R. Histopathological spectrum of lesions of upper gastrointestinal tract: a study of endoscopic biopsies. Global J Med Public Health. 2015; 4(4):1–8.
2. Godkhindi VM, Meshram DP, Deshpande SA, Kadam PN, Chavan YH. The histopathological study of various gastroduodenal lesions and their association with Helicobacter pylori infection. IOSR J Dent Med Sci (IOSR-JDMS). 2013; 2(3):51–55.
3. Sandhya PG, Madhusudan C, Naseem N, Balakrishnan CD, Balagurunathan K. Interpretation of Upper GastroIntestinal Tract Endoscopic Mucosal Biopsies – A Study Conducted In Teaching Hospital in Puducherry, India. International Journal of Medical and Health Sciences. 2012; 1(3):17-24.
4. Poudel A, Regmi S, Poudel S, Joshi P. Correlation between endoscopic and histopathological findings in gastric lesions. J Univ College Med Sci. 2013; 1(3):37–41.
5. Abilash SC, Hasaf Kolakkadan1, Gitanjali MM, Shreelakshmidevi S, Balamuruganvelu S. Histopathologic Spectrum of Upper Gastrointestinal Tract Mucosal Biopsies: A Retrospective Study. Sch. J App. Med. Sci. 2016; 4(5E):1807- 1813.
6. Kadam PNR, Chavan YH, Shinde Aparna, Hanmante RD. The histopathological study of gastroduodenal Biopsies and Helicobacter Pylori Infection in acid Peptic Disease Patients. Journal of Evolution of Medical and Dental Sciences. 2013; 2(27):4883-4889.
7. Duduyemi BM, Ojo BA, Olaomi OO, Atiba AS. Histopathological pattern of endoscopic gastric biopsy

in a district hospital in Nigeria: a review of 118 consecutive cases. Am J Med Biol Res. 2014; 2(3):83–86.
8. Manasa GC *et al*. Histopathological study of gastric carcinoma with associated precursor
9. lesions. Indian Journal of Pathology and Oncology. 2016; 3(1):26-31.
10. Hirachand S, Sthapit RR, Gurung P, Pradhanang S, Thapa R, Sedhai M, Regmi S. Histopathological spectrum of upper gastrointestinal endoscopic biopsies. JBPKIHS. 2018; 1(1):68-67.
11. Krishnappa R, Horakerappa MS, Ali K, Gouri M. A study on histopathological spectrum of upper gastrointestinal tract endoscopic biopsies. Int J Med Res Health Sci. 2013; 2(3):418-24.
12. Memon F, Baloch K, Memon AA. Upper gastrointestinal endoscopic biopsy; morphological spectrum of lesions. Professional Med J. 2015; 22(12):1574-1579.
13. Hussain SI, Reshi R, Akhter G, Beigh A. Clinico histopathlogical study of upper gastrointestinal tract endoscopic biopsies. Int J Cur Res Rev. 2015; 7(16):78–85.
14. Uma Rani P, Ramya N, Swathi C, Kumara V, Spandana P. Efficacy of endoscopic biopsies in establishing histologic diagnosis of upper gastrointestinal lesions – a one year prospective study. IP Journal of Diagnostic Pathology and Oncology. 2017; 2(4):91-94.
15. 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.
16. Mridula Kamath, Suchithra A Shetty, Shreesha Khandige. Histopathological Spectrum of
17. Upper Gastrointestinal Lesions in A Tertiary Care Centre. Annals of Pathology and Laboratory Medicine. 2019; 6(9):459-462.
18. Sadhana L Kothari, Anupama Dayal, Shanti. M. Patel. Interpretation of Upper Gastrointestinal Tract Mucosal Biopsies – A Tertiary Care Centre Experience. Annals of Pathology and Laboratory Medicine. 2018; 5(8):709-714.
19. Venugopal LS, Rao BS. Endoscopic biopsies of lower 1/3rd oesophagus and gastric lesions and its clinic-pathological correlation with Helicobacter pylori. IJRRMS. 2013; 3(3):42–44.
20. Keerthana Jonnalagadda, Saritha Karre, Seshagiri Rao Thungaturthi VD, Praveen Kumar Gorrela. Histopathological spectrum of upper gastrointestinal endoscopic biopsies. Indian Journal of Pathology and Oncology. 2019; 6(3):422-427.
21. Rupendra T, Mamta L, Pradeep KY, Prakash K, Choodamani A, Kamana S. Histopathological study of endoscopic biopsies. J Nepal Med Assoc. 2013; 52(190):354-6.
22. Shreesha Khandige. The Conceding of Upper Gastrointestinal Lesion Endoscopic Biopsy: A Bare Minimum for Diagnosis. International Journal of Scientific Research. 2015; 4(2):264-266.
23. Sk Md Jaynul Islam, Mostaque Ahmed ASM, Shahab Uddin Ahamad M, Hafiz SAMMA. Endoscopic and Histologic diagnosis of Upper GI Lesions, Experience in a Port City of Bangladesh. Chattagram Maa-O-Shishu Hospital Medical College Journal. 2014; 13(3):11-14.
24. Neha Satyanarayan Somani, Purwa Patil. Histopathological Study of The Upper Gastrointestinal Tract Endoscopic Biopsies. Annals of Pathology and Laboratory Medicine. 2018; 5(8):683-688.
25. Aparajita A, Mohanty RC, Sahu AA, Mohanty R, Satpathy PK, Bhuyan T. Histomorphological study of upper GI endoscopic biopsies. Int J Health Sci Res. 2016; 6(12):59-64.
26. Gulia SP, Chaudhury M, Noorunnisa N, Balakrishnan CD, Balagurunathan K. Interpretation of Upper Gastro Intestinal Tract Endoscopic Mucosal Biopsies – A Study Conducted in Teaching Hospital In Puducherry, India. Int J Med Health Sci. 2012; 1(3):17-24.
27. Neil A Shepherd, Roland M Valori. Guidance for Endoscopic Biopsy in the Gastrointestinal Tract. Frontline Gastroenterology. 2014; 5(2):84-87.