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HISTOPATHOLOGICAL SPECTRUM OF LESIONS IN UPPER GASTROINTESTINAL ENDOSCOPIC BIOPSIES: A SINGLE CENTRE EXPERIENCE WITH REVIEW OF LITERATURE

Pathology

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ABSTRACT

BACKGROUND: Upper gastrointestinal disorders are the most commonly encountered disorders in day to day clinical practice especially in general medical and gastrointestinal outpatient departments of developing countries. **AIM:** To evaluate the histopathological spectrum of lesions in upper GI endoscopic biopsies. **MATERIALS AND METHODS:** This retrospective study was conducted in the Department of histopathology at our referral laboratory in Bangalore. Endoscopic biopsies done for various upper gastrointestinal symptoms, received between August 2016 - August 2019 were included in the study. Sections of each case stained with Hematoxylin & Eosin(H&E)stain and Geimsa stain were examined. **RESULTS:** A total of 105 upper GI endoscopic histopathology samples were included in the study with the age range of patients being 20-85yrs with the mean age of presentation being 55.7yrs and the male to female ratio is 1.05:1. There were 13 (12.4%) oesophageal biopsies, of 6(46%) were histologically neoplastic comprising squamous cell carcinoma (SCC) and 02 (15.3%) were suspicious for carcinoma and the rest 01(7.6%) was a residual treated case of adenocarcinoma. There were 02(15.3%)cases of barrettes esophagus and 02(15.3%)cases of acute erosive esophagitis. 90 (85.7%) endoscopic biopsies from stomach were received, among them 71(78.1%) were benign non-neoplastic lesions and 19(20.9%) were malignant lesions. Of the benign non-neoplastic lesions 41(45.5%) comprised H.Pylori positive inflammatory lesions including chronic active gastritis 24(26.4%), acute active gastritis 04(4.4%), acute ulcerative gastritis 02(2.2%) and a hyperplastic polyp 01(1.1%). H.Pylori associated chronic active gastritis with mild dysplasia was seen in 05(5.5%)cases, moderate dysplasia 01(1.1%), severe dysplasia in 03(3.3%). Acute gastritis with associated mild dysplasia and H.Pylori had 01(1.1%) case. H.Pylori negative cases included 30(33%) cases comprising hyperplastic polyp 08(8.8%), chronic active gastritis 15(16.5%), acute active gastritis 02(2.2%) ,acute ulcer 03(3.3%)and suspicious for malignancy included 03(3.3%)cases. Malignant lesions of stomach comprised adenocarcinoma in 07(7.7%)cases, poorly differentiated carcinoma 08(8.8%), squamous cell carcinoma 01(1.1%), GIST 01(1.1%) and In-situ squamous cell carcinoma with associated H.Pylori in 01(1.1%) case. Duodenal mucosal biopsies included in the study were 02(1.9%) only, of which one case was chronic duodenitis with associated H.Pylori and the other being a benign hyperplastic polyp. **CONCLUSION:** In our study, the most common site for upper GI endoscopic biopsy was from the stomach comprising 85.8% cases followed by oesophagus and duodenum which is in concordance to many studies existing in literature from developing countries, possibly due to more stress related lifestyles and low socio-economic status contributing to more dyspeptic symptoms and gastric ulcers among patients attending routine out-patient departments. Endoscopy is incomplete without biopsy as histopathological evaluation is the gold standard for the diagnosis of endoscopically detected lesions.

KEYWORDS

upper GI endoscopic biopsies, H.Pylori, GIST,endoscopy.

INTRODUCTION:

Upper gastrointestinal (GI) disorders are the most commonly encountered disorders in day to day clinical practice especially in general medical and gastrointestinal outpatient departments. They are quite prevalent in the general population of developing countries like India owing to stress due to modified lifestyles and low socio-economic status, which left untreated may cause significant morbidity and mortality [1]. Multiple etiological factors are associated with upper GI lesions amongst which Helicobacter pylori (H. pylori) infection is the commonest. The usual approach in determining the etiology of such upper GI complaints include laboratory investigations, various invasive and non-invasive diagnostic tests of which endoscopy is a valuable investigative tool for visualization of upper gastroduodenal mucosa and mucosal sampling if indicated for histological examination. This study has been taken up to evaluate the histopathological patterns of upper GI endoscopic biopsies and to know the prevalence in H.pylori associated gastric lesions.

MATERIALS AND METHODS:

This retrospective study was conducted in the Department of histopathology at our referral diagnostic laboratory in Bangalore. Endoscopic biopsies done for various upper gastrointestinal symptoms, received between August 2016 - August 2019 were included in the study. Sections of each case stained with Hematoxylin & eosin(H&E)stain and Geimsa stain were examined. The slides were examined by two pathologists. Identification of H. pylori was done under oil immersion in Geimsa stain.

RESULTS:

A total of 105 upper GI endoscopic histopathology samples were included in the study with age range of the patients being 20-85yrs with the mean age of presentation being 55.7yrs and the male to female ratio is 1.05:1. There were 13 (12.4%) oesophageal biopsies, 90 (85.7%) gastric and 02 (1.9%) duodenal biopsies [Table1-2] included in the study. Among the 13 oesophageal biopsies 6(46%) were histologically neoplastic comprising squamous cell carcinoma (SCC) and 02 (15.3%) were suspicious for carcinoma and the rest 01(7.6%) was a residual treated case of adenocarcinoma. There were 02(15.3%)cases of barrettes esophagus(Fig 1A)and 02(15.3%)cases of acute erosive esophagitis. 90 endoscopic biopsies from stomach were received, among them 71(78.1%) were benign non-neoplastic lesions and 19(20.9%) were malignant lesions. Of the benign non-neoplastic lesions 41(45.5%) comprised H.Pylori positive inflammatory lesions including chronic active gastritis 24(26.4%), acute active gastritis 04(4.4%), acute ulcerative gastritis 02(2.2%) and a hyperplastic polyp 01(1.1%). H.Pylori associate chronic active gastritis with associated mild dysplasia included 05(5.5%)cases, moderate dysplasia 01(1.1%), severe dysplasia 03(3.3%). Acute gastritis with associated mild dysplasia and H.Pylori had 01(1.1%) case. H.Pylori negative cases included 30(33%) cases comprised hyperplastic polyp 08(8.8%), chronic active gastritis 15(16.5%), acute active gastritis 02(2.2%), acute ulcer 03(3.3%) suspicious for malignancy included 03(3.3%). Malignant lesions comprised adenocarcinoma 07(7.7%), poorly differentiated carcinoma 08(8.8%), squamous cell carcinoma 01(1.1%), GIST 01(1.1%) and In-situ Squamous cell carcinoma with associated H.Pylori in 01(1.1%) case [Table 2][Fig 1B-F].The duodenal mucosal biopsies included in the study were 02(1.9%) only, of which one case was chronic duodenitis with associated H.Pylori and the other being a benign hyperplastic polyp [Table 1].

Table 1

ESOPHAGUS (n=13)	No. of Cases
Barrettes esophagus	02(15.3%)
Acute erosive esophagitis	02 (15.3%)
Suspicious for malignancy	02(15.3%)
Squamous cell carcinoma	06(46%)
Residual malignant lesion	01(7.6%)
DUODENUM(n=2)	
Hyperplastic polyp	01(50%)
H.Pylori associated duodenitis	01(50%)

Table 2

GASTRIC BIOPSIES (n=90)	H. Pylori Positive	H. Pylori Negative
Chronic active gastritis (CAG)	24(26.4%)	15(16.5%)
Acute active gastritis	4(4.4%)	2(2.2%)
Acute ulcerative gastritis	2(2.2%)	3(3.3%)
Hyperplastic polyp	1(1.1%)	8(8.8%)
Acute gastritis with mild dysplasia	1(1.1%)	-
CAG with mild dyspalsia	5(5.5%)	-
CAG with moderate dysplasia	1(1.1%)	-
CAG with severe dysplasia	3(3.3%)	-
Suspicious for malignancy	3(3.3%)	-
In-situ SCC	1(1.1%)	-
Adenocarcinoma	-	07(7.7%)
Poorly differentiated carcinoma	-	08(8.8%)
Squamous cell carcinoma	-	01(1.1%)
GIST	-	01(1.1%)

DISCUSSION

The modern era of gastrointestinal endoscopy began in 1957 when Basil developed the first fiber-optic gastroscope [2]. With the advent of modern flexible endoscopes visualization inside the upper GI tract has been made easier and quicker, especially in detecting lesions in the earlier stages itself. Endoscopy is incomplete without biopsy and a detailed clinical/endoscopy information is important while evaluating/interpreting an "adequate" endoscopic biopsy. The most common indications for upper GI endoscopy include dyspepsia unresponsive to medical therapy or associated with systemic signs, dysphagia or odynophagia, persistent gastroesophageal reflux symptoms, occult gastrointestinal bleeding, and surveillance for malignancy [3]. In the present study of 105 cases were included among which stomach is the commonest (85.8%) site of UGI endoscopic biopsy followed by oesophagus(12.3%) and duodenum(1.9%). It is thus evident that majority of the upper GI endoscopic biopsies were from stomach, which is comparable with the studies reported by Rashmi et al[4], Memon et al[5], and Abilash SC et al. [6] The male to female ratio is 1.05:1 with 54 male patients and 51 female patients and the age range is between 20-85yrs which is similar to the results in the study done by Duduyemi et al[7]. The mean age of presentation is 55.7yrs with the youngest male being 20yrs and eldest male aged 85yrs. The youngest female was 30yrs and the eldest female included the study was 76yrs. Among the oesophageal biopsies neoplastic lesions were predominantly noted of which squamous cell carcinoma is the most common histological variant encountered which is similar to the results of Rashmi et al[4]. Helicobacter pylori is the principal agent linked to the pathogenesis of chronic gastritis and peptic ulceration which causes histological alteration required for an increase in the chronic inflammatory cells in the gastric mucosa. The organism can be demonstrated by H&E stains in biopsy sections, but the sensitivity of the H&E stain in identifying such organisms is low. In our experience, H&E in combination with a special stain like Giemsa has been more successful in demonstration of H.Pylori. Among the gastric biopsies studied 71(78.1%) were benign non-neoplastic lesions and 19(20.9%) were malignant lesions, a similar finding seen in a study done in Nigeria with 211 case series[8]. H.Pylori positive chronic active gastritis comprised 24(26.4%) which is similar to the results seen by Duduyemi et al[7]. Malignant lesions comprised poorly differentiated carcinoma 08(8.8%), followed by adenocarcinoma in 07(7.7%)cases and squamous cell carcinoma 01(1.1%). Surprisingly we had one case of GIST in a gastric endoscopic biopsy which is very uncommon. GISTs(gastro-intestinal stromal tumors) are rare neoplasms with an incidence of 0.1-1% of all GI malignancies. Rare case reports describing the preoperative diagnosis by endoscopic biopsy has been documented [9]. We had only two duodenal biopsies included in the study one of which comprised a hyperplastic polyp and the other being chronic duodenitis with associated H.Pylori. Though the sample size of duodenal biopsies have been less the results were comparable with that findings of Khandige S et al [10].

CONCLUSION

In our study, the most common site for upper GI endoscopic biopsy was from the stomach comprising 85.8% cases followed by oesophagus and duodenum which is in concordance to many studies existing in literature especially from developing countries, possibly due to more stress related lifestyles and low socio-economic status contributing to more dyspeptic symptoms and gastric ulcers among patients attending routine out-patient departments. Among the gastric biopsies studied 78.1%were benign non-neoplastic lesions with H.Pylori positive chronic active gastritis comprising 26.4% a similar pattern seen in studies from the south asia and africa. Also a rarer diagnosis like GIST could be made in pre-operative endoscopic biopsy due to availability of detailed clinical/endoscopic information with adequate representative biopsy. Endoscopy is hence incomplete without biopsy as histopathological evaluation is the gold standard for the diagnosis of endoscopically detected lesions.

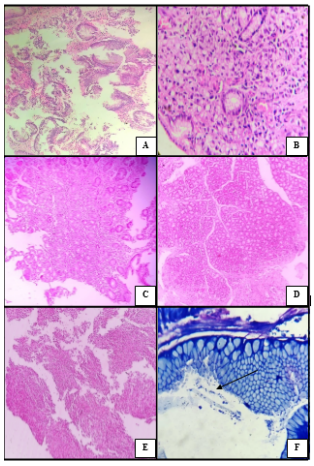

FIGURE (1) Histopathological patterns in endoscopic biopsies:
A: Barrett esophagus, squamous epithelium replaced by columnar epithelium of intestinal type with goblet cells (10x H&E)
B: Poorly differentiated carcinoma with signet ring cells (gastric biopsy 40x H&E)
C: Chronic active gastritis (4x H&E)
D: Hyperplastic gastric polyp (4x H&E)
E: GIST (4x H&E)
F: H.Pylori (Oil immersion , Giemsa stain)

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