

Histopathological study of Gastro duodenal biopsies

Priyam Sharma¹, Sachin Rastogi^{2*}

¹Assistant Professor, Department of Pathology, Saraswati Medical College, Unnao, Uttar Pradesh, India

²Associate Professor, Department of Pathology, Santosh Medical College and Hospital Ghaziabad, Uttar Pradesh, India

Received: 10-01-2020 / Revised: 23-05-2020 / Accepted: 25-06-2020

Abstract

Background: Gastro duodenal disease presents a challenging scenario to clinicians. In the era of evidence based medicine, histopathological analysis provides definitive diagnosis. **Materials and Methods:** The present study was conducted at Saraswati Medical College, Unnao, UP on 50 patients presenting with various upper gastro intestinal symptoms. Endoscopic biopsy was taken and correlated with endoscopic appearance of lesions. **Result:** Males predominately constituted 92 % of the study. Chronic gastritis was the commonest lesion. Alcoholics and smokers were vulnerable for gastritis. **Conclusion:** Histopathological study of gastro duodenal lesion provides confirmative diagnosis to clinicians.

Keywords: Gastritis, acid reflux disorder, Duodenal ulcer, endoscopy, biopsy.

This is an Open Access article that uses a fund-ing model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided the original work is properly credited.

Introduction

The stomach is a muscular, J- shaped reservoir that sits in the left upper quadrant of the abdomen, just under the left costal margin. It is the largest hollow organ in the body, with a capacity of about 1.5L. The stomach has several anatomic regions. The oesophagus joins the stomach at the lower oesophageal sphincter by the cardia, which primarily secretes mucus and serves as a barrier between oesophagus and the acid secreting body, fundus and antrum[1]. The medial portion of the cardia is contiguous with the lesser curvature. To the left of the cardia, the dome – shaped fundus rises above the gastroesophageal junction, it is the site of gastric pacemaker, which resides in the circular smooth muscle of the fundic wall. The body forms the central, largest portion of the stomach and is the site of most of the gastric pits that contain the stomach's acid secreting glands. The body and fundus are heaped into coarse folds, called rugae. Between the pylorus and the gastric body is the antrum, the site of gastrin producing G cells

These cells sense the state of gastric acidity and respond by releasing gastrin which targets the parietal cells of the gastric pits and stimulates gastric acid secretion[2,3]. The sharp reflection of the gastric mucosa near the middle of the lesser curvature is the incisura angularis. The pyloric and cardiac ends of the stomach primarily secrete mucus, whereas the rest of the stomach contain gastric glands. The two major cell types of the gastric glands are the basophilic, chief cells and the acidophilic, parietal cells. The basophilic cells secrete pepsinogens, which are important for initial protein digestion. The parietal cells secrete hydrochloric acid and intrinsic factor. and contain enterochromaffin like cells. The gastric glands open into the lumen as gastric pits. In the antrum, these glands are deeper and contain endocrine cells including G cells. Gastritis is the most common pathology affecting stomach. Classification of gastritis has evolved over the years taking into consideration morphology, topography, epidemiology and endoscopy. A classification based on etiology is ideal[5]. However, this was not forthcoming since most of the gastritis was deemed idiopathic until the discovery of Helicobacter pylori. In 1954, Palmer ED suggested an extensive classification of gastritis in which he broadly divided

*Correspondence

Dr. Sachin Rastogi

Associate Professor, Department of Pathology, Santosh Medical College and Hospital Ghaziabad, Uttar Pradesh, India.

E-mail: sachinrastogi7403@gmail.com

gastritis into acute and chronic gastritis, subclassifying chronic gastritis into granulomatous and reactive.

The classification of chronic gastritis by Whitehead et al in 1972 is one of the most popular classifications for routine use. documents mucosal site, grade of gastritis, activity and the presence of metaplasia. Activity refers to the infiltration by neutrophils into the epithelium of the gastric pits or the surface. Based on the extent of inflammation within the mucosa, two main types, chronic superficial and chronic atrophic gastritis were recognized. Chronic superficial gastritis refers to inflammation limited to the level of the gastric pits and surrounding lamina propria. Atrophic gastritis indicates loss of superficial glands and is subdivided into mild, moderate and severe. The combination of severe gastritis and metaplasia, when associated with only minimal inflammation, is termed gastric atrophy.

Peptic ulcer disease

It occurs most commonly in the gastric antrum and first portion of the duodenum. Duodenal ulcers involve the anterior duodenal wall, gastric peptic ulcers are located along the lesser curvature near the interface of body and antrum.

Microscopy :- Base have a thin layer of fibrinoid debris underlaid by neutrophilic inflammatory infiltrate, granulation tissue and fibrous scar[6,7].

Helicobacter Pylori-Associated PUD

H. pylorus is a gram-negative bacillus that is residing in gastric epithelial cells. This bacterium is responsible for 85 % of duodenal ulcers and 60% to 80% of gastric ulcers. H. pylori infection is more common among smokers and alcoholics and is commonly acquired during childhood. The organism has a vast spectrum of virulence factors allowing it to adhere to and inflame the gastric mucosa. This results in hypochlorhydria or achlorhydria, leading to ulceration in stomach.

Cancer of stomach

Incidence of gastric cancer has been declining around the worldwide. It remains the second most common cause of cancer death with an estimated world burden of 50,000 incident cases in 2000. In a study by Naher et al, nearly 90% are adenocarcinoma and the remaining includes lymphoma, leiomyosarcoma, carcinoid tumour, metastatic cancer and other types. During the last

Results

Table 1: Gender incidence

Gender groups	Ni of Patients	Percentage
Male	46	92 %
Female	4	8 %
Total	50	100%

decade there have been major advances in understanding the aetiology and molecular basis of the cancer. Definite progress has been made in secondary prevention of gastric cancer by endoscopic screening in Japan and Western countries. The incidence of gastric malignancy increases with age to reach highest in the 5th to 8th decades. A study by six railway hospitals in India had observed that gastric malignancy admissions in Southern India were 4-5 times as higher than in Northern India with a predominance of males (15:1 versus 8:1 in the rest of India). An exception to this trend of relatively lower incidence of gastric malignancy in Northern India is region of Kashmir where the incidence of gastric malignancy has been reported to be 6 to 8 times higher than in the other parts of India. The incidence of gastric malignancy in the place of Barshi at Maharashtra is lower compared to all parts of India. This low incidence of 0.8 and 0.9 per 100000 populations in males and females may be explained in part by the consumption of gastro protective foods such as fresh fruits, vegetables[8,9].

Aims and objectives

> To study the overall frequency, age and sex distribution of various lesions.

> To study varied spectrum of histopathological lesions both non-neoplastic and neoplastic in patients undergoing gastroduodenal biopsy[10]

Materials and methods

This is a prospective study of 50 patients with symptoms of gastroduodenal diseases attending Saraswati Medical College, Unnao, UP. These patients underwent upper gastrointestinal endoscopy both on inpatient and outpatient basis. Documentations of patients which includes identification, history, clinical findings, investigative tests, endoscopy findings were all recorded in a proforma specially prepared[11].

Inclusion criteria

- All biopsies done for various upper abdominal symptoms with or without systemic symptoms.

Exclusion criteria

- Therapeutic purposes.
- Endoscopy cases where biopsies cannot be done.

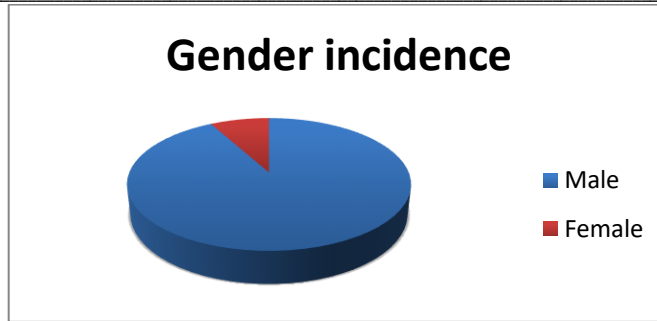


Fig 1:Gender incidence

Table 2: Age incidence

Age groups	No of Patients	Percentage
< 20 yrs	2	4 %
20-40 yrs	14	28%
40-60 yrs	22	44%
60-80 yrs	12	24%
Total	50	100%

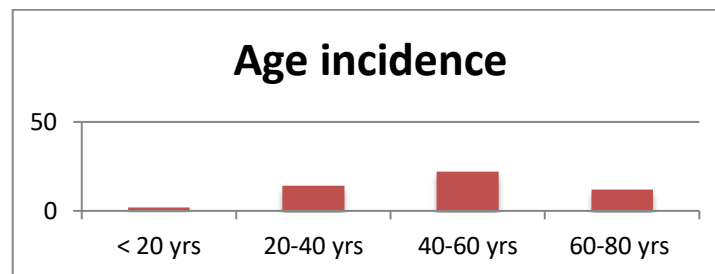


Fig 2:Age incidence

Table 3:Symptomology

Symptoms	No of Patients	Percentage
Pain abdomen	40	80
Dyspepsia	36	72
Haematemesis	12	24
Vomiting	17	34
Black stools	5	10

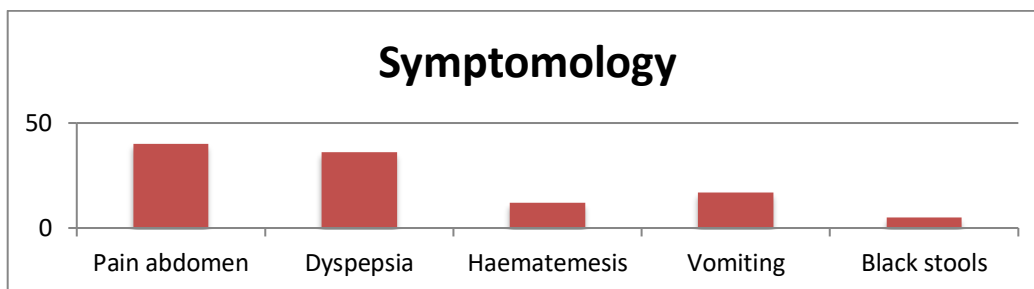


Fig 3:Symptomology

Table 4: Habits

Habits	Ni of Patients	Percentage
Alcohol consumption	33	66 %
Smoking	17	34%
Total	50	100%

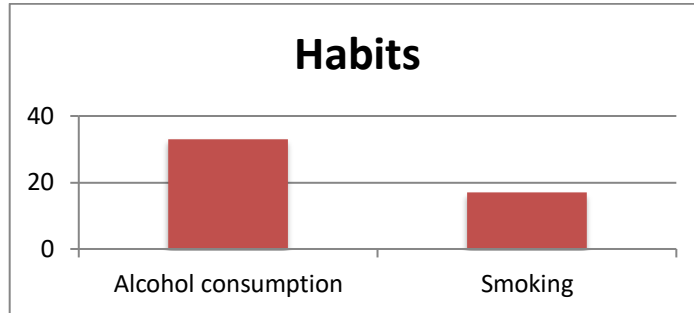


Fig 4: Habits

Table 5: Distribution of sites

Habits	Ni of Patients	Percentage
Pylorus	21	42%
Body	12	24%
Antrum	7	14%
Fundus	8	16%
Dudenum	2	4%

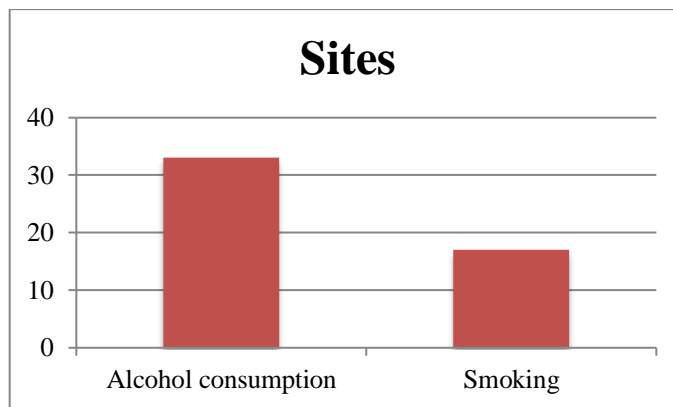


Fig 5: Sites

Table 6: Endoscopic diagnosis

Endoscopic diagnosis	Ni of Patients	Percentage
Gastric erythema	18	36 %
Ulceroproliferative growth	9	18 %
Duodenal ulcer	6	12 %
GJ stoma ulcer	3	6 %
Antral polyp	2	4 %

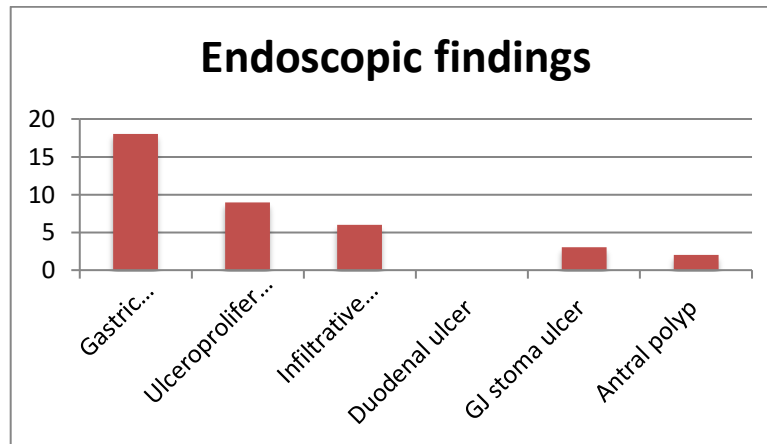


Fig 6:Endoscopic findings

Table 7: Histopathological diagnosis

Histopathological diagnosis	Ni of Patients	Percentage
Chronic gastritis	22	44 %
Gastric adenocarcinoma	8	16 %
Benign gastric ulcer	4	8 %
Chronic duodenitis	4	8 %
Duodenal ulcer	2	4 %
Gastric dysplasia	1	2 %
Duodenal adenocarcinoma	3	6 %
Normal	6	12 %

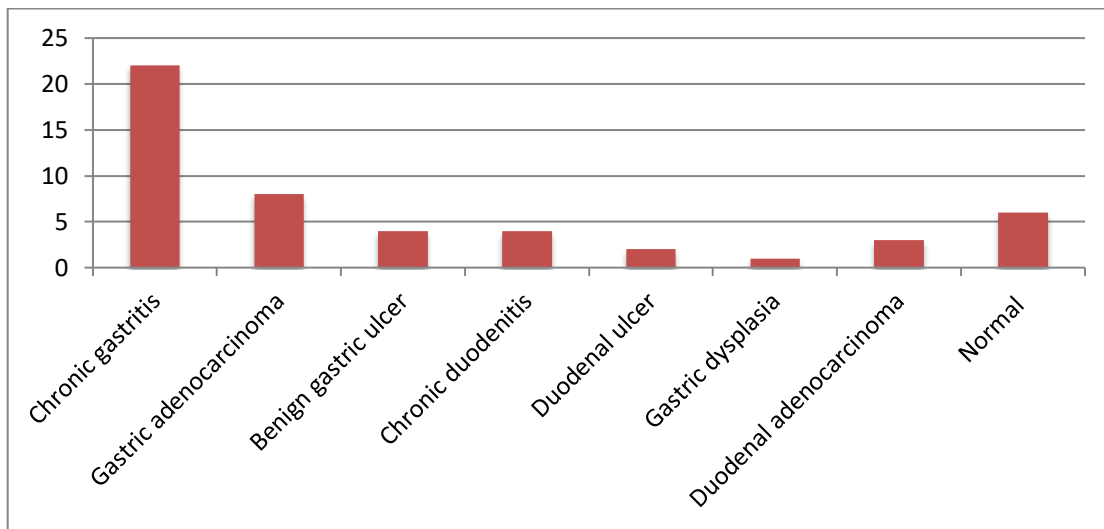


Fig 7: Histopathological diagnosis

Discussion

In the present study the number of males undergoing upper GI endoscopy were more than the number of females. Similar findings were found in the previous study by David A Liberman et al and Florian Froehlich et al. In all the three studies the men outnumbered women due to more prevalence of smoking, alcoholism and stressful life.

In the present study it was found that the majority of patients presenting with gastroduodenal symptoms who were subjected to upper GI endoscopy were more than 50 years of age which was similar to study done by Florian Froehlich et al. In the present study, the commonest symptom the patient presented with was pain abdomen (80%) followed by dyspepsia (72%) which correlates with the study done by Heading R.C et al and Usman et al. In both of these studies pain abdomen was the commonest presentation in patients presenting with gastroduodenal symptoms i.e. 54% and 46% respectively. In the present study the most common histological pattern noted in gastroduodenal biopsies was gastritis which is similar to the study done by Sultana et al, followed by gastric adenocarcinoma. In the present study it was found that alcoholism and smoking were the primary habitual factors in patients undergoing endoscopy for gastroduodenal symptoms similar to the study done by William K. Hirota et al.

The most common lesion in the gastric biopsies in the present study was chronic gastritis followed by adenocarcinoma which correlates with the study done by A Sultana et al.

Conclusion

Chronic Gastritis was the commonest presentation. It affects middle-aged males, mainly who are smokers and alcoholic. Non malignant lesions were most frequently found lesions than the malignant lesions. Hence, gross findings on endoscopy may not be disease specific and clinician may get confused for various other upper gastrointestinal pathologies. Histopathological study of biopsy specimen is specific method to confirm endoscopic diagnosis in all cases.

Source of Support: Nil

Conflict of Interest: Nil

References

1. Cheli R, Giacosa A. Chronic atrophic gastritis and gastric mucosal atrophy one and the same. *Gastrointest Endosc* 1983; 29: 23-5.
2. Strickland RG, Mackay IR. A reappraisal of the nature and significance of chronic atrophic gastritis. *Am J Dig Dis* 1973; 18: 426- 40.
3. Glass GB, Pitchumoni CS. Atrophic gastritis. *Human Pathol* 1975; 6: 219-50.
4. Kekki M, Siurala M, Varis K, Sipponen P, Sistonen P, Nevanlinna RH. Classification principles and genetics of chronic gastritis. *Scand J Gastroenterol* 1987; 22(Supp 114):1-28.
5. Correa P. Chronic gastritis: a clinicopathological classification. *Amer J Gastroenterol* 1988; 83: 504- 9.
6. David A. Liberman patterns of endoscopy use in the United states. *J Gastroenterol* 2000; 118 (3) : 619-24.
7. Florian Froehlich Under utilization of upper gastrointestinal endoscopy. *J Gastroenterol*, 1997;112 (3) : 690 – 97.
8. Heading, R.C., Prevalence of upper gastrointestinal symptoms in the general population – a systematic review; *Scand J of Gastroenterology*, 1999; 34:3- 8.
9. Mohd. Usman, Farrukh Saeed, Hafiz Mohd; The diagnostic yield of upper gastrointestinal endoscopy in patients with iron deficiency anemia. *Pak Armed Forces Med J*. 2008; 4: 34-38.
10. A Sultana, SM Badruddoza, F Rahman; Correlation between endoscopic and histological findings in different gastroduodenal lesion and its association with Helicobacter Pylori. *Anwar Khan Modern Medical College Journal*, 2011; 2(2): 6- 10.
11. William K. Hirota Specialized intestinal metaplasia dysplasia and cancer of the esophagogastric junction and stomach: Prevalence and clinical data *J Gastroenterol*. 1999;116(2) 277-85.