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Original Research Paper

Pathology

DOES ENDOSCOPY ALWAYS PREDICT MICROSCOPIC PICTURE IN GASTRODUODENAL BIOPSIES?

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ABSTRACT

Background: The gastroduodenoscopy and biopsy is the diagnostic tool of choice to detect gastroduodenal diseases. However, endoscopic diagnosis is not always predictive of microscopic findings.

Objective: To study varied spectrum of histopathological lesions both non-neoplastic and neoplastic in patients undergoing gastroduodenal biopsy.

Materials and Methods: This is a prospective study of 100 patients with gastroduodenal diseases who underwent gastroduodenoscopy from December 2014 to June 2016.

Results: In our study, the majority of patients were between 34 to 62 years, with male predominance (49.28%). Chronic gastritis (44%) was most common followed by gastric adenocarcinoma (15%) (intestinal type-80%); diffuse type-20%), and chronic duodenitis (15%). A rare case of granulomatous gastritis and ampullary carcinoma was found.

Conclusion: Non neoplastic lesions were more common than the neoplastic lesions. The gross findings on endoscopy are not disease specific. Histopathological study of biopsy specimen will confirm endoscopic diagnosis in most of the cases.

KEYWORDS : Gastroduodenal; Histopathology; Granulomatous; Ampullary; Adenocarcinoma.

INTRODUCTION

Clinicians traditionally have perceived pathologists as having all the answers, but always too late. The use of modern flexible gastroduodenoscopes and the acquisition of mucosal biopsy specimens have opened a window to the living tissues.[1] Introduction of fibre-optic endoscope in 1960s greatly improved the diagnostic facility for gastrointestinal lesions.

Therefore, gastroduodenoscopy is now a routine procedure and has superseded the barium meal as the primary diagnostic tool. In addition, tissue specimen can be removed from the lesions under direct vision, using biopsy forceps. Histopathological study of biopsy specimen will confirm endoscopic diagnosis in most of the cases.

The gross findings on endoscopy are not disease specific and may be seen in various other upper gastrointestinal pathologies. The literature on role of endoscopy in the diagnosis and follow up of patients with gastro duodenal diseases is extensive. There are only few studies reporting the correlation of endoscopic diagnosis and histopathological diagnosis. An attempt was made to study the various gastroduodenal lesions by endoscopic biopsies to throw more light on the correlation of endoscopic diagnosis with histopathological diagnosis.

MATERIALS AND METHODS

The present study was a prospective study carried out on patients attending endoscopic unit for the evaluation of upper gastro intestinal symptoms. Hundred cases of endoscopic biopsies from December 2014 to June 2016 were included in the study. All biopsies done for various upper abdominal symptoms with or without systemic symptoms were included in our study. Gastroduodenoscopies for therapeutic purposes, emergency setting and endoscopy cases where biopsies cannot be done were excluded from our study. The endoscopic procedure was done in a patient with symptoms of gastroduodenal disease after six hours fasting. After endoscopic evaluation, biopsy forceps composed of two cups of varying shape, the edges of which may be smooth or dentate. The size of the cups may vary from 2-3mm. The forceps are often designed with a central bayonet that permits tissue to be pinned down so that an accurate biopsy can be taken. Once the cups are brought together, the tissue is torn off and retrieved by bringing the biopsy forceps out through the channel. The biopsy tissue placed on the filter paper is transferred in the bottle containing 10% neutral formalin. After fixation the biopsy specimen was wrapped in a piece of filter paper and processed in a perforated capsule. The tissue is processed as 10% Formalin for 1 hour, 60% Alcohol for 1 hour, 70% Alcohol for 1 hour, 80% Alcohol for 1 hour, 90% Alcohol for 1 hour, 95% Alcohol for 1 hour, Absolute alcohol for 4 hours, Absolute alcohol for 4 hours, Xylene for 1 hour, Xylene for 1 hour, Wax for 4 hours, Wax for 4 hours. Unwrapped and embedded in paraffin with surface uppermost 3 to 5 microns thick, 3-4 sections were taken perpendicular to surface. Routine haematoxylin and eosin, special stains like PAS, Giemsa were done. Histological diagnosis made.

RESULTS

In this study, 81 gastric biopsies and 19 duodenal biopsies were examined. 76% were males and 24% were females. Majority were in the more than 58 years range 18-80 years. The mean age of male and female in the study were 49.2 and 45.8 years respectively. The predominant presenting symptom of the patient presented pain abdomen (71%) followed by dyspepsia (34%), weight loss (15%), vomiting (9%), and hematemesis (6%).The most common site involved in gastroduodenal biopsies of our study is pylorus 37%, followed by body 19%, antrum and duodenum 17% each. In the study most of the patients were of lower socio- economic status (50%). Among 100 patients, 60% are smokers and 62% are alcoholics.

The most common endoscopic presentation is gastric erythema (42%) followed by benign gastric ulcer (19%); ulceroproliferative growth (15%), 13 of which were in stomach and 2 duodenum, duodenal erythema(13%), malignant gastric ulcer and infiltrative growth (3% each),GJ stomal ulcer and antral polyp(1% each), as depicted in Table 1. Out of 81 gastric biopsies 56 were non-neoplastic and 18 were non-neoplastic. The most common histological diagnosis is chronic gastritis (44%), followed by adenocarcinoma (15%) and chronic duodenitis (15%), benign gastric ulcer (11%) which included one case of gastric erosion ad intestinal metaplasia each and followed by gastric dysplasia (3%), duodenal ulcer (2%) and antral inflammatory polyp in 1%, as depicted in table 2. 5% cases are histologically normal as compared to endoscopic presentation.

Table 1: Distribution Of Study Subjects Based On Endoscopic Presentations

Endoscopic Presentation	Frequency	Percentage
Gastric erythema	42	42%

Benign Gastric ulcer	19	19%
Malignant Gastric ulcer	3	3%
Ulceroproliferative growth	15	15%
Infiltrative growth	3	3%
Duodenal erythema	13	13%
Duodenal ulcer	3	3%
Gastrojejunal stomal ulcer	1	1%
Antral polyp	1	1%
Total	100	

Table 2: Distribution Of Study Subjects Based On Histological Diagnosis

Endoscopic Presentation	Frequency	Percentage
Chronic gastritis	44	44%
Gastric adenocarcinoma	15	15%
Chronic duodenitis	15	15%
Benign gastric ulcer	11	11%
Gastric dysplasia	3	3%
Duodenal ulcer	2	2%
Inadequate	2	2%
Inflammatory antral polyp	1	1%
Duodenal adenocarcinoma	1	1%
Ampullary adenocarcinoma	1	1%
Normal	5	5%
Total	100	

The most common lesion with respect to site were chronic gastritis 3% in the cardia; Adenocarcinoma, Benign gastric ulcer, chronic gastritis (1% each) in the fundus; chronic gastritis in body (13%), antrum (6%) and pylorus (21%). The most common site for chronic gastritis was pylorus (47.72%) followed by body (29.54%), antrum (13.63%), cardia (6.8%) and fundus (2.27%). Helicobacter pylori was positive in 15 cases.

The most common lesion found in the duodenum is chronic duodenitis (15%) followed by duodenal ulcer and adenocarcinoma (2%each). In chronic duodenitis, the patient's age ranged from 20 to 70 years. In duodenal adenocarcinoma patient's age is 54 years and in ampullary carcinoma it is 48 years.

Majority of gastric cancers were elderly males. The most common type of gastric adenocarcinoma was intestinal type (80%) and 20% being diffuse type. All the 3 cases of diffuse type of adenocarcinoma were of signet ring type.

The sensitivity of endoscopy in correlating endoscopic picture of ulceroproliferative growth, ulcer, inflammation and erosion are 86.4%, 91.7%, 82.8%, and 100% respectively.

DISCUSSION

The present study was an analysis of 100 gastroduodenal biopsied lesions, which included 81 gastric biopsies and 19 duodenal biopsies, which showed that non neoplastic diagnosis outnumbered neoplastic diagnosis. In the present study the numbers 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[2] and Florian Froehlich et al[3].In all the three studies, the men out numbered women due to more prevalence of smoking alcoholism and stressful life.It was found that the majority of patients presenting with gastro duodenal symptoms were more than 58 years of age which was similar to study done by Florian Froehlich et al[3].

The commonest symptom the patient presented with was pain abdomen (71%) followed by dyspepsia (34%) which correlates with the study done by Heading R.C et al[4] revealing 54% presented with pain abdomen and in study Usman et al[5] 46% presented with pain abdomen.

The most common histological pattern noted in gastro duodenal biopsies of our study was gastritis (44%), which is similar to the study done by Sultana et al[6], followed by gastric adenocarcinoma (15%). In the present study, it was found that alcoholism and smoking were primary habitual factors in patients undergoing endoscopy for gastro duodenal symptoms, similar to study done by William K.Hirota et al[7]. The most common histological pattern noted in gastro duodenal biopsies noted was gastritis (44%), which is similar to the study done by Sultana et al[6].

The prevalence of Helicobacter pylori was noted in 34.09% cases of chronic gastritis which is less than that noticed in other studies by Caromona et al[8]., Jenilohun et al[9]. In the present study, the most common site affected by gastritis was pylorus (47.72%) whereas antrum was observed to be common in other studies[10,11] which could be reason for discrepancy.

Off 81 gastric biopsies, 18 were neoplastic, which include 15 cases of adenocarcinoma and three cases of dysplasia. Gastric carcinoma was more common in males than females (2.8:1) in the present study, which correlates with the study done by David et al[12] with male: female ratio of 2.5:1. Various studies have noted that adenocarcinoma account for 90 – 95% of gastric cancer[13-15]. This correlated with o-iour study where adenocarcinoma constituted 91.3% of all gastric cancer. The commonest site of presentation of gastric adenocarcinoma was the pylorus (10%) antrum (4%) i.e., distal third of stomach followed by fundus (1%). The types of growth encountered were ulcerative in 80% and infiltrative in 20%. When the histopathological types of gastric adenocarcinoma were considered 80% were of intestinal adenocarcinoma type and 20% were of diffuse carcinoma type.

Similar findings were noted in other studies with the commonest site being the antrum (distal third)[16], the commonest type of presentation being ulceration and the commonest histopathological type being intestinal type of adenocarcinoma[17].

Off 19 duodenal biopsies of which 17 were non-neoplastic and 2 neoplastic. Benign lesions (89.5%) were more common than the malignant lesions which are similar to the study done by Tadashi et al[18] and Ravi et al[19]. In our study and the one by Tadashi et al[18] the commonest lesion in duodenum was duodenitis. The neoplastic lesions included in this study were one adenocarcinoma and one ampullary carcinoma.

Our study has limitations. In our study, modern gastroduodenoscopic techniques which include chromoendoscopy or other techniques were not used. Second, there are a smaller number of malignancies to draw conclusion. However, our study provides insights into correlation of endoscopic and histopathological findings which are important in tailoring the management.

CONCLUSION

Non neoplastic lesions were more common than the neoplastic lesions. The most common type of gastric adenocarcinoma was intestinal type. The gross findings on endoscopy are not disease specific and may be seen in various other upper gastrointestinal pathologies. Histopathological study of biopsy specimen will confirm endoscopic diagnosis in most of the cases.

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