



Role of Barium Meal Examination In Diagnosis of Gastric Problems

KEYWORDS

Peptic Ulcer, Duodenal Ulcer, Barium Meal, Diagnosis

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ABSTRACT *Introduction: Peptic ulcer disease (PUD), also known as a peptic ulcer or stomach ulcer, is a break in the lining of the stomach, first part of the small intestine, or occasionally the lower esophagus. An ulcer in the stomach is known as a gastric ulcer*

Material & Method: This study was carried out in the radiology department for five years. A total of 150 patients were included in the study. The patients were referred from different medical and surgical clinics as indoor or outdoor patients. Those patients, with symptoms and signs of peptic ulcer disease who failed to respond to an empirical trial of medical therapy, were included in the study.

Results: Endoscopy revealed that 60 patients had duodenal ulcer, 3 had normal findings and 1 had duodenitis. Thirty three patients (28.6%) had normal radiological findings and the normal findings could be confirmed in 24 cases. The sensitivity of Barium meal in diagnoses of the diseases mentioned is 96.5%, specificity 100%, Positive predictive value 100%, and negative predictive value of 90%.

Discussion & Conclusion: Probable radiological diagnosis was confirmed by endoscopy in 44 instances. A high degree of accuracy can be achieved by the selective use of both techniques, the information obtained from each considered of equal importance and neither being regarded as the final arbiter.

INTRODUCTION

Peptic ulcer disease (PUD), also known as a peptic ulcer or stomach ulcer, is a break in the lining of the stomach, first part of the small intestine, or occasionally the lower esophagus. An ulcer in the stomach is known as a gastric ulcer while that in the first part of the intestines is known as a duodenal ulcer.^{1, 2} The most common symptoms are waking at night with upper abdominal pain or upper abdominal pain that improves with eating. The pain is often described as a burning or dull ache. Other symptoms include belching, vomiting, weight loss, or poor appetite. About a third of older people have no symptoms. Complications may include bleeding, perforation, and blockage of the stomach. Bleeding occurs in as many as 15% of people.¹

Common causes include the bacteria, *Helicobacter pylori* and non-steroidal anti-inflammatory drugs (NSAIDs). Other less common causes include tobacco smoking, stress due to serious illness, Behcet disease, Zollinger-Ellison syndrome, Crohn disease and liver cirrhosis, among others.² ³ Older people are more sensitive to the ulcer causing effects of NSAIDs. The diagnosis is typically suspected due to the presenting symptoms with confirmation by either endoscopy or barium swallow. *H. pylori* can be diagnosed by testing the blood for antibodies, a urea breath test, testing the stool for signs of the bacteria, or a biopsy of the stomach. Other conditions that produce similar symptoms include stomach cancer, coronary heart disease, and inflammation of the stomach lining or gallbladder.⁴

The viewpoint was that all these factors contributed to an excessive production of stomach acids, which eroded the protective lining of the stomach, duodenum or esophagus.⁵ A relatively recent theory holds that the primary cause of peptic ulcer is a bacteria in the stomach called *Helicobacter Pylori* (*H. Pylori*).³ Research conducted in the mid 1980's revealed the presence of this bacteria in almost

92% of cases of duodenal ulcers and 73% of cases of gastric ulcers. The bacterium causes ulcer either by stimulating increased acid production or by damaging the lining of stomach or duodenum.⁶ Factors that have been shown to increase the risk of peptic ulcer include smoking and the regular use of non-steroidal anti-inflammatory drugs such as aspirin, ibuprofen, indomethacin and naproxen. Until early Twentieth century the diagnosis of peptic ulcer was made on clinical grounds.⁷

The patient is made to swallow a white chalky substance called Barium that is visible on x-ray and then patient is made to lie down on a tilted examining table. The tilting distributes the barium evenly around upper digestive tract and x-ray can capture images at different angles. This allows the doctor to locate the ulcer and to determine its type and severity. In almost 20% cases these X rays do not detect ulcers. Sensitivity of barium contrast studies is higher for detection of duodenal than for gastric ulcer. Radiological findings of duodenal ulcer include filling defects of duodenal bulb.⁵ The presence of a fibrinous clot in ulcer may lead to false negative findings. False positive results have been noted as high in the paediatric patient population up to 30- 40% gastric outlet obstruction can be detected using upper gastrointestinal imaging. Gastric ulcer may be seen as niche at the lesser or greater curvature.

MATERIALS AND METHODS

This study was carried out in the radiology department for five years. A total of 150 patients were included in the study. The patients were referred from different medical and surgical clinics as indoor or outdoor patients.

Those patients, with symptoms and signs of peptic ulcer disease who failed to respond to an empirical trial of medical therapy, were included in the study. Patients with conditions with symptoms and signs mimicking peptic ul-

cer disease, e.g., cholecystitis, were excluded from the study. All patients (who were referred to radiology department with suspected diagnosis of peptic ulcer disease) were briefly interviewed regarding the presentation and were subjected to contrast studies of upper gastrointestinal tract. Barium meal examination was performed in all cases under fluoroscope and study findings were noted. Patients were sent to their parent wards and were followed till their definite diagnoses by endoscopy and/or surgery were made.

RESULTS

Total 150 patients were included in this study. There were 90 male and 60 female patients. Their age ranged from 35 - 80 years with a mean of 60 years. The different presentations of the patients are given in Table-1

Table-1: Different presentations of the patients

Symptoms	Numbers
Pain epigastrium	100
Pain Right hypochondrium	30
Pain increased by food	10
Pain relieved by food	5
Weight loss	10
Heart burns	95

Thirty-four patients had radiological signs of benign gastric ulcer i.e. projecting lesser curvature ulcer (Niche), later on endoscopy showed that out of 34, two patients had malignant ulcer while 6 had normal findings as proved by histopathology. Ten patients had evidence of malignant gastric ulcer. Endoscopic biopsy in these cases confirmed the said diagnosis in 10 cases. Fifty two patients had signs of chronic duodenal ulcer on barium meal examination with marked deformity of duodenal bulb in some cases (clover leaf appearance).

Endoscopy revealed that 60 patients had duodenal ulcer, 3 had normal findings and 1 had duodenitis. Thirty three patients (28.6%) had normal radiological findings and the normal findings could be confirmed in 24 cases. The sensitivity of Barium meal in diagnoses of the diseases mentioned is 96.5%, specificity 100%, Positive predictive value 100%, and negative predictive value of 90%.

DISCUSSION

The double contrast upper gastrointestinal series makes medical and economic sense as a cost effective alternative to endoscopy for evaluating patients with dyspepsia or other upper gastrointestinal symptoms who failed to respond to an empiric trial of medical therapy.⁸ The contrast studies are capable of detecting most, clinically significant diseases, in the upper gastrointestinal tract. Furthermore, data indicate that double contrast studies can achieve a high sensitivity in diagnosis of malignant lesions without exposing the patients to unnecessary endoscopy.⁹ Thus as we approach the twenty first century, the upper gastrointestinal series confirms to be available diagnostic test in modern medical practice. In our series the male patients outnumbered female patients and average age was 49 years but some studies show that younger age groups can be involved by peptic ulcer. Most of the patients in our study presented with pain epigastrium while others with pain right hypochondrium and or weight loss, heart burns and hematemesis. These findings are comparable to other studies. The results of validity of our study are comparable to other studies.

Probable radiological diagnosis was confirmed by endoscopy in 44 instances. A high degree of accuracy can be

achieved by the selective use of both techniques, the information obtained from each considered of equal importance and neither being regarded as the final arbiter.

References

- [1] Moghal AA: Prescription Pattern Analysis of Physicians in Selected Area for most Occurring Diseases. East West University, 2015.
- [2] Roy S: Clinical Study of Peptic Ulcer Disease. Asian Journal of Biomedical and Pharmaceutical Sciences 2016, 6:41-3.
- [3] Najm WI: Peptic ulcer disease. Primary Care: Clinics in Office Practice 2011, 38:383-94.
- [4] Aminabee S, Rao AL, Eswaraiah MC: GASTROPROTECTIVE ACTIVITY OF MICHELIA NILAGIRICA IN RATS: POSSIBLE INVOLVEMENT OF H⁺-K⁺-ATPASE INHIBITION.
- [5] Nawaz M, Jehanzaib M, Khan K, Zari M: Role of barium meal examination in diagnosis of peptic ulcer. J Ayub Med Coll Abbottabad 2008, 20.
- [6] Wallace JL, Granger D: The cellular and molecular basis of gastric mucosal defense. The FASEB Journal 1996, 10:731-40.
- [7] Agbakwuru E, Fatusi A, Ndububa D, Alatisie O, Arigbabu O, Akinola D: Pattern and validity of clinical diagnosis of upper gastrointestinal diseases in south-west Nigeria. African health sciences 2006, 6:98-103.
- [8] Fackler WK, Richter JE: Diagnostic Tests for Gastroesophageal Reflux Disease. GASTROENTEROLOGY AND HEPATOLOGY 2000, 6:101-36.
- [9] Levine MS: Role of the double-contrast upper gastrointestinal series in the 1990s. Gastroenterology Clinics of North America 1995, 24:289-308.