



Evaluation of 1000 Upper Gastrointestinal Endoscopies; Diagnostic Yield and Incidence of *H. pylori* Infection

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Authors' contributions

This work was carried out in collaboration among all authors. Author WMA designed the study and provided conceptual and technical guidance for all aspects of the surgery. Authors PN and NR performed the statistical analysis, wrote the protocol. Author PN wrote the first draft of the manuscript. Author NR managed the literature searches. All authors read and approved the final manuscript.

Article Information

Editor(s):

(1) Dr. Syed Faisal Zaidi, King Saud Bin Abdulaziz University-HS, KSA.

Reviewers:

(1) Jonas Ranstam, Lund University, Sweden.

(2) Dina Abdalla, Assuit University, Egypt.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/64958>

Original Research Article

Received 02 December 2020

Accepted 08 February 2021

Published 17 March 2021

ABSTRACT

Aim: To study the incidence of various pathologies in upper gastrointestinal endoscopy (UGIE) and the correlation of the endoscopic findings with histopathological interpretation of the endoscopic biopsies. Incidence of *H. pylori* bacteria in patients with gastritis was also noted among the patients.

Place and Duration of Study: This study includes evaluation of 1000 cases of endoscopy performed over a period of 5 years in Department of Surgery, Jawaharlal Nehru Medical College, Aligarh.

Methodology: Upper gastrointestinal endoscopy was done in patients presenting to outpatient clinic with upper gastrointestinal (GI) complaints. Endoscopic findings were noted and biopsy was taken where indicated and sent for histopathological analysis and rapid urease testing.

Results: The patients presented with various complaints like chronic upper abdominal pain, dyspepsia, hematemesis etc. Among the 1000 cases, 69.2% had gastritis, 12.4% had duodenitis, 8.8% had esophageal varices, 8.4% had esophagitis, 4.4% had carcinoma esophagus, 3.2% had portal gastropathy, 2.8% had esophageal stricture, 2.8% had duodenal ulcer, 2.8% had gastric ulcer, 2.8% had hiatus hernia and 1.6% had carcinoma stomach. Among the 692 cases tested for

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H. pylori 52.94% were positive.

Conclusion: In our series the most frequently detected upper GI lesions were gastritis and duodenitis. The incidence of *H. pylori* positive cases is comparable to those of international studies.

Keywords: Upper gastrointestinal endoscopy; diagnostic yield; incidence; *Helicobacter pylori*.

1. INTRODUCTION

Since ancient times, medical men have desired to inspect human body cavities and passages to understand their complexity and to treat their diseases. Easily accessible body cavities, such as the mouth, rectum or even the vagina, were already inspected in ancient times with the help of speculums [1]. The origin of endoscopy can be traced back to a reference in the Babylonian Talmud. The treatise describes a lead funnel with a curved mouth furnished with a wooden outlet. Both parts were inserted in the vagina to describe the cervical os as an internal organ for the first time. It was also used to diagnose uterine bleeding and differentiate it from vaginal bleeding [1]. Though endoscopy has a very long relation with human history, it wasn't until the introduction of semirigid gastroscopes in the middle of the twentieth century that marked the dawn of the modern endoscopic era [2]. The first attempt to appreciate the gastrointestinal tortuosity was taken by Hoffmann in 1991, who built an instrument with articulated lenses and prisms. The real breakthrough was the discovery of transmission of images using flexible quartz fibers. In 1954 Hopkins built a model of a flexible fiber imaging device. The availability of highly transparent optical quality glass led to the development in 1958 of the first fiberoptic gastroscopy by Larry Curtiss, a graduate student in physics and Basil Hirschowitz, a trainee in gastroenterology [3].

Since its introduction, upper gastrointestinal endoscopy (UGIE) has been widely used, resulting in an increasing UGIE workload. The advantage of the direct visual inspection of the esophageal, gastric and duodenal mucosa is obvious. Biopsy specimens can be taken for histological or microbiological examination. For this reason UGIE is considered the investigation of choice in cases of dyspepsia, or in the presence of reflux or alarm symptoms, and is mandatory for a precise diagnosis in cases of these upper abdominal symptoms [4]. Several therapeutic endoscopic techniques have been developed that allow endoscopists to treat bleeding lesions and in some centres, relieve esophageal obstruction caused by cancer by

means of laser phototherapy and dilatation of esophageal strictures. Endoscopic placement of gastric feeding tube i.e.; percutaneous endoscopic gastrostomy (PEG) has largely replaced surgical gastrostomy [5].

As a direct result of the use of gastroscopy, a lot of data on the occurrence and prevalence of diseases in the upper part of the digestive tract have been collected with regional differences. This study was aimed to further furnish the data with the diagnostic yield of UGIE and *H. pylori* incidence at our centre.

2. METHODS

All consecutive diagnostic UGIEs carried out in a period of five years (2014 to 2018) in single unit of Jawaharlal Nehru Medical College and Hospital, Aligarh were included in this study. Patients coming to the out patient department or getting admitted with various upper GI symptoms were interviewed, examined and investigated when required before proceeding for upper GI endoscopy. After obtaining informed consent, UGIE was performed using Olympus TI-1900 Endoscopy unit. The exclusion criteria were: (i) age less than 10 years (ii) uncooperative/unfit patients for endoscopy (iii) patients having diseases like recent myocardial infarction, severe asthma, disturbed sensorium. The results were noted simultaneously both in a written standardized report and in computerized database system. If clinically indicated, biopsy specimens were taken to confirm the macroscopic diagnosis. Hiatal hernia was defined as a distance of more than 2 cm between the diaphragm and the Z line. Esophagitis was scored according to the well-known Savary-Miller system [6]. Endoscopic gastritis was judged to be present if nodularity was seen in the antrum or if erosions or intramucosal bleeding were present [7]. Duodenitis was defined as the presence of erosions in the duodenum (D1 and D2). All the histopathological reports of the biopsies were followed. Statistical analysis was performed using SPSS (version 23) and sensitivity/specificity/positive and negative predictive value of biopsy rapid urease kit test was calculated.

3. RESULTS

Characteristics of the study population: During the study period, 1000 patients underwent endoscopy. The age range was 14 years to 72 years with a median of 35 years. The total number of males who underwent UGIE were 576 and total number of females who underwent UGIE were 424 (Fig. 1).

Out of the 1000 patients who underwent endoscopy 92.4% of the patients had one or more organic causes and only 7.6% had normal endoscopy. Gastritis (69.2%) followed by

duodenitis (12.4%) were the commonest diagnoses found in our study. Other UGIE findings with their relative frequency that were noted in our study are shown in Fig. 2.

Among the 692 patients of gastritis, 580 had antral gastritis and 112 had diffuse gastritis. Rapid Urease Test (RUT) was done in 692 patients but the test was inconclusive in 12 patients and therefore these were excluded from analysis (Fig. 3). Of the remaining 680 patients, 360 patients (52.94%) had positive RUT result indicating *H. Pylori* infection and 320 patients(47.06) had negative test (Table 1).

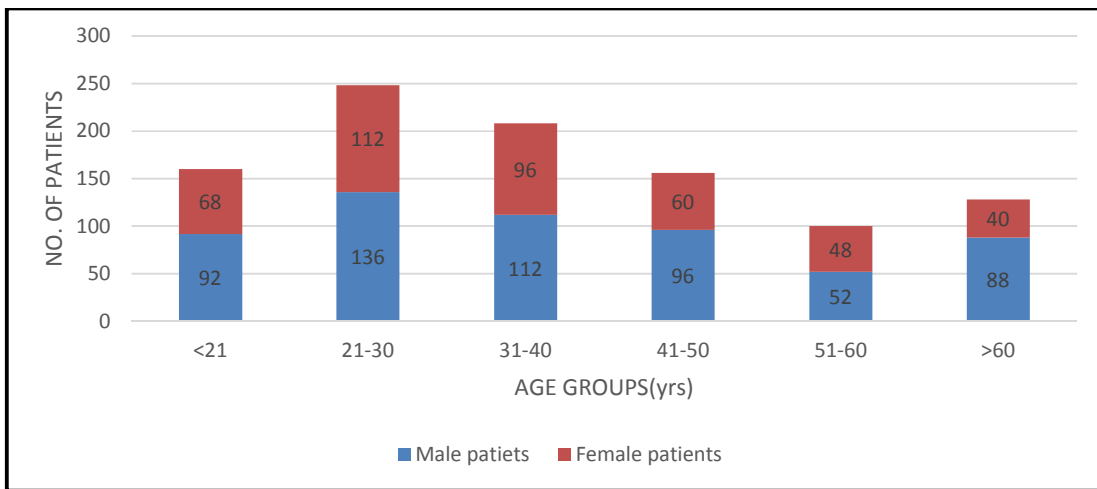


Fig. 1. The distribution of gender between age groups

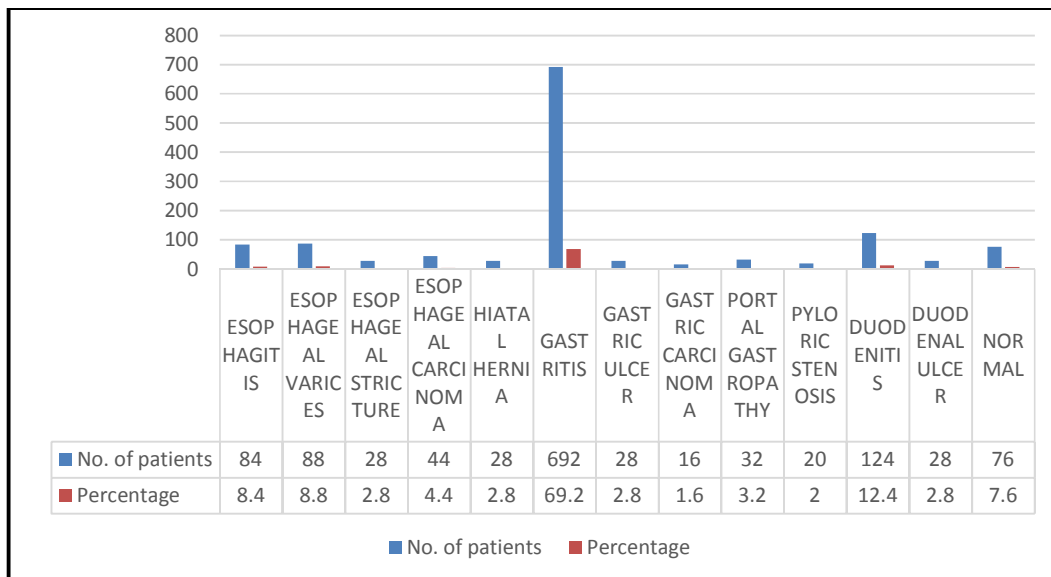


Fig. 2. Distribution of endoscopic findings

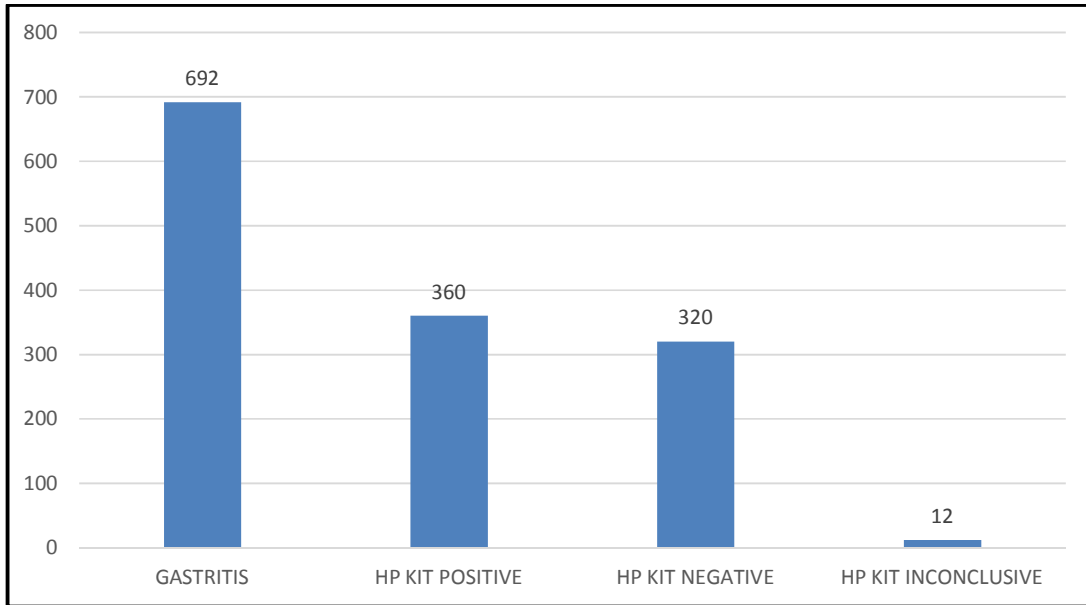


Fig. 3. HP kit results

Table 1. Correlation between histopathology and HP Kit results

Gastritis on histopathology	HP kit result	
	Positive	Negative
Present	348	44
Absent	12	276

Biopsy of the gastric mucosa was sent in all the patients. Histopathological reports showed acute gastritis or acute-on-chronic gastritis and chronic gastritis. The sensitivity, specificity, positive predictive value and negative predictive value of HP-Kit in detecting gastritis in our study came to be 89%, 96%, 97%, 86% respectively.

In our study prevalence of H.Pylori in patients with gastritis came out to be 80.0% and prevalence of H. Pylori in normal patients came 16%.

4. DISCUSSION

Khan et al. [8] in their retrospective study on use and misuse of UGIE endoscopy concluded that approximately 17% of UGIE were indicated for inappropriate reasons. In our study around 7.6% UGIE came out to be normal, which is slightly less than their results. This difference is probably because of better patient selection from the physicians [8].

The dominance of nonspecific mucosal disease ie, gastritis (69.2%) and duodenitis

(12.4%) and over mucosal ulceration (gastric ulcer 2.8% and duodenal ulcer 2.8%) which prevails in our study is comparable to the results of the prospective analysis of 500 cases of upper gastrointestinal endoscopy at Tata Main Hospital by Kumar S et al. [9].

In our study the sensitivity, specificity, positive predictive value and negative predictive value of Rapid Urease Kit test in patients with gastritis was found to be 89%, 96%, 97% and 86% respectively. This is comparable to sensitivity (98.1%), specificity (100%), positive predictive value (100%) and negative predictive value (98.1%) reported by Said RM et al. [10] in IOSR Journal of Dental and Medical Sciences [10].

5. CONCLUSION

In our study, the incidence of the *H. pylori* infection in patients with endoscopic diagnosis of gastritis was 80% which is comparable to international studies.

DISCLAIMER REGARDING CONSENT/ ETHICAL APPROVAL

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
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