

Upper Gastrointestinal Endoscopy - Our Findings, Our Experience in Lagoon Hospital, Lagos, Nigeria

Emmanuel Jeje¹, Thomas Olajide^{1*}, Bashir Akande²

¹College of Medicine, University of Lagos, Department of Surgery, Lagos, Nigeria; ²Lagoon Hospital, Apapa, General Surgery, Lagos, Nigeria

Abstract

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***Correspondence:** Dr. Thomas Olagboyega Olajide. College of Medicine, University of Lagos, Surgery College of Medicine, University of Lagos, Idi-Araba, Surulere, Lagos 101014, Nigeria. E-Mail: seyiolaide@gmail.com

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Background: Upper gastrointestinal (UGI) endoscopy is a safe and sensitive investigation in the diagnosis of upper gastrointestinal disease. There are few reports on endoscopy in private institutions in Nigeria; therefore we decided to report our early experience in a private health facility in Lagos, Nigeria.

Aim: This study aims to document the indications and common findings in UGI endoscopy and evaluate the relationship between H pylori and endoscopic findings.

Methods: The indications for UGI endoscopy and findings detected over a 3-year period were analyzed.

Results: The commonest symptoms were epigastric pain, other upper abdominal pain, and dyspepsia while common signs were epigastric and right upper quadrant tenderness, and epigastric mass. Complete data was obtained in 172 patients of which 114 had abnormal findings. The commonest were duodenal ulcer, gastritis and duodenitis. Less common findings were gastric ulcer, gastric cancer and oesophageal cancer. There was no significant difference in the frequency of H. pylori infection between those with normal and abnormal endoscopic findings.

Conclusion: The commonest indication for UGI endoscopy in Lagos, Nigeria is dyspepsia while the commonest endoscopic abnormalities are duodenal ulcer, gastritis and duodenitis.

Introduction

Upper gastrointestinal (UGI) endoscopy is the most sensitive investigation for diagnosing UGI disease [1]. Diagnostic endoscopy is a safe procedure, with less than 2% complication rate, usually minor [1]. Majority of patients referred for endoscopy have symptoms generally termed dyspepsia [2-4]. Dyspepsia refers to pain or discomfort centred in the upper abdomen.

The main purpose of the UGI endoscopy is identification of aetiology in order to commence appropriate treatment. A secondary reason is to exclude organic UGI disease [5]. Diseases commonly detected by UGI endoscopy are reflux oesophagitis (and its complications), oesophageal varices, oesophageal cancer, gastric ulcer, gastric cancer and

duodenal ulcer [5].

Helicobacter pylori infection is the most important environmental factor in the development of chronic gastritis, peptic ulcer disease and gastric cancer [6-7]. It is therefore important to take biopsy for H. pylori during endoscopy. In Nigeria, most of the reports have been from government teaching hospitals and only few have documented indications. Therefore, we decided to report our early experience over a three-year period in a 40-bed private health facility (Lagoon hospital) in Lagos, Nigeria.

The objectives of this prospective study are to document the indications and common findings in UGI endoscopy in our facility, evaluate the relationship between H pylori and endoscopic findings and to look out for other lessons learnt.

Patients and Methods

This is a prospective study about our experience of upper gastrointestinal (UGI) endoscopy performed on one hundred and eighty four (184) consecutive patients seen at Lagoon Hospital, Apapa over a three-year period (December 1994 to December 1997). All adults and children referred or presenting to our hospital with persistent upper abdominal symptoms, clinical features of dyspepsia, peptic ulcer disease, upper gastrointestinal bleeding, gastric outlet obstruction, etc., were evaluated by the general surgeons and had UGI endoscopy performed on them. Also included were those who had had radiological investigations for the conditions just mentioned.

Informed consent was obtained from each patient after clinical evaluation and the hospital management approved the study. Oral and written instructions were given and each patient fasted for a minimum of six hours before the procedure. Endoscopies were performed weekly at the endoscopy unit of this private facility as day cases. Following administration of 0.02% lignocaine pharyngeal spray and administration of intravenous analgesia and sedative agents (pethidine, buscopan and midazolam) in those who had no contraindications to the use of these agents UGI was performed, using Olympus (GIF 30), forward viewing, flexible, fibre optic oesophagoduodenoscope, following established guidelines. The patients were closely monitored with pulse-oximeter during the procedure. Multiple biopsy samples from gastric antrum, gastric ulcers, gastric tumours and other suspicious lesions were taken for histology. Endoscopic diagnoses were based on widely accepted criteria.

Campylobacter-Like Organism (CLO) test for *Helicobacter pylori* was introduced in 1997, when it became available and all subsequent patients were tested. Patients were subsequently transferred to the recovery room, observed until stable and discharged home. They were counselled not to drive or operate machinery and avoid spicy or hot food for 24 hours. Follow up of the patients was done at the surgical outpatient department of the hospital.

The bio data of all patients, findings and follow up were input into pro forma. The data were analyzed using Statistical Package for Social Sciences, version 19.0 (SPSS Inc. Chicago, Illinois). Continuous data are presented as Mean \pm SEM, while categorical data are presented as median. The data are also presented as tables and graphs. Statistical inference used student t test and for discontinuous (categorical) variable chi square was used.

Results

A total of one hundred and eighty four patients had upper gastrointestinal endoscopy

performed on them during the study period from December 1994 to December 1997. No significant complication was recorded. The procedure was not completed in one patient, in whom the duodenum was not entered, mainly because of poor patient co-operation. Twelve patients' (7%) data were incomplete because they did not show up for follow up. There were more males (101{54.9%}) than females (83{45.1%}) giving a male to female ratio of 1.2:1. The patients ranged in age from 10 to 83 years with mean of 42.2 ± 1.1 years. Figure 1 shows the age distribution of the patients.

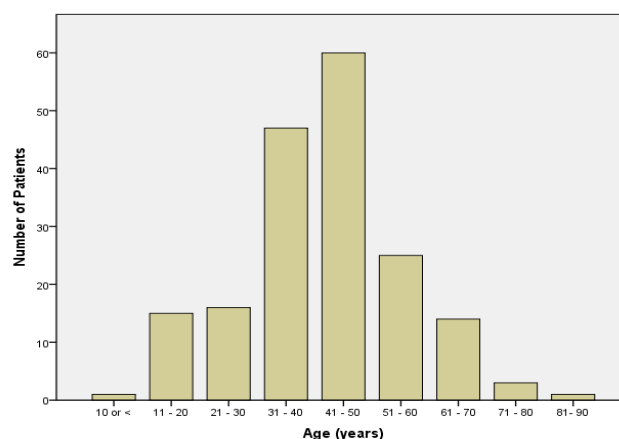


Figure 1: Age distribution.

Most patients were aged between 21 and 60 years, very few under 20 or above 70 years of age. One hundred and twenty three (67.6 %) of the patients were in the age group 21-50 years.

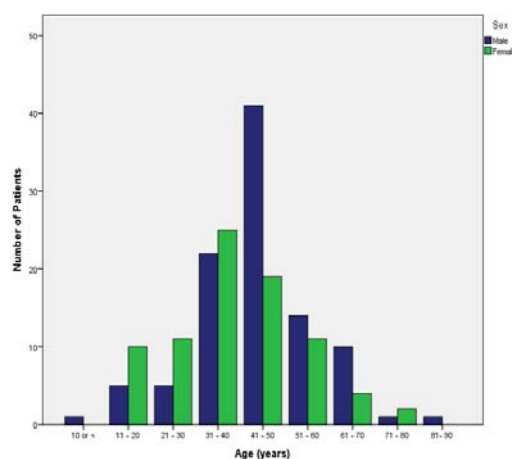


Figure 2: Age and sex distribution.

The most common presenting symptoms were epigastric pain (30.2%), other upper abdominal pain, and dyspepsia or a combination of these symptoms (78.6%). Thirty (17.4%) of the patients had upper gastrointestinal bleeding (Table 1).

Table 1: Presenting symptoms (n=172).

	Number	%
Dyspepsia/Abdominal Pain	136	78.6
UGI Bleeding	30	17.4
Vomiting	18	10.5
Weight Loss	15	8.7
Nausea	9	5.2
Abdominal Swelling	6	3.5

Vomiting occurred in 18(10.5%) and weight loss in 15(8.7%). The duration of symptoms was poorly documented, ranging from 3 days to 15 years. The common physical signs (Table 2) were epigastric tenderness (31.4%), tenderness in the right upper quadrant (4.7%), epigastric mass (4.1%) and hepatosplenomegaly (2.9%). Five patients (2.9%) had a clinical diagnosis of gastric outlet obstruction. Only six patients (3.5%) had had barium studies, previously. Four (66.7%) were reported as abnormal of which 2 (50%) were duodenal ulcer, one was duodenal cap deformity and the fourth one was reported as inconclusive.

Table 2: Clinical features (n=172).

	Number	%
Epigastric Tenderness	54	31.4
Tender RUQ	8	4.7
Murphy's Sign	2	1.2
Tender RIF	3	1.7
Tender LIF	1	0.6
Tender LUQ	2	1.2
Epigastric Mass	7	4.1
RIF Mass	1	0.6
Hepatosplenomegaly	5	2.9

RUQ, Right Upper Quadrant; RIF, Right Iliac Fossa; LIF, Left Iliac Fossa; LUQ, Left Iliac Fossa.

There were abnormal endoscopic findings in 114 of 172 patients (66.3%). Of the abnormal findings, the commonest was duodenal ulcer {active or chronic, in 35 patients (31%)}. Gastritis including erosions accounted for the next common lesion, noted in 32 patients (28%). Duodenitis was found in 31 patients (27%), gastric ulcer in 8 (7.9%), however there was considerable overlap between the first three as gastritis was present in several patients with duodenal ulceration and duodenitis.

Table 3: Abnormal endoscopic findings (n=172).

	Number	%
GER	7	6
Oesophagitis	6	5.2
Gastritis	29	25.3
Duodenitis	31	27
Gastric Ulcer	9	7.9
Duodenal Ulcer	35	31
Pyloric Stenosis	3	2.5
Oesophageal Cancer	2	1.7
Gastric Cancer	7	5.7

GER, Gastro-oesophageal reflux.

Oesophagitis was noted in 7%, gastro-oesophageal reflux in 6%, oesophageal varices in 3.5%, pyloric stenosis in 2.6%, hiatus hernia in 0.9%.

Gastric cancer was found in 7 patients (6%) and oesophageal cancer in 2 (2%). In the 10 patients who presented with upper gastrointestinal haemorrhage, gastric erosion (40%) and oesophageal varices (40%) were the commonest findings; bleeding duodenal ulcer and gastric ulcer were each responsible for 10% each. One patient with massive upper gastrointestinal bleeding from duodenal ulcer had to have an emergency under running of the bleeding vessel, truncal vagotomy and pyloroplasty.

Tables 4 and 5 show correlations between clinical presentations and endoscopy findings.

Twenty nine patients were tested for H pylori using the CLO test. Of the 13 patients with normal endoscopic findings 8 (57%) tested positive for H pylori; sixteen patients had various abnormal endoscopic findings of gastritis, duodenal ulcer, gastric ulcer, gastric cancer and duodenitis out of which 10 (62.5%) tested positive for H. pylori. There was no significant statistical difference between the frequency of H. pylori infection between those with endoscopic abnormality and those with normal findings (p value = 0.056).

Discussion

Upper gastrointestinal endoscopy was first introduced into English speaking West Africa including Nigeria almost half a century ago. It is thus important to continually evaluate the indications, endoscopic findings and the relevance of H pylori infection [8, 9]. This study was based at Lagoon Hospital, Apapa, a leading highbrow private facility in Lagos, Nigeria accessible mainly to the middle and upper socio-economic group.

There were more males (54.9%) than females (ratio 1.2:1) in this study similar to findings in majority of studies at other centres probably because UGI tract diseases are more prevalent in males [10-14]. Olokoba et al at Ilorin noticed a male:female ratio of 1.05 to 1 [10]. Agbakwuru et al at Ile Ife also found more males (53.4%) similar to what was noted by Malu et al, Danbauchi et al in Zaria, North West, Nigeria and Aduful et al in Accra, Ghana. However Nkrumah in Saudi Arabia and Khurram et al in Pakistan noticed more females in their studies. Probably, more females are being referred in the centres for endoscopy [15, 16]. The age pattern is closely similar to those of other studies, with very few presenting before the age of 20 years, peaking in the fifth decade and a mean age of 42 ± 1.1 years probably because UGI tract diseases are prevalent in this population groups [11, 13-17]. The reason for the differences in the sex and age distribution is probably due to varying sample size, geographical locations and time periods the studies were carried out.

Table 4: Correlation between symptoms and endoscopic findings.

Symptom	GERD (%) (pv)	Oesophagitis (%) (pv)	Gastritis (%) (pv)	Duodenitis (%) (pv)	Gastric Ulcer (%) (pv)	Duodenal Ulcer (%) (pv)	Pyloric Stenosis (%) (pv)	Oesophageal Cancer (%) (pv)	Gastric Cancer (%) (pv)
Dyspepsia/Abdominal Pain	100 0.165	83.3 0.794	82.8 0.592	80.7 0.812	44.4 0.009	85.7 0.279	100 0.369	50 0.309	71.4 0.612
Upper GI bleeding	28.6 0.428	16.7 0.959	20.7 0.613	12.9 0.462	55.6 0.002	11.4 0.294	33.3 0.464	0 0.513	14.3 0.822
Vomiting	0 0.356	33.3 0.063	0 0.043	6.5 0.42	0 0.292	17.1 0.148	100 0.000	0 0.627	28.6 0.110
Weight Loss	0 0.404	16.7 0.483	6.9 0.703	0 0.057	11.1 0.794	2.9 0.168	0 0.589	50 0.037	28.6 0.057
Nausea	0 0.526	0 0.558	0 0.165	0 0.148	11.1 0.416	8.6 0.320	0 0.681	0 0.738	0 0.526
Abdominal Swelling	0 0.608	0 0.635	3.4 0.990	0 0.242	0 0.558	0 0.208	0 0.740	0 0.787	14.3 0.112

% - percentage of patients with specific endoscopic findings having correlated symptom
pv - p value.

We found dyspepsia (78.6%) to be the commonest indication for UGI endoscopy referral which is in line with current knowledge worldwide [5, 12-18]. Malu et al also noticed dyspepsia (78.1%) in their study at Zaria and so did Danbauchi et al, Aduful et al, Nkrumah et al, Khurram et al in Pakistan, Onyekwere et al in a tertiary hospital in Lagos and Cooper in Ohio, United States [12-18]. However Agbakwuru et al and Samaila et al in Katsina found peptic ulcer disease or its exacerbation as the commonest indication. This may be due to differences in the terminologies used by them [11, 19]. This was distinctly followed by upper gastrointestinal haemorrhage (17.4%) and evaluation for persistent

vomiting (10.5%). UGI bleeding was also the second most common indication for UGI endoscopy in studies by Olokoba et al, Malu et al, Aduful et al, Khurram et al, and Onyekwere et al, marginally coming third in the study by Agbakwuru et al., [10-12, 14, 16, 17]. Other common indications in our study are in the evaluation of patients for persistent vomiting, gastric cancer, gastro-oesophageal reflux disease and abdominal masses. These are also common indications in most studies world-wide [10-18]. Epigastric tenderness was the commonest physical finding, same as the finding by Danbauchi followed by right upper quadrant tenderness and then epigastric mass [13].

Table 5: Correlation between physical signs and endoscopic findings.

Signs	GERD (%) (pv)	Oesophagitis (%) (pv)	Gastritis (%) (pv)	Duodenitis (%) (pv)	Gastric Ulcer (%) (pv)	Duodenal Ulcer (%) (pv)	Pyloric Stenosis (%) (pv)	Oesophageal Cancer (%) (pv)	Gastric Cancer (%) (pv)
Epigastric Tenderness	28.6 0.869	33.3 0.917	31.0 0.963	29.3 0.754	11.1 0.178	37.1 0.412	0 0.237	50 0.569	28.6 0.869
Tenderness RUQ	0 0.551	0 0.582	3.4 0.736	3.2 0.677	0 0.496	8.6 0.217	0 0.700	0 0.753	0 0.551
Murphy's sign	0 0.770	0 0.787	0 0.522	0 0.505	0 0.738	2.9 0.295	0 0.850	0 0.877	0 0.770
Tenderness RIF	0 0.719	16.7 0.004	3.4 0.442	6.5 0.027	0 0.681	0 0.377	0 0.816	0 0.850	0 0.719
Tenderness LIF	0 0.836	0 0.849	3.4 0.026	0 0.638	0 0.814	0 0.612	0 0.894	0 0.913	0 0.836
Tenderness LUQ	0 0.770	16.7 0.000	0 0.522	0 0.505	0 0.738	0 0.472	0 0.850	0 0.877	0 0.770
Epigastric Mass	0 0.578	0 0.608	6.9 0.398	3.2 0.793	0 0.526	0 0.172	0 0.719	0 0.770	28.6 0.001
RIF Mass	0 0.836	16.7 0.000	0 0.652	3.2 0.032	0 0.814	0 0.612	0 0.894	0 0.913	0 0.836
Hepatosplenomegaly	0 0.640	0 0.666	0 0.307	0 0.287	0 0.594	0 0.251	0 0.762	0 0.806	0 0.640

RUQ, Right Upper Quadrant; RIF, Right Iliac Fossa; LIF, Left Iliac Fossa; LUQ - Left Iliac Fossa; %, percentage of patients with specific endoscopic findings having correlated signs; pv, p value.

Our UGI endoscopy study revealed abnormal findings in 66.3% of the patients. Malu in North-western Nigeria, Aduful in Ghana and Nkrumah in Saudi Arabia noted 67.3%, 58.9% and 66%

respectively [12, 14, 15]. Some other investigators saw a much higher percentage of patients with abnormal endoscopic findings [11, 16]. The relatively high normal endoscopy rate of 33.7% may be due to

easy availability of the investigation in our centre and therefore a high referral rate. The commonest finding at endoscopy was duodenal ulcer occurring in 31% of them. Malu and Nkrumah also observed duodenal ulcer as the commonest findings in their studies i. e. 26.6% and 75% respectively [12, 15]. Other common findings were gastritis in 28% comparable to 35% obtained by Agbakwuru et al. at Ife, Nigeria and 31% by Nkrumah in Saudi Arabia, duodenitis in 27% comparable to 24.8% by Malu at Zaria, Nigeria and 16% by Agbakwuru, gastric ulcer in 7.9% comparable to 9% by Agbakwuru and 9.3% by Jemilohun, gastro-oesophageal reflux disease in 6% comparable to 8.1% by Jemilohun and gastric cancer in 6% comparable to 11.6% by Agbakwuru and are also common findings in other studies conducted in Nigeria, other parts of Africa and worldwide [11-13, 15, 16, 20].

In 30 patients with UGI bleeding gastric erosions and oesophageal varices were the leading causes with each accounting for 40% probably due to the apparent small number of the study; others being duodenal ulcer and gastric ulcer. These are also important causes of UGI bleeding elsewhere [12, 14, 21-23]. Mallory Weiss tear, though an important cause of UGI bleeding in Europe and America was not noted in our study and a rare finding in our environment because binge drinking is uncommon.

In tables 4 and 5, correlating clinical presentations with endoscopic findings: abdominal pain and gastric ulcer showed significant association (p value < 0.05), as well as vomiting with pyloric stenosis and gastritis ($p < 0.05$) and weight loss with gastric cancer. In physical signs epigastric mass showed significant association with gastric cancer (p value < 0.05). These associations are consistent with studies worldwide [24, 25]. In the patient with hepatosplenomegaly endoscopy was normal and there were no varices found.

There was no significant statistical difference between the frequency of *H. pylori* infection between those with endoscopic abnormality (62.5%) and those with normal (57%) findings (p value = 0.056). This may be because of the small number of people tested for *H. pylori* and that a control outside the hospital setting was not used. Association of *H. pylori* infection with some of the abnormal endoscopic findings in our environment needs further collaborative studies involving larger number of patients.

The safety and acceptability of upper gastrointestinal endoscopy is well known. The commonest indication for UGI endoscopy in Lagos, Nigeria is dyspepsia. The commonest endoscopic abnormalities in Lagos, Nigeria are duodenal ulcer, gastritis and duodenitis. Further controlled studies are

needed with regards to all aspects of endoscopy in our environment. The provision and widespread availability of endoscopic service as an important factor in the management of upper gastrointestinal

disease is evidence based and therefore strongly recommended.

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