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Upper Gastrointestinal Endoscopy in Abuja, North-central Nigeria: A 5-Year Institutional Review of Indications and Pathological Outcomes

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ABSTRACT

Background: Oesophagogastroduodenoscopy (OGD) is a powerful diagnostic and therapeutic tool in the management of upper gastrointestinal tract diseases. Apart from clear mucosal views, OGD allows mucosal biopsies for histological examination or detection of Helicobacter pylori infection, brushings for cytology and aspirates for microbiological culture.
Objectives: To review the indications, endoscopic findings and histopathological outcomes of the OGDs in a private hospital in Abuja, Nigeria.
Methods: A retrospective observational study of retrieved records of all the patients who had upper gastrointestinal endoscopy for both diagnostic and therapeutic indications between January 2017 and December 2021.
Results: One hundred and thirty patients had oesophagogastroduodenoscopy done. Their ages ranged from 15 to 82 years with a mean of 48.5 ± 15.6 SD. Out of 130 patients, 62(47.7%) were males and 68(52.3%) females giving a near-equal M:F ratio 1:1. Most patients 99(90%) were negative for H. pylori test. The commonest indications were epigastric pain 75(28.3%) and upper GI bleeding 66(24.9%). Epigastric mass, and postprandial vomiting were the least 2(0.8%). Therapeutic indications were insertion of gastric balloon 18(6.7%) and balloon dilatation 2(0.8%). Majority 60(46.0%) had gastritis; oesophageal varices and duodenal polyp were the least 3(2.3%). Normal OGD was 20(15.4%). Histological diagnosis of severe chronic gastritis was 71(63.4%), adenocarcinoma of the stomach 5(4.5%). Barrett's oesophagus and gastrointestinal stromal tumour were the least, 1(0.9%) each. Vomiting 3(2.3%) was the only morbidity. There was no mortality.
Conclusion: The commonest indication was chronic gastritis and OGD is safe. Therapeutic indication like gastric balloon insertion for weight reduction is increasing.

Keywords: Endoscopy, Gastrointestinal, Surgical, Upper, Abuja, Nigeria

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INTRODUCTION

Endoscopy has become a powerful diagnostic and therapeutic tool over the last 50 years. Upper gastrointestinal tract endoscopy (UGIE) or oesophagogastroduodenoscopy (OGD) is the most commonly performed endoscopic procedure involving the gastrointestinal tract.[1] Excellent visualisation of the oesophagus, gastro-oesophageal junction, stomach, duodenal bulb and second part of the duodenum can be obtained using an oesophagogastroduodenoscope. Retroversion of the scope in the stomach is essential in obtaining complete and clear views of the gastric cardia and fundus. In addition to clear mucosal views, diagnostic OGD allows mucosal biopsies to be taken, which may either undergo processing for histological examination or be used for near-patient detection of Helicobacter pylori infection using a commercial urease-based kit. In addition, brushings can be taken for cytology and aspirates for microbiological culture. OGD is usually appropriate when a patient's symptoms are persistent despite appropriate empirical therapy or are associated with warning signs such as intractable vomiting, anaemia, weight loss, dysphagia or bleeding (hematemesis or melena or both).

It is also part of the diagnostic work-up for patients with anemia, symptoms of malabsorption and chronic diarrhoea. Other indications for OGD include patients with dyspepsia or gastro-oesophageal reflux disease (GORD) and swallowing of foreign body. In addition to the role of OGD in diagnosis, it is also commonly used in the surveillance of neoplasia development in high-risk patients and follow-up for patients receiving treatment for peptic ulcer disease. The most common emergency therapeutic OGD procedure performed is in the control of upper gastrointestinal haemorrhage of any aetiology. Band ligation for oesophageal varices, injection sclerotherapy for bleeding peptic ulcers and polypectomy are some other common therapeutic uses of OGD.[1]

Gastrointestinal endoscopy is carried out by different trained specialists such as gastroenterologists, general surgeons, family medicine physicians and nurses.[2-6] However, the quality of OGD is important because of the implications on the diagnosis and the treatment of diseases.[5] In order to achieve this, expertise and appropriate equipment are necessary. In the Federal Capital Territory, Abuja, North-central, Nigeria, the capacity for diagnostic upper GI endoscopy is mostly in the tertiary hospitals and a few private hospitals. The capacity is even rarer for therapeutic procedures like band ligation and sclerotherapy for oesophageal varices, balloon dilatation of oesophageal strictures and insertion of gastric balloons in the management of obesity and weight reduction. Trust Charitos Hospital (TCH), Abuja is a 70-bedded private secondary-care hospital established in 2012. All diagnostic and many therapeutic UGIE services like balloon dilatation of obstruction, removal of foreign bodies, insertion of gastric balloons for weight reduction using the flexible fibre-optic Olympus-160 series are routinely offered in the facility. The aim of this study was to review the indications, endoscopic findings, complications and pathological outcomes all the OGDs done in the surgical unit of this hospital within a 5-year period.

MATERIALS AND METHODS

Study design

This was a retrospective observational study of all the patients who had upper gastrointestinal endoscopy done within 5 years between January 2017 and December 2021.

Study Area

The study was carried out in the department of Surgery, Trust Charitos Hospital (TCH), a 70-bedded privately-owned hospital in Jabi, Abuja, north-central, Nigeria. The hospital renders secondary care and receives patients mostly from the Federal Capital Territory (FCT), Abuja and the neighbouring states such as Kogi, Benue, Kaduna, Kwara, and Nasarawa.

Study Population and sampling method

A total of one hundred and thirty (130) patients who had upper gastrointestinal endoscopy (UGIE) done between January 2017 and December 2021 in a single centre were included in the study and total sampling technique of only the patients who had OGD was adopted.

Study process

All the patients were asked to fast overnight and on the morning of the procedure, informed written consent was obtained from them after careful explanation of the procedure and possible complications. All patients on routine anticoagulation were excluded from the study. Local anaesthesia was provided using 10% lignocaine (Xylocaine®, Astra-Zeneca) oro-pharyngeal spray for diagnostic and general anaesthesia for therapeutic OGD

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respectively. All the procedures were done as elective day cases using the flexible fibre-optic Olympus-160 series. Appropriate biopsies were taken from lesions in the oesophagus, stomach and duodenum and sent for histological analysis. Biopsies were also taken from the stomach and duodenum for bacteriological examination for the detection of Helicobacter pylori (H. pylori) infection using a commercial rapid urease-based kit or subjected to histological staining for H. Pylori except in the patients who had oesophageal dilatation and gastric balloon insertion. All the biopsy specimens were examined and reported by the histopathologist. The procedure was classified as complete when there was examination of the entire oesophagus, stomach and on its retroversion, and second part of duodenum was successfully intubated except in the patients who had balloon dilatation of the oesophagus. The data were extracted by two senior registrars and evaluated by a team of three consultants.

Study Instrument and data collection

The electronic medical records, endoscopy registers of the operating theatre and the histopathology reports of all the 130 patients were used for the study. All demographic and clinical features were retrieved and entered into a pre-formed entry format designed by the authors.

Variables

The data analysed include age and gender of the patients, nature of procedure (emergency or elective), indications, and patient symptoms, findings during endoscopy as documented by the surgeon, complications, rate of completion and histopathological reports or outcomes.

Research Ethics Statement

All the patients granted written consent before the procedure and no personal details or images revealing the true identity was used in the retrospective study.

Data Analysis

The data retrieved were analysed using IBM Statistical Package for Social Sciences (SPSS) version 22.0. Frequency tables and cross-tabulations were generated for the variables. Quantitative variables were reported using means and standard deviation, while qualitative variables were reported using percentages.

RESULTS

A total of 130 patients had oesophagogastroduodenoscopy (OGD) done during the period of 5 years under review (Table 1).

Table 1: Characteristics of study population (N=130)

Variable	No. of patients	Percentage
Age groups (years)		
≤20	4	3.1
21-40	31	23.8
41-60	61	47.0
61-80	29	22.3
>81	5	3.8
Mean age (years) ± SD = 48.5 ± 15.6		
Sex		
Male	62	47.7
Female	68	52.3
H. Pylori (N=110)		
Positive	11	10
Negative	99	90

Their ages ranged from 15 to 82 years with a mean of 48.5 ± 15.6 SD. Out of the 130 patients, a higher proportion, 61(47.0%) were within the age group of 41-60 years, 62(47.7%) were males while a slightly higher proportion of them were females 68 (52.3%) giving a near-equal M:F ratio of 1:1. The oldest patients 5(3.8%) were in the age group of 81 years and above. Majority of the patients were negative for H. pylori test, 99(90%).

Table 2 shows the indications for OGD among the study participants.

Table 2: Indications for Endoscopy

Indication*	Freq	%
Dysphagia	5	1.9
Dyspepsia	35	13.2
Epigastric pain	75	28.3
Epigastric mass	2	0.8
Postprandial vomiting	2	0.8
Severe weight loss	25	9.4
Hematemesis	40	15.1
Melena	26	9.8
Gastric outlet obstruction (GOO)	5	1.9
Heart burn/retrosternal pains	30	11.3
Insertion of gastric balloon	18	6.7

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Indication*	Freq	%
Balloon dilatation of oesophageal stricture	2	0.8
Total	**265**	**100**

*Some patients have more than one indication

The commonest indication was epigastric pain 75(28.3%). Other common indications were upper GI bleeding (hematemesis or melena or both) 66(24.9%), dyspepsia 35(13.2%), and heartburn/retrosternal pain 30(11.3%). Epigastric mass, as well as postprandial vomiting were the least common indications 2(0.8%) each. The therapeutic indications were insertion of gastric balloon 18(6.7%) for obesity and weight reduction, balloon dilatation for corrosive oesophageal stricture 2(0.8%). Some patients had a combination of more than one indication.

Table 3 shows the endoscopic diagnosis among the patients.

Table 3: Endoscopic Diagnosis

Endoscopic Diagnosis	Freq (N=130)	%
Oesophageal stricture/Achalasia	5	3.9
Oesophagitis/candidiasis	11	8.4
Oesophageal varices	3	2.3
Hiatus hernia	5	3.9
Gastritis	60	46.0
Gastric polyp	5	3.9
Chronic gastric ulcer/cancer	10	7.7
Duodenitis/duodenal ulcer	8	6.2
Duodenal polyp	3	2.3
Normal oesophagogastroduodenoscopy (OGD)	20	15.4

Majority 60(46.0%) had gastritis; oesophagitis/candidiasis was 11(8.4%), while oesophageal varices and duodenal polyp were the least 3(2.3%) each. The procedure was complete in 128 patients giving a completion rate of 98.5%. Normal OGD findings were in 20(15.4%) patients.

Table 4 shows the various histological diagnoses.

Table 4: Distribution of Histological Diagnosis

Histological Diagnosis	Freq (N= 112)	%
Chronic gastritis	71	63.4
Chronic duodenitis	5	4.5
Chronic oesophagitis/oesophageal stricture/fibrosis	3	2.6
Hyperplastic oesophageal polyp	2	1.8
Hyperplastic gastric polyp	5	4.5
Hyperplastic duodenal polyp	3	2.6
Barrett's oesophagus	1	0.9
Gastrointestinal stromal tumour (GIST)	1	0.9
Moderately differentiated adenocarcinoma of the stomach	5	4.5
Normal tissue (oesophagus, stomach, duodenum)	16	14.3

A higher proportion of the patients had a histological diagnosis of severe chronic gastritis 71(63.4%), while moderately differentiated adenocarcinoma of the stomach was 5(4.5%), Barrett's oesophagus and gastrointestinal stromal tumour (GIST) were the least, 1(0.9%) each. Histology revealed normal tissues in 16(1.3%). Out of the 130 study participants, 3(2.3%) patients developed severe vomiting as a complication of the diagnostic procedure and both were females. There was no mortality.

DISCUSSION

Upper gastrointestinal endoscopy (UGIE) or Oesopagogastroduodenoscopy (OGD) has become a first-line in the investigation and treatment of a wide variety of upper gastrointestinal conditions such as oesophagitis, gastritis, duodenitis, dyspepsia and gastrooesophageal reflux disease (GORD).[7] Oesophagogastroduodenoscopy is mostly done in adults of all ages and occasionally in children. Our study revealed that the majority of the patients were in the middle age and fifth decade of life. This supports the findings by Onyekwere et al in Lagos, [8] Nigeria and Aduful et al in Accra Ghana.[7] However, Gyedu et al in Ghana reported a lower study population of 36.2%- and 20-39-years age group.[9] There was no significant difference in the ratio of males to females in our study, affecting them in near-equal proportion. This is contrary to the higher ratio of males in the study reported by Malu et al (M:F=3:1),[10] Olokoba et al (M:F=1.5:1) in Nigeria,[11] Ismaila et al (M:F=1.4:1) also in Nigeria,[5] and Aduful et al (M:F=1.8:1) in Ghana.[7] There is no reason adduced for this gender disparity in the studies.

Epigastric pain, haematemesis, dyspepsia and heartburn are the commonest indications presented by our patients who require OGD. This is comparable to the findings

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by other researchers.[5-9] OGD has become the best form of investigation for upper GI bleeding because of its better diagnostic yield.[12,13] The most common emergency therapeutic endoscopic procedure performed is in the control of upper gastrointestinal haemorrhage of any aetiology. There was no emergency diagnostic or therapeutic indication for OGD in our study.

However, symptoms like bleeding in the form of hematemesis, or melena or both accounted for about one-quarter (25%) of the diagnostic indications in our patients which is comparable to 26% obtained by Olokoba et al in Ilorin, Nigeria[11] but higher than 10% reported by Ismaila et al in Jos, Nigeria[5] and 14% by Aduful et al in Accra, Ghana.[7] The indications for OGD in our study suggests that many of our patients present with complications of the primary disease like a bleeding peptic ulcer or bleeding malignant tumour. OGD also allows mucosal biopsies to be taken for histological examination and appropriate staining for the detection of Helicobacter pylori infection. All the 110 patients who had diagnostic OGD had biopsy and were tested for H. Pylori but only 11(10%) were positive. These patients were treated with a combination of a proton pump inhibitor (PPI) such as oral omeprazole and amoxicillin and metronidazole. The histopathological report of the biopsies revealed that 5(4.5%) had adenocarcinoma of the stomach, and 1(0.9%) patient had gastrointestinal stromal tumour (GIST) which was further identified by immunohistochemical staining. These patients presented with hematemesis, melana and severe weight loss. All the 5 patients who were diagnosed of adenocarcinoma of the stomach were also among the 11 positive cases for H. Pylori. The remaining six patients had peptic ulcer disease. This association between H.Pylori and carcinoma of the stomach in this study further supported the view that H. Pylori is a definite carcinogen for cancer of the stomach. All the 5 patients were offered definitive elective surgical resections via open surgery. The only patient who had Barrett's oesophagus was referred to the cardiothoracic surgeon for further management while all patients who had hyperplastic polyps removed and diagnosed on histology were put on yearly surveillance using upper gastrointestinal endoscopy. OGD is usually necessary when a patient's symptoms are persistent despite appropriate empirical therapy or are associated with warning signs such as intractable vomiting, anaemia, weight loss, or dysphagia.

In addition to the role of OGD in diagnosis, it is also commonly used in the surveillance of neoplasia development in high-risk patients but majority of our patients had the procedure due to the symptoms indicated in Table 2. Band ligation for oesophageal varices, injection sclerotherapy for bleeding peptic ulcers and polypectomy, insertion of gastric balloon and dilation of oesophageal strictures are some other therapeutic uses of OGD.[1]

In our study, ten polyps were found and removed during diagnostic OGD and histopathological examination confirmed hyperplastic lesions. Eighteen patients in this study had insertion of gastric balloons for the management of weight reduction and obesity while two had balloon dilatation of corrosive oesophageal stricture. This means that even though majority of our patients had diagnostic OGD, it also shows a new trend in the uptake of therapeutic indication like gastric balloon insertion for the management of obesity instead of the common indications like the removal of foreign bodies, polypectomy, banding of oesophageal varices, dilatation of oesophageal obstruction and sclerotherapy for bleeding ulcers reported by earlier researchers in the sub-region. With further awareness, this therapeutic indication of balloon insertion for the management of obesity will provide safer alternatives to invasive surgeries for the same purpose. There was complete examination of the oesophagus, stomach and 2nd part of duodenum (upper gastrointestinal tract) in 128 participants giving a success rate of 98.5%. In spite of positive clinical symptoms, normal endoscopic findings were recorded in 20% of our patients. This rate of normal OGD (20%) obtained from our study is higher than 15.6% reported by Ismaila et al,[5] and 8.2% by Onyekwere et al,[8] both from Nigeria but lower than 41.1% by Aduful et al 50% by Gyedu et al and Dakubo et al from Ghana.[7,9,14] Our study did not find a reason for these national and regional differences but could be due to the degree and variation in the clinical evaluation of patients' symptoms amongst clinicians before proceeding with endoscopy and the higher uptake for insertion of gastric balloon in our study for the management of obesity.

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Diagnostic OGD costs N160000 ($100) while therapeutic OGD such as insertion of gastric balloon costs between N5.6Million and N6.4Million ($3500 and $4000) per procedure in this centre as at 2025 and this is relatively expensive especially for patients who pay out-of-pocket when compared to the subsidised cost in government owned facilities and this has reduced the volume of patients that would have benefitted from the procedure. There will be the need to involve other sources of health-financing such as the various health insurance schemes. UGIE done under local pharyngeal anesthesia (spray) is well tolerated. However, 3(2.3%) of our patients, both females, developed severe vomiting after the procedure and this necessitated resuscitation with intravenous fluids and administration of metoclopromide injection. The reason for this morbidity could not be explained during the study. There was no mortality. This low rate of morbidity and no mortality suggests that OGD is safe.

Strengths and limitations of the study

This is a retrospective study and the records of all the patients as well as necessary data may not have been accurately captured at the point of the procedure thus limiting the exact population size. This is a single-centre study with a small population size which cannot be used to infer causes and effects. The strength of the study is that it is comparable to outcomes of OGD from public tertiary institutions and it should also form the basis of future studies of UGIE in private hospitals. It has also highlighted an increase in patients who require therapeutic intervention such as balloon insertion for the management of obesity and weight reduction.

Implications of the findings

Apart from the control of bleeding peptic ulcers and excision of polyps, other therapeutic indications like balloon insertion of the stomach and dilatation of strictures are becoming available locally in our environment especially in a private health facility.

Conclusion

The most common diagnostic indication for UGIE in Abuja is chronic gastritis and therapeutic indication is gastric balloon insertion. The procedure is safe and effective in the diagnosis and treatment of upper gastrointestinal diseases with a good pathological outcome in a private hospital setting like ours.

Statements and Declarations:

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