

# Upper Gastro-Intestinal Endoscopy in Port Harcourt, Nigeria: An Audit.

Type of Article: Original

\*Emeka Ray-Offor, \*\*Christopher C. Obiorah

Departments of \*Surgery & \*\*Anatomical Pathology, University of Port-Harcourt Teaching Hospital, Port Harcourt, Rivers State Nigeria

## ABSTRACT

### BACKGROUND

Accurate diagnosis of disease conditions using laboratory, imaging or endoscopic investigation is essential for appropriate treatment. There is paucity of data on upper GI endoscopy in Port-Harcourt. This audit of our early experience is intended to provide data on the pattern of endoscopy findings which is needed to improve the quality of patient care. The study aims to report the pattern of presentation as well as the endoscopic and pathologic findings of symptomatic upper gastro-intestinal disease conditions.

### METHOD

All consecutive patients presenting to the endoscopy unit of a private hospital from February 2012 to October 2013 were prospectively studied. The sociodemographics, indications, endoscopic findings and histopathologic report for biopsies were collated. Data was statistical analyzed using SPSS version 20.

### RESULTS

There were 44 OGDs in 37 patients performed during the study period. Twenty-one were males and 16 females. A male: female ratio of 1.3:1 and age range from 5-86 years (mean  $46.4 \pm 18.5$  years). The major indications were dyspepsia 23 (52.3%) and dysphagia 8 (18%). Non-ulcerative gastritis was the most common endoscopic finding seen in 16 (32%) cases and more than one pathologic condition was seen in 8 (18%) cases.

## CONCLUSION

Peptic ulcer is not the most common cause of dyspepsia. Gastritis and multiple non-ulcer pathologies in a patient are more common thus the need for thorough endoscopic investigation in symptomatic upper GI disease.

## KEYWORDS

Upper gastro-intestinal tract, endoscopy, audit.

Correspondence: Dr E. Ray-Offor  
Email: erayoffor@yahoo.com

## INTRODUCTION

Historically, it is widely believed that direct visualization of the esophagus and stomach was first performed by Jan Mickulicz-Radecki in 1880 using heated platinum wire as a light source<sup>1</sup>. Harold Hopkins, in 1954, introduced the fibre bundle systems of light conduction (fiberoptics) to endoscopes, adding flexibility; Hirschowitz applied this in clinical setting to examine the stomach in 1957<sup>2</sup>. In modern era, the gastro-intestinal (GI) tract visualization is done using flexible fiberoptic instrument tipped with a small video-camera and charge-coupled device (CCD) relaying electronic image of the mucosa to a connected video monitor.

The diagnosis of upper gastro-intestinal disease conditions involves clinical, laboratory and imaging assessment. In Nigeria, diagnosis is often by clinical assessment only<sup>3</sup>. Albeit, accurate localization and diagnosis of GI pathologies is necessary for proper evaluation, treatment and follow-up of patients. Oesophagogastroduodenoscopy (OGD) is the gold standard investigation for upper GI

symptoms<sup>4</sup>, as it offers the added benefit of biopsy and brush cytology for pathologic diagnosis and ultrasonography.

The clinical application of endoscopes in the diagnosis and treatment of upper GI diseases has evolved. This includes therapeutic applications of OGD in early cancer (endoscopic mucosal resection), endoscopic plication of distal esophagus in gastro-oesophageal reflux disease and per oral endoscopic myotomy (POEM) in achalasia. Endosonography-the combination of endoscopy and ultrasonography in one instrument, is the most accurate technique for imaging the wall of the gastrointestinal tract and its immediate surroundings for targeted biopsies and staging of oesophageal and gastric cancers<sup>5</sup>. In developing countries endoscopy services is rudimentary in most cases<sup>6</sup>.

There is an increasing awareness and demand for endoscopy services in Nigeria with a need for more surgeons as endoscopists to augment this traditional practice of gastroenterologists. In Port Harcourt, there is paucity of data on upper GI endoscopy. This study is an audit of endoscopic and pathologic findings from OGDs performed by in a surgical centre with the aim of describing the pattern of OGDs outcomes in our environment which will provide data to improve the quality of patient care.

## PATIENTS AND METHOD

### Study population

An upper GI endoscopy was performed on all consecutive out-patients presenting with symptoms of upper GI disease to the endoscopy unit of a private hospital in Port Harcourt from February 2012 to October 2013 on out-patient basis. The patients presented primarily to the unit or were referred from health facilities in Port-Harcourt metropolis in Rivers state and nearby states.

### Patients

There was a pre-procedure clinical and laboratory evaluation of patients with American Association of Anaesthesia ASA

score assigned. A mandatory packed Cell Volume, Retroviral and hepatitis B surface antigen screen were requested and an informed consent was obtained after oral explanations and reading of printed leaflet for those literate. The patients were fasted for a minimum of 6hrs before procedure.

### Equipment/Sterilization

The procedures were carried out with videogastroduodenoscope, light source/insufflator pump and camera unit all made by Karl Storz (Germany). High level disinfection of endoscope was done with Orthophthaldehyde (Cidex OPA) after cleaning in enzymatic solution (Cidezyme) then rinsed in distilled water.

### Prophylactic antibiotics

Intravenous third generation cephalosporin-ceftriaxone 1g stat, was administered in diabetics and immunosuppressed patients before procedure.

### Procedure

The oropharynx was anaesthetized using 10% Xylocaine spray and a sedative (diazepam 2.5mg) with an anti-motility agent (hyoscine 20mg) were administered before the procedure. There was continuous monitoring of SpO<sub>2</sub>, ventilation, pulse rate and blood pressure of patient throughout the entire procedure by a nurse. In cases of upper gastrointestinal bleeding, significant comorbidities with American Society of Anaesthesia class  $\geq$  3 or a repeat procedure in patient uncooperative with local anaesthesia, general anaesthesia with propofol was used under the supervision of an anaesthesiologist.

Patient was placed in the left lateral decubitus position. A systematic examination was done by a single endoscopist aided by an assistant and an endoscopy nurse. There was video documentation of procedures for review after procedure. Mucosal biopsies was taken for histopathological diagnosis in cases of gastritis, peptic ulcer and suspected malignant lesions (Specimen was transported in formalin solution to the pathologist). There

was observation of patient for a minimum of 30minutes after procedure and discharge after a satisfactory check of vital signs.

### Variables

The sociodemographics, indications, endoscopic and histopathologic findings were collected.

### Statistics

Data was statistical analyzed using SPSS version 20.

### RESULTS

There were 44 OGDs performed in 37 patients during the study period. Twenty-one were males and 16 females with a male to female ratio of 1.3:1. The age range was from 5-86years (mean  $46.4 \pm 18.5$  years). The age and sex distribution is as shown in Figure 1. The indications included: dyspepsia 23(52.3%)-epigastric pain 12, epigastric discomfort 10, easy satiety 1; GI bleeding 11(25%) -melena 2, haematemesis 5, haematochezia 4; dysphagia 7; foreign body ingestion 1 and follow-up 2. (Figure 1)

There was complete examination in all but two patients due to non-tolerance of procedure with mild sedation and local anaesthesia. The procedure was aborted but was repeated with general anaesthesia on a subsequent day for one patient while the second defaulted.

Positive endoscopic findings were mostly of benign conditions with non-ulcerative gastritis especially in the antrum as the most common endoscopic finding seen in 16 cases (32%)-Table 2. An active bleeding site was seen in 6 of the 11 cases of GI bleeding. A patient with bleeding fundal gastric varices had successful injection sclerotherapy with 5mls of 1:10,000 adrenaline. A normal study was observed in 5 cases (10.1%).

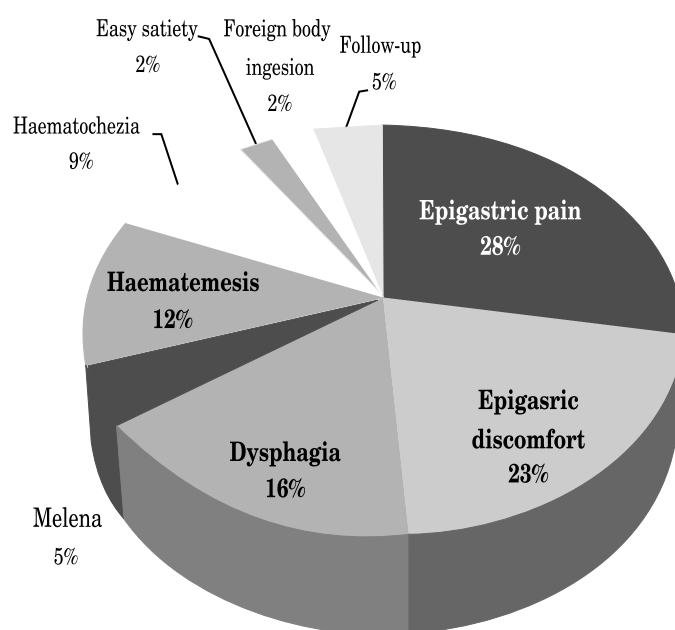
There were multiple pathologies seen in 8(18.2%) of the OGDs performed-Table 3. The pathology report of mucosal biopsies taken showed: squamous cell carcinoma of distal oesophagus 1; chronic inflammation of mid

oesophagus 1; gastric erosion 1; chronic gastritis 8; duodenitis with moderate dysplasia<sup>1</sup>.

No serious complications such as perforations, mortality, aspiration pneumonia, or hospital admission resulted from any of the procedures performed in this study but transient throat irritation and feeling bloated were the occasionally encountered.

**Table 1:** Age and sex distribution

Age group	Male(s)	Female(s)	Total(%)
0-10 years	0	1	1(2.7)
11-20 years	1	1	2 (5.4)
21-30 years	3	1	4 (10.8)
31-40 years	4	5	9 (24.3)
41-50 years	5	3	8 (21.6)
51-60 years	5	2	7 (18.9)
61-70 years	0	3	3 (8.1)
71-80 years	1	0	1 (2.7)
81-90 years	2	0	2 (5.4)
Total	21	16	37(99.9)



**Figure 1:** Indications for upper GI endoscopy

**Table 2:** Upper gastro-intestinal endoscopic findings.

Endoscopic diagnosis %	Frequency	
Gastritis	16	32
Biliary reflux	7	14
Normal study	5	10
Peptic ulcer	4	8
Gastric polyp	3	6
Oesophageal cancer	2	4
Oesophagitis	2	4
GERD	2	4
Pyloric stenosis	2	4
Foreign body ingestion	1	2
Pharyngitis	1	2
Duodenitis	1	2
Duodenal mass	1	2
Gastric varices	1	2
Oesophageal web	1	2
Mallory Weiss tear	1	2

**Table 2:** Cases of multiple endoscopic findings

Multiple pathologies in single OGD No. of cases	
Antral gastritis + Biliary reflux	3
Gastritis+Oesophagitis+ Biliary reflux	1
Oesophageal web + pangastritis	1
Mallory Weiss tear +Antral gastritis	1
Duodenitis + Pangastritis	1
Candida oesophagitis + peptic ulcer in diabeticketo-acidosis	1
Total	8

## DISCUSSION

GI endoscopy services are offered in an office-based, hospital or ambulatory centre setting. These procedures are performed by certified gastroenterologist, general surgeons or family physicians. The measures of competency generally considered for OGD are the ability to define a lesion and to complete the study to the duodenum in a timely manner without causing harm to the patient.<sup>8</sup>In this modest-sized hospital based study we had a 99.9% completion rate at primary attempt and 87.9% detection rate.

There was a widespread age distribution of patients seen with only 2(4.5%) cases in the paediatric age. One was a case of massive upper GI bleeding revealing a bleeding duodenal mass diagnosed at subsequent laparotomy as ulcerated choledochocoele. The

other involved foreign body ingestion a button-sized battery. Children have similar indications for upper GI endoscopy as in adults with the addition of failure to thrive and unexplained irritability.<sup>9</sup>Agbakwuru et al in a larger population study similar to ours in Ife also documented a low paediatric age group referral of <4%<sup>3</sup>. In Uganda, a large proportion of paediatric patients with gastro-intestinal complaints have a positive upper GI endoscopy.<sup>10</sup>The practice of flexible paediatric endoscopy in Nigeria has limitations of few trained paediatric endoscopists, availability of special equipment for children less than 3 years of age and added cost of anaesthesia<sup>11</sup>.

Dyspepsia was observed to be the major indication for upper GI endoscopy seen in 52.3% of cases. The Rome III Committee defined dyspepsia as a symptom or set of symptoms originating from the gastroduodenal area comprising postprandial heaviness, early satiety, and epigastric pain or burning<sup>12</sup>. In Nigeria, several studies in upper GI endoscopy have a similar observation<sup>13,14,15</sup>. Dakubo et al in a large sized study in Ghana documented dyspepsia as the most common indication in 77.4% of patients<sup>16</sup>. Bleeding from the upper GI tract was observed to be the second most common indication in 25% of cases as in similar studies by Olokoba et al<sup>17</sup>, 26.2% in Ilorin, Malu et al<sup>13</sup>, 12.1% in Zaria and Ismaila et al 10.1%<sup>18</sup> in Jos.

Gastritis, especially in the antrum, was the most common endoscopic diagnosis from our study. This is contrary to the anecdotal diagnosis of peptic ulcer disease for dyspeptic symptoms which is common practice in our environment. Studies from Nigeria also suggest gastritis as most common finding in upper GI endoscopies done for patients with dyspepsia as the primary indication<sup>4,18,19</sup>. The over the counter purchase and use of proton pump inhibitor in our environment for dyspepsia may reduce endoscopic diagnosis of peptic ulcer as mucosal lesions heal with medical treatment. A normal study on endoscopy of 12.1% of symptomatic patients seen suggests functional disorder or the

likelihood of organic cause outside the GIT example hepato-biliary or pancreatic origin. Also of importance is the diagnosis of multiple pathologies in about one fifth of the study population. This underscores the value of a thorough evaluation.

The practice of routine biopsies in the absence of unequivocal endoscopic abnormalities is debatable. Mandatory routine biopsies is advocated for detecting and grading gastric inflammation, atrophy, intestinal metaplasia, and even dysplasia; for detecting various infections, such as *Giardia*, coccidiosis, CMV, etc; and for detecting Crohn's disease, sarcoidosis, amyloidosis, eosinophilic gastritis, lymphocytic gastritis, etc<sup>20,21</sup>. Akere et al performed biopsies for histological examination on all the patients studied irrespective of grossly normal mucosa and observed none of them had a normal histology. Routine biopsies are costly and time consuming. We performed biopsy, mostly from the gastric antrum and other relevant sites as indicated, only in cases where endoscopic examination showed a clear abnormality. In our study, the histological diagnosis of *H.pylori* from the mucosal biopsies transported in formalin was poor. Smith et al<sup>22</sup>, in an *H.pylori* detection study at Ile Ife and Lagos, observed that direct Gram stain was one of the least sensitive methods with an *H. pylori* prevalence of 18.9% compared to *H.pylori* stool antigen 36.7% and serology 41.7%. A low number of the organism, subjectivity or human errors are mitigating factors for this result. Toluidine staining and immunohistochemistry has been observed to improve *H. pylori* detection<sup>23</sup>. A change of our transport medium to normal saline and the staining technique may improve our yield of this organism.

This study demonstrates that the learning curve for upper GI endoscopy is not steep though the procedures were mainly diagnostic with few basic therapeutic procedures. New technology, though complex and costly are evolving. As the focus narrows in advanced therapeutic endoscopy for specific pathologies,

proficiency in its application will require longer training.

## CONCLUSION

The safe practice of upper GI endoscopy is a useful aid in diagnosis and treatment of GI pathologies in this environment. Gastritis is a more frequent endoscopic finding compared to peptic ulcer disease. A thorough endoscopic investigation in symptomatic upper GI disease is necessary to exclude multiple non-ulcer pathologies in a patient.

## Acknowledgment

We acknowledge the effort of the Staff of the Endoscopy unit of Paragon Clinics & Imaging Port-Harcourt.

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