

Endoscopy and Histopathology Findings among Patients with Dyspepsia

Daisy Akurete, Francis Basimbe*, Gorretti Nassali and Emmanuel Othieno

Department of Surgery, Makerere University College of Health Sciences, Uganda

Abstract

Background: Dyspepsia is one of the commonest presentations of gastrointestinal disorders in our region with a Global prevalence of between 7-45% and a regional prevalence of 65%. Most studies on dyspepsia have differences in findings and proposed standard of care. The current practices in our setting are centered on blood and stool *Helicobacter pylori* antigen and antibody investigations and initial treatment with PPIs and antibiotics before referral for endoscopy and biopsy. This study is to describe the commonest presenting complaints, endoscopy and histopathology findings in patients with dyspepsia in our setting.

Methods: A descriptive cross-sectional study in which 115 dyspeptic patients who presented to St Francis hospital, Nsambya underwent endoscopy and biopsy. Consecutive sampling was used.

Results: Dyspepsia prevalence was more among the male at 53.9% than the female at 46.1%. The mean age of participation in this study was 53 years. The commonest presenting complaint was epigastric pain which was noted in 63.6% of the participants followed by hematemesis in 14.3% and vomiting feeds in 6.4%. Most of the patients at presentation had only one clinical symptom (80.9%) while those with more than one presenting symptom were (19.1%). There was no relationship between the age and sex and the presenting complaints among patients with $p=0.290$ and $p=0.680$ respectively. The commonest findings at endoscopy were gastritis-73 participants, followed by PUD- 23, Duodenitis- 22, GERD-17, Oesophagitis-15, Tumor-11, Hernia-9, Polyps-4. No normal findings were noted at endoscopy. At histology, there was no reported normal mucosa, the most common finding was gastritis in 62.6% of the patients. 10.4% participants had gastric malignancy and 1.7% had intestinal metaplasia. Of 3 patients diagnosed with Peptic ulcer disease at endoscopy, 2 had intestinal metaplasia and one had gastrointestinal stromal tumor at histology. The concordance rate between endoscopy and histology was 76.9%

Keywords: Dyspepsia • Endoscopy • Histopathological findings

Introduction

Dyspepsia is a Greek word meaning "duis" (bad or difficult) and "peptin" (to digest), which is described by patients as indigestion; both these words are a poor expression, as dyspepsia has no relation to digestion of food (JAPI 2012). Dyspepsia is any combination of four symptoms: postprandial fullness, early satiety, epigastric pain, and epigastric burning that are severe enough to interfere with the usual activities and occur at least 3 days per week over the last 3 months with an onset of at least 6 months in advance (Rome IV Criteria- 2016).

Symptom prevalence differs in different populations depending on the prevalence of *Helicobacter pylori* infection, environmental factors like drug-alcohol-tobacco intake and dietary spices (JAPI 2012). Symptoms of dyspepsia include: abdominal pain above umbilicus, retrosternal burning, regurgitation, belching (or eructation), abdominal distension (fullness), nausea, vomiting (occasional), early satiety after meals. Symptoms of dyspepsia are divided into reflux-type (retrosternal burning, regurgitation), ulcer-type (epigastric pain on empty stomach relieved with bland food, antacids or acid suppression drugs),

dysmotility-type (postprandial fullness, distension, early satiety, nausea). Rome IV criteria divided functional dyspepsia in 2 groups: (i) predominant epigastric pain or burning (the epigastric pain syndrome) and (ii) early satiety or fullness following a meal (the postprandial distress syndrome) (JAPI 2012).

The global prevalence of dyspepsia ranges from 7-45% [1]. With an East African regional prevalence of 65% [2].

Approximately 25 percent of patients with dyspepsia have an underlying organic cause. However, up to 75 percent of patients have functional (idiopathic or non-ulcer) dyspepsia with no underlying cause on diagnostic evaluation [3].

The current updated American College of Gastroenterology (ACG) and the Canadian Association of Gastroenterology (CAG) guidelines on dyspepsia management are dependent on age, symptomatology, and the cause [4].

Patients ≥ 60 years of age presenting with dyspepsia are investigated with upper gastrointestinal endoscopy to exclude organic pathology. Those younger patients with higher risk patients for malignancy and alarm features are also done upper GI endoscopy. *Helicobacter pylori* (*H. Pylori*) test is also done and treatment started if positive. The use of PPIs, TCAs, Prokinetics in patients with negative *H. pylori* test results and those with no pathology at endoscopy.

The common practice in our setting is initial management of symptoms and consideration of further investigation and endoscopy evaluation at a later stage or not at all unless symptoms persist or patients have associated alarm symptoms.

When these symptoms progress on to chronic gastritis, there are varying degrees of superficial and glandular epithelial damage leading to parenchymal atrophy. It is associated with dyspepsia in 50% of cases but more so with gastric and duodenal ulcers.

Ideally if a patient doesn't improve on first line medical treatment, an upper GI endoscopy would be recommended and a preliminary biopsy maybe

*Address for Correspondence: Francis Basimbe, Department of Surgery, Makerere University College of Health Sciences, Uganda, E-mail: basimbef@yahoo.co.uk

Copyright: © 2022 Akurete D, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Date of Submission: 02 December 2022, Manuscript No. cgi-22-70574; Editor assigned: 05 December 2022, PreQC No. P-70574; Reviewed: 16 December 2022, QC No. Q-70574; Revised: 21 December 2022, Manuscript No. R-70574; Published: 28 December 2022, DOI: 10.37421/2952-8518.2022.7.180

taken at this time. Upper GI Endoscopy is a common procedure carried out for evaluation of patients with dyspepsia, and often a biopsy is taken in organic dyspepsia and on encounter with normal looking gastrointestinal mucosa (functional dyspepsia), non-invasive management (medication) is opted for.

Methods

This was a cross sectional study conducted at St Francis Hospital Nambya Endoscopy unit between January 2020 and March 2020.

The Endoscopy unit of St Francis Hospital Nsambya was established 23 years ago in 1996, by Italian Doctor Luigi Girardin, it commenced operation in 1997 under Dr. Buin Frances, along with other Doctors in the department at the time, 2 upper GI scopes doing between 100-150 endoscopies per year in the first few years, but have expanded over the years currently with 4 upper GI scopes and 2 lower GI scopes with over 1700 patients being scoped annually. With a total of 1726 worked on in 2018. The unit is also currently actively performing minimally invasive endoluminal procedures for suitable candidates; it mainly handles Elective procedures as well as Emergencies.

The unit is functional on weekdays on appointment basis from 7 am-4 pm and remains closed on public holidays and Sundays. Patients are received at the unit throughout the day clinically evaluated and then given appropriate future appointment for the procedure to be carried out. The unit is mainly run by Endoscopy Surgeons and Endoscopy nurses.

The Nsambya Hospital Laboratory is a SANAS accredited laboratory, dealing with a wide range of procedures. The Histopathology section is run by senior Pathologist, with two Cyto-technologists, a histo-technician and data entry members under his supervision. The histopathology laboratory analyses up to 2800 specimens on average per year. All tissue blocs are archived in a repository room. All patients with dyspeptic symptoms referred to the Endoscopy unit of St Francis Hospital Nsambya between January 2020 and March 2020 were included in the study. Patients with previously diagnosed GIT malignancy at histology and those With a History of Gastric procedures including gastrectomy, Bypass procedures were excluded from the study. This was consecutive sampling of Patients with dyspeptic symptoms that come to St Francis Hospital Nsambya Endoscopy unit. Variables measured included Age, sex, Endoscopy findings as well as Histopathological findings.

Study procedure

Patient recruitment was done at the Endoscopy unit of St Francis Hospital, Nsambya Hospital. All patients presenting with dyspeptic symptoms, on reporting for booking were enrolled in the study. Gastric biopsies were taken from the following sites according to the Sydney and Houston system for grading gastritis: (1) Greater and lesser curvature of the distal antrum, (2) greater and lesser curvature of the proximal corpus, and (3) lesser curvature at the incisor angularis., sample were taken for Histopathological analysis.

Results

A total of 115 participants with dyspepsia were studied, among whom majority were male. Mean age of participants was 53.3 ± 18.5 years. Mean age among females (53.2 ± 18.5) was not different from that among males (53.4 ± 18.7). 59 (51.3%) participants were aged 53 years and below while 56 (48.7%) were aged above 53 years. Table 1 describes the characteristics of study participants (Table 1).

Endoscopic findings among patients with dyspepsia

Majority of the participants (90.4%) had inflammation of one or more sites while 11 (9.6%) had malignancies. Among the 104 participants with inflammation, 39 had more than one site involved. Figure 1 describes the endoscopic findings among patients with dyspepsia.

Histopathological findings among patients with dyspepsia

12 participants had malignant and 2 had pre-malignant histopathology

findings while the rest of the 101 participants had benign findings. Majority of the participants had inflammatory conditions with gastritis being the commonest finding in 72 (62.6%) of the participants, 19 of whom had follicular gastritis while 53 had superficial gastritis. Metaplasia was found in intestinal mucosa of 2 (1.7%) participants while malignancies were found in 12 (10.4%) participants with the commonest malignancy being gastric adenocarcinoma in 7 (6.1%) of participants.

There was a significant difference between endoscopy and histopathology findings among three patients who were diagnosed with peptic ulcer disease at endoscopy but two had intestinal metaplasia and the other gastrointestinal stromal tumor as their histology findings. The percentage concordance rate (malignancy at endoscopy/malignancy at histopathology × 100%) between endoscopy and histopathology therefore is 76.9% (Table 2).

Histopathological findings across age and sex were not significantly different. However, presenting complaints and endoscopy findings had an influence on histopathological findings with p=0.024 and p<0.001 respectively.

Discussion

Dyspepsia was noted more among the male population than the female population in a ratio of 1.2:1 similar findings were noted in an Egyptian study by Emara MH, et al. [5], who reported an incidence of 55% in males and 45% in females. Gado A, et al. [6], reported an incidence in 51% in males and 49% in females. Desai SB, et al. [7] reported a male to female ratio of 2.43:1 while Thomson ABR, et al. [8], had a male to female ratio of was 1:1 likewise, Akram B, et al. [9], reported a ratio of 1.55:1. These similarities can probably be attributed to the fact that more male participants were recruited to participate (Table 3).

Whereas similar findings were noted as above, Heiderloo AJ, et al. [10] in Iran 2019 reported more females were recruited to the study compared to males in a ratio of 1:1.5 probably because of better health seeking behaviors of the women when compared to the males in this population.

Table 1. Characteristics of study participants.

Characteristic (N=115)	Frequency	Percentage (%)
Age (mean, SD)	53.3 (±18.5)	-
Sex	Female	53 46.1
	Male	62 53.9

Endoscopic findings among patients with dyspepsia

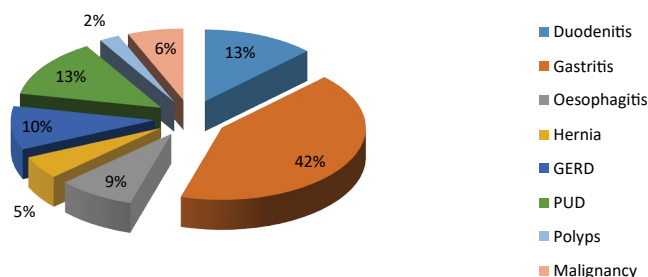


Figure 1. Frequency of endoscopy findings of 115 patients with dyspepsia.

Table 2. Endoscopy findings of 115 patients with dyspepsia by age and sex.

Characteristic (N=115)	Inflammation Involving One Organ (n=60)	Inflammation Involving More than One Organ (n=44)	Tumors (n=11)
	Sex, n (%)		
Female (53)	28 (52.8)	22 (41.5)	3 (5.7)
Male (62)	32 (51.6)	22 (35.5)	8 (12.9)
Age, n (%)			
	≤ 53 years (59)	30 (50.8)	25 (42.4)
>53 years (56)	30 (53.6)	19 (33.9)	7 (12.5)

Table 3. Description of Histopathological findings of patients with dyspepsia.

	Organ	Acute	Chronic	Metaplasia	Malignancy
Stomach (n=124)	Superficial gastritis	41	12		
	Follicular gastritis	7	12		
	Gastric ulcer	2	7	2	12
	Peptic ulcer disease	1	25		
	Polyp	3	-		
Duodenum (n=16)	Duodenitis	2	2	-	-
	Duodenal ulcer	2	2	-	-
	Regional enteritis	1	-	-	-
	Crohn's disease	1	-	-	-
	<i>H. pylori</i>	6	-	-	-

Table 4. Histopathological findings of patients with dyspepsia by age and sex.

Characteristic (N=115)	Normal/Benign (n=102)	Malignancy (n=14)	p-value	
Sex, n (%)	Female (53)	48 (90.6)	5 (9.4)	0.242
	Male (62)	53 (85.5)	9 (14.5)	
Age, n (%)	≤ 53 years (59)	54 (91.5)	5 (8.5)	0.117
	>53 years (56)	47 (83.9)	9 (16.1)	

In this study, the average age of participation was 53 years of which 59 (51.3%) of the patients were below this age. This is similar to a Indian study by Amar DN and Naik A [11].

Endoscopy findings

From this study, a high positive yield was noted at endoscopy in all the participants regardless of their complaint at the time of presentation for endoscopy. Similar analogy was reported Emara MH, et al. [5], this can probably be explained by the fact that both institutions are tertiary and as such receive high turnover of referred patients.

The commonest endoscopic finding was gastritis in 73 participants which is similar to findings from a study done in northern Tanzania by Ayana SM, et al. [12], study by Emara MH, et al. [5], and Manappallil RG and Alexander T [13], also reported gastritis as being the commonest finding at Endoscopy in a study done in South India. Peptic ulcer disease was noted as the second commonest with 23 participants. Similarities in findings may be explained by the disease progression and chronicity

Inflammation involving more than one site was observed in 52.17% of the patients and was mostly observed in the male 51.61% participants than the females 46.67% these findings are similar to those noted by Ayana SM, et al. [12] probably due to proximity of organs involved and later presentation for medical treatment.

There was no normal finding reported at endoscopy which differs from the studies of Manappallil RG, et al. [13] who reported normal endoscopic findings in 18% of their patients and Abahussain EA, et al. [14] who also reported normal findings in 32% of the patients at endoscopy. This difference is noted probably because this institution is a tertiary one and the nature of patients received are referrals from different parts of the region.

Upper GI malignancy was noted in 11 patients (9.57%) and occurred more in the male population (12.90%) than the females. All these patients presented for endoscopy with alarm symptoms, this is contrary to findings by Desai SB and Mahanta BN [7] and Sumathi B, et al. [15], this could be attributed to the differences in geographical location, and habitual practices and health seeking behaviors in our participants.

Histopathology findings

The commonest finding at histopathology in our study was gastritis reported by 72 participants followed by peptic ulcer disease seen in 26 participants.

These findings are similar to findings by Ndraha S and Simadibrata M [16], and Emara MH, et al. [5], who reported chronic active gastritis in 96.3% of their study participants. These similar findings may be attributed to the fact that commonest cause of gastritis in our setting is bacterial which brings about accumulation of toxins and therefore inflammation of the gastric mucosa.

In our study, 75.65% of the patients had one condition diagnosed at histopathology while 24.35% had more than one condition. These findings similar to those noted by Thomson ABR, et al. [8], and maybe explained by proximity of the organs involved and disease progression.

In most of the cases, the findings at endoscopy were in correspondence to those reported at histopathology. However, 2 of the 3 patients who were reported to have peptic ulcer disease at endoscopy were found to have intestinal metaplasia while the other had a gastrointestinal stromal tumor at histopathology with a concordance rate of 76.9%. These findings are comparable to the findings in a similar study done in Nigeria by Ajayi AO, et al. [17] to determine the correlation between endoscopic and histologic diagnosis of gastritis in which they found an 88.4% concordance between endoscopic and histopathologic findings. This further emphasizes the need for taking biopsy at endoscopy (Table 4).

Malignancy was seen more among the males (14.5%) than the females (7.5%) and was observed more above the age of 53 years (16.1%). Similar patterns were reported by Dinesh HN, et al. [18], this can probably be explained by the fact that more male participants and late presentation for medical care. The endoscopy findings each had a significant influence on the histopathology $p=0.024$ and $p<0.001$ respectively.

Conclusion

From our study, the commonest finding described at Endoscopy was Gastritis at 42% while at histopathology, the commonest finding was superficial gastritis. It would be beneficial for patients with dyspepsia who undergo endoscopy to have biopsies taken off for histopathology.

References

- Mahadeva, Sanjiv and Khean-Lee Goh. "Epidemiology of functional dyspepsia: A global perspective." *World J Gastroenterol* 12 (2006): 2661-2666.
- Shmueli, Haim, Samson Obure, Douglas J. Passaro and Galia Abuksis, et al. "Dyspepsia symptoms and *Helicobacter pylori* infection, Nakuru, Kenya." *Emerg Infect Dis* 9 (2003): 1103.
- George, F. Longstreth, Brian E. Lacy, Nicholas. J. Talley and Shilpa Grover. "Approach to the adult with dyspepsia." (2019).
- Moayyedi, Paul M., Brian E. Lacy, Christopher N. and Andrews, et al. "ACG and CAG clinical guideline: Management of dyspepsia." *Am J Gastroenterol* 112 (2017): 988-1013.
- Emara, Mohamed Hassan, Rasha Ibrahim Salama and Amira Amin Salem. "Demographic, endoscopic and histopathologic features among stool *H. pylori* positive and stool *H. pylori* negative patients with dyspepsia." *Gastroenterol Res* 10 (2017): 305-310.
- Gado, Ahmed, Basel Ebeid, Aida Abdelmohsen and Anthony Axon. "Endoscopic evaluation of patients with dyspepsia in a secondary referral hospital in Egypt." *Alexandria J Med* 51 (2015): 179-184.
- Desai, Santosh B and Bhupendra N. Mahanta. "A study of clinico-endoscopic profile of patient presenting with dyspepsia." *Clin Epidemiol Global Health* 6 (2018): 34-38.
- Thomson, A.B.R., A.N. Barkun, D. Armstrong and N. Chiba, et al. "The prevalence of clinically significant endoscopic findings in primary care patients with uninvestigated dyspepsia: The Canadian Adult Dyspepsia Empiric Treatment-Prompt Endoscopy (CADET-PE) study." *Aliment Pharmacol Ther* 17 (2003): 1481-1491.
- Akram, Bashar, Salah Saleh Mohammed, Ammar Abbas Mohammed and Kareem A. Obaid, et al. "significance of endoscopic findings in patients with dyspepsia in Diyala Province-Iraq Hospital Based Study." *DJM* 17 (2019): 107-114.
- Heidarloo, Ali Jafari, Hamzeh Majidi, Hamid Reza Mehryar and Mohammad

- Reza Hoseini Azar, et al. "Evaluation of the endoscopic findings in patients with dyspepsia." *J Res Clin Med* 7 (2019): 12-17.
11. Amar, D.N and Aravind Naik. "Analysis of upper GI endoscopy findings in patients of dyspepsia at a tertiary care centre in Karnataka: A retrospective study." *Int J Surg* 3 (2019): 91-94.
 12. Ayana, Segni M., Birgitta Swai, Venance Maro and Gibson S. Kibiki, et al. "Upper gastrointestinal endoscopic findings and prevalence of *Helicobacter pylori* infection among adult patients with dyspepsia in northern Tanzania." *Tanzan J Health Res* 16 (2014): 16-22.
 13. Manappallil, Robin George and Thomas Alexander. "Clinical and endoscopic evaluation of dyspeptic patients attending a tertiary care hospital in South India: A prospective study." *Asian J Med Sci* 8 (2017): 58-63.
 14. Abahussain, Eman A., Fuad AM Hasan and Paul J. Nicholls. "Dyspepsia and *Helicobacter pylori* infection: Analysis of 200 Kuwaiti patients referred for endoscopy." *Ann Saudi Med* (1998): 502-505.
 15. Sumathi, B., U. Navaneethan and V. Jayanthi. "Appropriateness of indications for diagnostic upper gastrointestinal endoscopy in India." *Singapore Med J* 49 (2006): 970.
 16. Ndraha, Suzanna and Marcellus Simadibrata. "Upper gastrointestinal endoscopic and histopathological findings in patients with dyspepsia." *Indones J Gastroenterol Hepatol Dig* 5 (2012): 23-28.
 17. Ajayi, Akande Oladimeji, Ebenezer Adekunle Ajayi, Olusoji Abidemi Solomon and Babatunde, et al. "Corelation between the endoscopic and histologic diagnosis of gastritis at the Ekiti State university teaching hospital, Ado Ekiti, Nigeria." *J Intern Med* 4 (2015): 9-13.
 18. Dinesh, H.N., C.D. Jagadish Kumar, H.M. Sanjay and V. Sachin, et al. "Is Endoscopy really necessary in my case? A four year retrospective study." *J Clin Diagn Res* 9 (2015): PC12-PC14.

How to cite this article: Akurete, Daisy, Francis Basimbe, Gorretti Nassali and Emmanuel Othieno. "Endoscopy and Histopathology Findings among Patients with Dyspepsia." *Clin Gastroenterol J* 7 (2022): 180.