

## A 10 years Trend of Peptic Ulcer Disease and other Gastrointestinal Disorders in Northern Uganda

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**Background:** The changing trend of GI disorders has not been expounded in our setting, there is need to examine the extent to which major endoscopically diagnosed upper GI disorders have changed in the last 10 years (2005 to 2015).

**Methods:** This was a retrospective study in which endoscopically diagnosed GI disorders of Jan-Jun 2005 were compared with 2015 (10 years) for the same period

**Results:** In the 10 years (2005 to 2015), the prevalence of peptic ulcer disease (PUD) reduced from 9.6% to 2.9% (P value 0.000), followed by esophageal varices from 10.3% to 4.0%, and duodenitis from 3.2% to 0.7% respectively. Gastritis increased from 18.4% to 48.2% (P value 0.000), followed by cancer esophagus from 3.2% to 5.1%.

**Conclusion:** As the prevalence of PUD decreases in our community, gastritis increases hence patients with upper GI symptoms tend to suffer gastritis thus clinicians should focus on treating gastritis and eradication of *Helicobacter pylori*.

**Key Words:** Peptic ulcer disease, Gastritis, GI Disorders

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### Introduction

Upper Gastrointestinal (GI) endoscopies are often used to confirm diagnosis in patients with gastrointestinal symptoms. Results from endoscopic exam allow association of esophagogastroduodenal (EGDS) findings with patient presentation and extrapolation of the findings to patient population in clinical practice<sup>1</sup>. Endoscopically diagnosed disorders tend to vary although Peptic ulcer disease (PUD) has remained a relatively common condition worldwide, with annual incidence ranging from 0.10% to 0.19%<sup>2</sup>. However in Canada, PUD comprises 7.5% of the GI disorders, followed by celiac disease (2.5%)<sup>3</sup>. In Togo, the prevalence of PUD is 34.2%, followed by esophagitis, gastritis, bulboduodenitis combined (32.4%) and esophageal varicosities (3.7%)<sup>4</sup>. In Uganda Okello (2006)<sup>5</sup> found PUD prevalence of 14.8% followed by gastritis (12.6%), and duodenitis (4.4%) but in Kenya gastritis is the most common EGDS lesion (25.8%)<sup>6</sup>. However, the trend of common upper GI disorders over the last 10 years period is not yet known in our environment.

Many studies in different research environment and setting have noted a reduction in PUD prevalence and incidence as well as significant changes in other GI disorders overtime<sup>2</sup>. For example the incidence PUD in Finland reduced by 89% within 10 yrs from 1987 to 1997.<sup>7</sup> This is attributable to the introduction of modern anti-secretory drugs, histamine<sub>2</sub>-receptor antagonists and proton-pump inhibitors (PPI) as well as eradication therapy of *Helicobacter pylori* and change in life style. Since we lack evidence of the changing trends of upper GI disorders in our community, clinicians have continued to diagnose and treat for PUD on nearly all patients who present with epigastralgia and/or dyspeptic symptoms hence the need to do a 10 years trend/comparison of upper GI lesions found at endoscopy.

The main objective of this study was to determine the extent to which major endoscopically diagnosed upper GI disorders have changed in the last 10 years (2005 to 2015).

## Patients and Methods

A retrospective review of patients' records covering January to June for both 2005 and 2015 was performed. It included all cases of upper GI endoscopy done at St Mary's Hospital Lacor, a large rural based University teaching general hospital with 483 beds, located in Northern Uganda. Currently the Hospital has two general surgeons who perform over 24 upper GI endoscopy per week and each of the surgeons has over 10 years experience in EGDS. All patients who undergo endoscopy have to give inform consent on the day of scoping prior to the procedure, however their consent was not necessary for this study. The main endoscopy findings that were examined in the study consisted of PUD, Gastritis and other GI disorders. Overall, the following variables were obtained and analysed using SPSS version 15 to determine the trend prevalence from 2005 and 2015: age, gender, outpatient diagnosis, endoscopy findings, histology findings, presence of malignant cancer.

## Results

Within the study period Jan - Jun 2005 a total of n=282 patients underwent upper GI endoscopic examination, whereas in 2015, approximately n=581 had the procedure with the same period.

In 2005, the mean age of patients undergoing endoscopic exam was 36.997 yrs (SD +/- 13.8628) while in 2015, the mean age was 39.99yrs (SD +/- 16.169). When compared, the patients who had endoscopic exam in 2015 were significantly older than those who were examined by the same procedure in 2005 (*P-value 0.013*) (Table 1).

In comparison, within the age groups of children (0-11yrs), 0.7% had upper GI endoscopy in 2015, but none (0%) in 2005; 5% of the adolescents (11-18yrs) had upper GI endoscopy in 2005, while 6.9% in 2015; 50.7% of the young adults (19-35yrs) had the procedure in 2005 and 38.2% in 2015. Adults (36-65yrs) in 2005 accounted for 41.1%, compared to 46.6% in 2015. Of the elderly (>66yrs), 3.2% received upper GI scoping in 2005, compared to 6.9% in 2015 (Table 1). Therefore it can be inferred that within the same age group, more patients were examined in 2015 compared with 2005. However, on comparison of the age groups between the two study periods, there were significantly more patients in 2015 than 2005 (*P value 0.009*) (Table 1).

### Prevalence of PUD in 2005 vs 2015

Out of the positive upper endoscopy findings, the prevalence of PUD in 2005 was compared with that of 2015 (Table 2). The prevalence of PUD was found to be 9.6% in 2005 and, in comparison, it had fallen to 2.9% by 2015. When statistically tested, the prevalence of PUD significantly reduced within 10 years in our community (Odds ratio (OR) =4.69 (95% CI), Chi-square 48.78 and *P value 0.0000*).

**Table 1.** Age at Endoscopy Procedure 2005 vs 2015

Age Group	2005		2015	
	Frequency	Percent (%)	Frequency	Percent (%)
Children (0-10yrs)	0	0	4	0.7
Adolescents (11-18Yrs)	14	5.0	42	6.9
Youth (19-35yrs)	143	50.7	235	38.8
Adults (36-65yrs)	116	41.1	282	46.6
Elderly (>66yrs)	9	3.2	42	6.9
<b>Total</b>	<b>282</b>	<b>100</b>	<b>605</b>	<b>100</b>

**Table 2.** Prevalence of PUD in 2005 vs 2015

Positive Endoscopy	Endoscopy 2005		Endoscopy 2015	
	Frequency	Percent	Frequency	Percent
PUD	17	9.6	14	2.2
Non PUD	161	90.4	473	97.1
<b>Total</b>	<b>178</b>	<b>100</b>	<b>487</b>	<b>100</b>

**Gastritis in 2005 vs 2015**

From Table 3, in 2005 approximately 36.9% (n=282) of the upper GI scopes were found to be normal, but by 2015, the proportion of normal scopes had fallen to only 19.5% (n=581). Amongst the positive endoscopy findings, the rate of gastritis in comparison to other lesions, significantly increased from 18.4% in 2005 to 48.2% in 2015 (Odds ratio 3.57, Relative risk 2.08, Chi-square 130.95, *P value* < 0.001. Therefore since 2005, the prevalence of gastritis increased by more than two and a half time in the last 10 years, such that in our community, the majority of persons with gastrointestinal symptoms are suffering gastritis.

**Other Upper GI Lesions in 2005 vs 2015**

In Table 4, the following lesions have reduced in prevalence between 2005 and 2015: esophageal varices from 10.3% to 4.0%, followed by duodenitis from 3.2% to 0.7% and deformed duodenal bulb from 1.8% to 0.5%, respectively. On the other hand, cancer of the esophagus have exhibited an increase in its prevalence, from 3.2% to 5.1%, in the last 10 years (2005 and 2015); while esophagitis remained stable between the two study periods.

**Table 3.** Prevalence of Gastritis in 2005 vs 2015

	2005		2015	
	Frequency	Percent	Frequency	Percent
Other lesion	126	44.7	187	32.2
Gastritis	52	18.4	280	48.2
Normal	104	36.9	114	19.6
<b>Total</b>	<b>282</b>	<b>100</b>	<b>581</b>	<b>100</b>

**Table 4: Other GI Lesions Upper in 2005 vs 2015**

Endoscopy findings 2005 (=282)			Endoscopy findings 2015 (n=581)		
GI Disorder	Frequency	%	GI Disorder	Frequency	%
Esophagitis	29	10.3	Esophagitis	79	13.3%
Esophageal varices	29	10.3	Esophageal varices	23	4.0%
Duodenitis	9	3.2	Duodenitis	4	0.7%
Ca esophagus	9	3.2	Ca esophagus	31	5.1%
Ca stomach	1	0.4	Ca stomach	6	1.0%
Hiatus Hernia	17	6.0	Hiatus Hernia	6	1.0%
Deformed duodenal bulb	5	1.8	Deformed duodenal bulb	3	0.5%

## Discussion

This study which compared a 10year trend of the various upper GI lesions in 2005 and 2015 tended to elucidate changes in prevalence of PUD, gastritis and other common GI disorders. The study found significant difference in the mean age of upper GI endoscopy patients in the last 10 years (2005-2015): 36.997 yrs in 2005 vs 39.99 yrs in 2015 (P value 0.013). Whereas a study in Ethiopia by Taye and coll.<sup>8</sup> in 2004 found that the mean age of the patients with GI disorders requiring endoscopy was 36 years, recent studies<sup>9</sup> (2015) have found a mean age of patients needing endoscopy to be 39.7 years, which is congruent to what this study found in the same time periods. Furthermore, there was a tendency for patients with upper GI disorder requiring endoscopy to be older in 2015 compared to 2005 (P value 0.009). This perhaps relates to the decreasing mortality rate as well as the improving life expectancy in our community. According to the World Bank, life expectancy improved in northern Uganda from 47.9 to 53.6 yrs between 1990 to 2014 and mortality reduced from 526.0 to 400.0 in the same time period<sup>10</sup>. Furthermore, the return of peace in our society led to re-opening of many health facilities hence improving access and patients only came for endoscopy after several symptomatic and empirical treatment.

The prevalence of PUD significantly reduced from 9.6% to 2.9% in 10 years (2005 to 2015) [Odds ratio = 4.69 (95% CI), Chi-square 48.78 and P value 0.0000]. This finding is congruent with a meta-analysis report of global literature, which showed that the incidence and prevalence of PUD have decreased over time in recent decades<sup>2</sup>. In Finland, a study found the introduction of modern anti-secretory drugs, histamine<sub>2</sub>-receptor antagonists and proton-pump inhibitors as well as eradication therapy of *Helicobacter pylori*, to have led to reduced incidence of surgery, hospital admissions and mortality for PUD by 89% within 10yrs (1987-1997)<sup>7</sup> Furthermore in the USA, hospitalization for PUD significantly reduced from 71.1/100,000 population (95% confidence interval [CI] 68.9–73.4) to 56.5/100,000 (95% CI 54.6–58.3) between 1998 to 2005<sup>11</sup>. Similarly, Sweden also reported a significant reduction in PUD, the causes of which includes change in smoking habits, Non Steroidal Anti-inflammatory Drugs [NSAID] consumption, reducing prevalence of *Helicobacter pylori* and the introduction of PPI<sup>12</sup>. The reduced incidence and prevalence of PUD has implication for clinicians and their prescription of anti-ulcer medication.

The rate of gastritis has however increased in our community two and a half folds in the last 10 years from 18.4% in 2005 to 48.2% in 2015 (Odds ratio 3.57, Relative risk 2.08, Chi-square 130.95, P value < 0.001). In 2006, Okello<sup>5</sup> in 2006 also found a low gastritis rate of 12.6% and in a recent study (2016), Okello et al<sup>9</sup> found a gastritis rate of 47.9% and it was the commonest condition affecting gastrointestinal patients. Japan also reported an increase in gastritis rate from 9.4% to over 70% and this was strongly associated with *Helicobacter pylori* infection<sup>13</sup>. Whereas Okello et al in 2016<sup>9</sup> found *Helicobacter pylori* infection rate of 53% in patients with gastritis, Gherasim and Dranga<sup>14</sup> attributed high rate of gastritis in their study to chronic alcohol consumption in Romania. In India, by 2013, a study reported that acute or chronic gastritis are caused by risk factors such as smoking, alcohol consumption, tobacco use, spicy food, drugs, stress, swallowed foreign bodies and bacterial infection, mainly *Helicobacter pylori*<sup>15</sup>. Cigarette smoking, poor sanitation, and lack of formal education are known significant predisposing factors to *Helicobacter pylori* infection<sup>16</sup>. Furthermore, gastritis itself impedes and make it more difficult to eradicate the bacteria, and the difficulty increases with the severity of

*Helicobacter pylori*<sup>17</sup> Our community in the north of Uganda has remained underdeveloped, with poverty level of 43.3% compared to the national average of 19.7%<sup>18</sup>. A combination or all these factors are perhaps increasing the rate of gastritis in our community.

Cancer of the esophagus has exhibited an increase in its prevalence between 2005 and 2015, from 3.2% to 5.1%. Other researchers working independently also found an accelerated

increase in the incidence and prevalence of esophageal cancer in USA and Norway, respectively<sup>19, 20</sup>. Our community which has high rates of poverty, poor nutrition and consumes concentrated crude spirits, could one time become a hub of esophageal cancer. However, within the same time period, other upper GI disorders like duodenitis, esophageal varices have demonstrated a downward trend, while esophagitis has remained stable. It is not yet clear whether the wide spread use of PPI currently available Over The Counter (OTC), as well as better ultrasonic diagnosis of portal hypertension and treatment, together with the renewed campaign against Hepatitis B infection in our environment is contributing to these reduction.

### Conclusions:

In the last 10 years (2005 to 2015), PUD prevalence has significantly decreased in our community from 9.6 to 2.9% as well as duodenitis, deformed duodenal bulb, and esophageal varices. However, within the same period, gastritis and cancer of the esophagus rates have increased in our environment from 18.4% to 48.2% and 3.2% to 5.1%, respectively.

### Recommendation

Clinician practicing in our setting should focus on treating gastritis and eradication of *Helicobacter pylori* in patients with upper GI symptoms. Nonetheless, an in-depth study in patients with gastritis should be considered.

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