

## Original Article

### Pattern of Endoscopic Findings of Upper Gastrointestinal Tract in Omdurman Teaching Hospital, Sudan

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#### ABSTRACT

**Background:** The pattern of endoscopic findings of upper gastrointestinal tract (UGT) including gastro esophageal reflux (GERD), peptic ulcer diseases (PU), and upper gastrointestinal malignancies was not studied recently in Sudan.

**Objectives:** The aim of this study is to know the pattern of endoscopic findings of upper gastrointestinal tract.

**Materials and Methods:** This is a cross-sectional descriptive study which was conducted during the period from March to September 2013, at endoscopy unit in Omdurman Teaching Hospital. All patients referred for upper gastrointestinal endoscopy were included in the study.

**Results:** A total of 390 subjects was enrolled in the study. 56.4% were females; the male to female ratio was 1.3:1, their ages ranged from 11 to 80 years old with a mean age of 50.2 years. The most common endoscopic findings in the study group was Gastritis 54.9% followed by esophagitis 42%, peptic ulcer diseases 21%, esophageal varices 13.8% and upper gastrointestinal tumors (esophageal and gastric) 13.2%. Normal findings were found in 3% of all patients in the study group.

**Conclusion:** Upper gastrointestinal disorders are more common in Sudan compared to other countries. Esophageal varices and upper gastrointestinal malignancies are increasing compared to previous studies. Further studies are required to characterize abnormalities of upper gastrointestinal tract.

**Key words:** Upper gastro-intestinal endoscopy, Gastritis, Esophagitis, Peptic ulcer, Sudan.

Upper gastrointestinal (UGI) endoscopy, a valuable tool in the diagnosis and management of diseases affecting the esophagus, stomach and upper parts of the duodenum<sup>1</sup>. In addition to direct inspection, endoscopies can be used for taking biopsies from suspicious lesions and doing certain therapeutic interventions such as sclerotherapy, banding, stricture stretching, gastrostomy and polypectomy<sup>2</sup>. Major diseases diagnosed with UGI endoscopy include gastro esophageal reflux disease (GERD), esophageal varices, peptic ulcer (gastric and duodenal) and upper GI malignancies. Gastro esophageal reflux disease (GERD) is a chronic disorder of the upper gastrointestinal tract with global distribution. Its prevalence has significantly

increased in most countries over the past two decades<sup>3</sup>. GERD results from excessive reflux of gastric contents into the esophagus that is normally prevented at the gastro esophageal junction. Major symptoms are heartburn and regurgitation. GERD is best diagnosed with esophageal pH monitoring; however, endoscopy is recommended for those who fail to respond to medical treatment, those who complain from alarm symptoms (e.g. anemia, dysphagia, and weight loss or voice changes) and those with long-standing GERD to evaluate the presence of metaplasia or Barrett's esophagus<sup>4</sup>.

Esophageal varices are common in Sudan<sup>5</sup>; they are extremely dilated veins in the lower third of the esophagus that develop as a consequence of portal hypertension. In the Sudan, the commonest cause of portal hypertension is schistosomal periportal fibrosis<sup>5</sup>. Other causes include liver cirrhosis, portal vein thrombosis and congenital hepatic fibrosis<sup>5</sup>. In patients with esophageal varices,

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UGI endoscopies are required to confirm the diagnosis and to prevent bleeding with direct measures like sclerotherapy and banding<sup>5</sup>.

Peptic ulcers are defects in the gastric or duodenal mucosa that extend through the muscularis mucosal layer. Upper GI endoscopy is recommended for evaluation of patients with suspected peptic ulcer disease because it provides an opportunity to visualize the ulcer directly, to determine the presence of active bleeding and to take biopsies. Endoscopy facilitates performance of rapid urease test which is one of the preferred investigations for the presence of *Helicobacter pylori* infection<sup>6</sup>. Infection with *H pylori* is responsible for over 95% of duodenal ulcers and most gastric ulcers. Their eradication is necessary for long term cure<sup>7</sup>. UGI endoscopy is more accurate than radiological investigations in diagnosis of UGI tumors, and it offers the opportunity for early detection of these tumors in suspected patients. It is recommended for cancer screening in old patients who complain of unexplained and persistent recent-onset dyspepsia<sup>8</sup>. Other possible indications include dyspepsia with chronic GI bleeding, progressive dysphagia, progressive weight loss, persistent vomiting, iron deficiency anemia, epigastric mass and suspicious barium meal results<sup>8</sup>. Detection of UGI tumors early is associated with improved survival and the possibility of complete endoscopic resection.

Facilities for upper GI endoscopy are not available in rural areas and small hospitals in Sudan; that is why patients are referred from those areas to large centers in Omdurman and Khartoum to do the procedure. There is a paucity of data regarding current pattern of endoscopic UGI lesions in Sudan. Information about frequency of these lesions is essential because it is needed to guide official programs for their control and prevention. The aim of this study was to determine current pattern of endoscopic findings in patients with UGI diseases.

#### **MATERIALS AND METHODS:**

A cross sectional descriptive prospective study was conducted in Omdurman Teaching

Hospital/ Sudan. All patients referred for upper GI endoscopy during the period from March to September 2013 were included in the study. Each patient was clinically evaluated and investigated before the procedure. All tests were carried out in the endoscopy room using "a fibre optic gastro-duodenoscopy Olympus, UK" and following standard techniques of instrument sterilization, patient premedication, positioning and follow up after the procedure. Areas examined were the esophagus, stomach and upper parts of the duodenum. Mucosal biopsies and therapeutic interventions were performed when necessary. The study was approved by the hospital director and head of the endoscopy unit. All patients agreed to include their endoscopy findings in the analysis.

#### **RESULTS:**

A total of 390 patients were studied. Less than half of them (43.6%) were males, and 56.4% were females (table 1). Their ages ranged from 11 to 80 years old with a mean of 50.2 years; their occupations were as follows: 196 (50.3%) were housewives, 146 (37.4%) were laborers, 34(8.7%) were students, and 14 (3.6%) were employees. 190 (48.7%) of patients were from Khartoum, 84 (21.6%) from Western Sudan, 80 (20.5%) were from Gezira and 36 (9.2%) of them from North of Sudan (Table 1).

Table 1: Patients' characteristics in the study group

Characteristic	N (%)
Gender	
Male	170(43.6%)
Female	220(56.4%)
Occupation	
Housewife	196 (50.3%)
Laborer	146 (37.4%)
Student	34 (8.7%)
Employee	14 (3.6%)
Residence	
Khartoum	190 (48.7%)
Western Sudan	84 (21.6%)
Gezira	80 (20.5%)
Northern Sudan	36 (9.2%)

Table 2 shows endoscopic findings in the study group with many patients having multiple diagnoses. Normal findings were found in 3% of all patients in the study group. Gastritis was found in 54.9%, esophagitis in 42%, peptic ulcer disease in 21%, esophageal varices in 13.8% and upper GI tumors (gastric or esophageal) in 13.3%.

Table 2: Endoscopic Upper gastrointestinal (UGI) findings

UGI findings	N (%)
Normal	12 (3%)
Esophagitis	164 (42%)
Esophageal varices	54 (13.8%)
Gastritis	214 (54.9%)
Peptic Ulcer disease	82 (21%)
Upper GI malignancy	52 (13.3%)

#### DISCUSSION:

Upper gastrointestinal diseases are leading causes of morbidity and mortality worldwide. They affect patients' quality of life, cause a significant reduction in work productivity and increased economic burden<sup>9, 10</sup>. In rural areas of Sudan, where endoscopy facilities are not available; physicians rely only on clinical parameters for evaluation of patients suspected of UGI lesions, this in turn might be misleading, can result in wrong diagnosis and, therefore, ineffective management with prolongation of patient's sufferings<sup>11</sup> and possible deterioration of his health. Ineffective management also results in increased financial burden, consumption of health system resources and even death of the patient. For this reason, UGI endoscopy is commonly needed when an organic lesion in the UGI tract is suspected<sup>8</sup>. It is safe, cost-effective and easy procedure. Since its introduction, relevant information about prevalence of UGI diseases has been collected and regularly updated from various countries<sup>11-14</sup>. Three decades ago, Fedail and colleagues described their experience with UGI endoscopy in Soba University Hospital in Khartoum state of Sudan<sup>15</sup>. They reported peptic ulcer disease in 17.7%, esophageal

varices in 9% and pyloric obstruction in 2% of their patients. In this study, 21% of our patients had peptic ulcer disease, 13.8% had esophageal varices, and 13.3% had upper GI tumors. Our findings showed a definite change in frequency of endoscopic UGI lesions with increased prevalence of all these lesions compared to three decades ago. Similar change in prevalence of UGI diseases over time was reported in nearby countries<sup>14</sup>. This could be attributed to changes in lifestyle and diet. Obesity, smoking and other environmental factors might also be responsible. The finding that the prevalence of esophageal varices has increased compared to what had been reported three decades ago is disappointing, it draws questions about efficiency of the Sudanese prevention programs against schistosomiasis, which is the commonest underlying cause of esophageal varices in Sudan<sup>5</sup>. Further studies are needed to investigate other causes of esophageal varices in Sudan. Compared to nearby countries<sup>11-14</sup>, gastritis, esophagitis, esophageal varices, but not peptic ulcer disease, were more prevalent in our country. A rising prevalence of UGI malignancy was also reported in other studies<sup>14</sup>. However, it is worth noting that prevalence of gastrointestinal diseases, including peptic ulcer and reflux esophagitis, may have seasonal variation<sup>16</sup>. On the other hand, normal endoscopy was found in very low percentage of our patients compared to what was reported in other studies. These patients might be suffering from functional dyspepsia rather than structural UGI abnormalities. The low percentage of normal subjects in our sample indicates that highly selected patients, with clear indications, were referred for endoscopy.

#### CONCLUSION:

Our findings showed a high prevalence of UGI lesions in our country compared to nearby countries and increasing prevalence of UGI malignancies compared to three decades ago. Although the sample size of our study is relatively small, our findings indicate the importance of endoscopy in early detection of

UGI malignancy, proper diagnosis of UGI lesions and therapeutic interventions. Further studies are needed to characterize epidemiology and risk factors of these lesions.

#### REFERENCES:

1. Review Scope and consequences of peptic ulcer disease. How important is asymptomatic *Helicobacter pylori* infection? Graham DY, Rakel RE, Fendrick AM, Go MF, Marshall BJ, Peura DA, Scherger J. *Postgrad Med*. 1999 Mar; 105(3):100-2, 105-8, 110.
2. Peter B. Cotton and Christopher B. Williams *Practical Gastrointestinal Endoscopy the Fundamentals* Fifth edition 2003 by Blackwell Publishing.
3. El-Serag HB. Review Time trends of gastroesophageal reflux disease: a systematic review. *ClinGastroenterolHepatol*. 2007; 5(1):17-26.
4. American Society for Gastrointestinal endoscopy. The role of endoscopy in the surveillance of premalignant conditions of upper gastrointestinal tract *Gastroentist Endos* 1998; 48; 663-8.
5. Gasim B, Fedail SS, Musaad AM, Salih SM, Ibn-Ouf M. Endoscopic sclerotherapy for bleeding oesophageal varices: experience in Sudan. *Trop Gastroenterol* 2002; 23(2):107-9.
6. Gholi MK, Shamsipour F, Ajhdarkosh H, Daryani NE, Pourmand MR, Hosseini M, Ghasemi A, Shirazi MH. Comparison of five diagnostic methods for *Helicobacter pylori*. *Iranian Journal of Microbiology* 2013; 5(4):396-401.
7. *Helicobacter pylori*: causal agent in peptic ulcer disease? Working Party Report to the World Congresses of Gastroenterology, Sydney 1990. *J GastroenterolHepatol* 1991; 6:103-40.
8. National Institute of Health and Clinical Excellence. Upper GI endoscopy service commissioning guide: Implementing NICE guidance 2007.
9. Kaji M, Fujiwara Y, Shiba M, et al. Prevalence of overlaps between GERD, FD and IBS and impact on health-related quality of life. *Journal of Gastroenterology and Hepatology* 2010; 25(6):1151-1156.
10. Barkun A, Leontiadis G. Systematic Review of the Symptom Burden, Quality of Life Impairment and Costs Associated with Peptic Ulcer Disease. *The American Journal of Medicine* 2010; 123(4): 358-366.
11. Agbakwuru EA, Fatusi AO, Ndububa DA, Alatise OI, Arigbabu OA, Akinola DO. Pattern and validity of clinical diagnosis of upper gastrointestinal diseases in south-west Nigeria. *Afr Health Sci*. 2006; 6(2): 98-103.
12. Al-Humayed SM, Mohamed-Elbagir AK, Al-Wabel AA, Argobi YA. The Changing Pattern of Upper Gastro-Intestinal Lesions in Southern Saudi Arabia: An Endoscopic Study. *Saudi J Gastroenterol* 2010; 16(1):35-37.
13. Alquorain A, Satti MB, Alhamdan A, Alghassab G, Alfreihi H, Algindan Y. Pattern of upper gastrointestinal disease in the eastern province of Saudi Arabia: Endoscopic evaluation of 2,982 patients. *Trop Geogr Med* 1991; 43(1-2):203-8.
14. Lodenyo H, Rana F, Mutuma GZ, Kabanga JM, Kuria JK, Okoth FA. Patterns of upper gastrointestinal diseases based on endoscopy in the period 1998-2001. University of Nairobi Digital Repository 2005.
15. Fedail SS, Homeida MM, Araba BM, Ghandour ZM. Upper gastrointestinal fiberoptic endoscopy experience in the Sudan. *The Lancet* 1983; 322(8355):897- 899.
16. Fares A. Global patterns of seasonal variation in gastrointestinal diseases. *JPGM* 2013; 59(3):203-207.