Yemeni Journal of Medical and Health Research

Upper Gastrointestinal Endoscopy Findings at Al-Gamhoria Teaching Hospital, Aden, Yemen

Yasser A. Bashin, Abdulhakim O. Al-Tamimi, Mahmood T. Makki

Abstract

Introduction: Endoscopy holds an important place in the diagnosis and treatment of upper gastrointestinal (UGI) conditions. This study aimed to describe the characteristics, indications and findings of UGI endoscopy at Al-Gamhoria Teaching Hospital.

Methods: A retrospective, descriptive, hospital-based study was conducted during a period of 15 months (January 2014 to March 2015) in the GI endoscopy unit at Al-Gamhoria Teaching Hospital. Records of all patients who underwent UGI endoscopy were reviewed and information pertinent to the objectives were extracted using a data collection form. For statistical data entry and analysis, Statistical Package for Social Science (SPSS, 20) was used.

Result: A total of 259 patients (132 males and 127 females) with a mean age 43.9 ± 17.8 years (ranged 13-89 years), were endoscoped. Gastroenterologists performed 95.8% of the endoscopies, the remaining was done by general surgeons, and all procedures were diagnostic. Epigastric pain (57.1%), gastroesophageal reflux disease symptoms (33.7%), persistent vomiting (18.9%) and UGI bleeding (14.9%) were the commonest indications for endoscopy. Gastritis or duodenitis (39%), hiatus hernia (22.4%), esophagitis (20.5%) and varices (9.3%) were the commonest endoscopic findings. Normal endoscopy was reported in 23.6% patients. There were eleven patients with UGI cancer (4.2%), nine of them were gastric cancer.

Conclusion: Despite the challenges of poor equipment and training in a resource poor setting, endoscopy can be performed competently with good outcomes.

Keywords: Gastrointestinal Tract, Endoscopy, Indications, Diagnosis, Aden.

General Surgery Department, Faculty of Medicine and Health Sciences, University of Aden, Republic of Yemen.
Corresponding Author: Dr. Yasser Ahmed Bashin **Email:** yasserbashin@hotmail.com

نتائج تنظير الجهاز الهضمي العلوي في مستشفى الجمهورية التعليمي، عدن، اليمن

ياسر أحمد باعشن، عبدالحكيم عمر التميمي، محمود طه مكي

ملخص الدراسة

المقدمة: يحتل التنظير مكانًا مهمًا في تشخيص وعلاج أمراض الجهاز الهضمي العلوي. هدفت هذه الدراسة إلى وصف خصائص ودواعي ونتائج التنظير الهضمي العلوي في مستشفى الجمهورية التعليمي.

المنهجية: أجريت دراسة استعادية وصفية في المستشفى خلال فترة 15 شهرًا، من يناير 2014 إلى مارس 2015، في وحدة تنظير الجهاز الهضمي في مستشفى الجمهورية التعليمي. تمت مراجعة سجلات جميع المرضى الذين خضعوا للتنظير الهضمي العلوي واستخرجت المعلومات ذات الصلة بالأهداف باستخدام نموذج جمع البيانات. لإدخال البيانات الإحصائية والتحليل تم استخدام الحزمة الإحصائية للعلوم الاجتماعية (SPSS, 20).

النتائج: تم تنظير 259 مريضا، 132 ذكور و127 إناث مع متوسط عمر 43.9 ± 17.8 سنة (المدى 13-89 سنة). أجرى أطباء أمراض الجهاز الهضمي 95.8% من المناظير، والباقي قام بإجرائة أطباء جراحة عامة، وكانت جميع الحالات تشخيصية. كانت آلام الشرسوف (57.1%)، وأعراض مرض الارتداد المعدي المريئي (33.7%)، والتقيؤ المستمر (18.9%) ونزيف الجهاز الهضمي العلوي (14.9%) أكثر الدواعي شيوعا للتنظير. وكانت التهابات المعدة أو الاثني عشر (39%)، وفتق الحجاب الحاجز (22.4%)، والتهاب المريء (20.5%) والدوالي (9.3%) أكثر النتائج شيوعا بالمنظار. نتيجة المنظار كانت طبيعية في 23.6% من المرضى. كان هناك أحد عشر مريضا يعانون من سرطان الجهاز الهضمي العلوي (4.2%)، تسعة منهم سرطان المعدة.

الاستنتاج: على الرغم من التحديات المتمثلة في ضعف المعدات والتدريب في بيئة ضعيفة الموارد، يمكن إجراء التنظير بكفاءة مع نتائج جيدة.

الكلمات المفتاحية: القناة الهضمية، التنظير، الدواعي، التشخيص، عدن.

قسم الجراحة العامة، كلية الطب والعلوم الصحية، جامعة عدن، الجمهورية اليمنية.

Introduction

Upper gastrointestinal (UGI) diseases are leading causes of morbidity and mortality globally. Peptic ulcer disease (PUD), gastroesophageal reflux disease and cancers are leading UGI conditions and affect millions of people worldwide [1-3]. Endoscopy holds an important place in the diagnosis and treatment of UGI conditions [4,5]. It enables good visualization, photography, ultrasonography, biopsies of suspicious lesions as well as histology, culture and urease test in Helicobacter pylori infection. Upper gastrointestinal endoscopy (UGIE) also effectively facilitates the performance of certain therapeutic procedures such as variceal banding and sclerotherapy, polypectomy, and gastrostomy [6,7]. The main limitations of the procedure are its invasiveness, discomfort and a slight risk of morbidity and even mortality. These problems have largely been overcomed by the introduction of better equipment and good endoscopy practice [8,9].

Gastrointestinal endoscopy was traditionally performed by gastroenterologists and is currently being carried out by different specialists. These include gastroenterologists, surgeons and family physicians [10-12]. The quality of endoscopic procedure performed is important irrespective of who performs it because of the implications on the diagnosis of gastrointestinal pathology and their treatment. Different standards for endoscopy have already been proposed and adopted in different parts of the world [13,14]. In a developing country, an audit revealed standards that were below international standards. This audit also revealed delays in provision of endoscopic services, lack of endoscopic equipment, inadequate scope maintenance and disinfection as well as shortage of trained staff [15]. This is the likely situation in our hospital.

Since its introduction into Al-Gamhoria Teaching Hospital, UGIE has been largely left unresearched and not developed (only for diagnostic purposes). The objective of this study is to describe the personal characteristics, the indications for endoscopy and endoscopic findings in patients undergoing UGIE at Al-Gamhoria Teaching Hospital over a 15-months period.

Methods

This is a retrospective, descriptive, hospital-based study, conducted during a period of 15 months, from 1 January 2014 to 25 March 2015, in the gastrointestinal endoscopy unite at Al-Gamhoria Teaching Hospital, Aden, Yemen. The unit receives patients from outpatients' clinics and from the medical and surgical departments of the hospital as well as direct referrals from other health facilities in Aden and neighboring governorates.

Records of all patients who underwent UGIE during the study period were reviewed. Information pertinent to the objective of the study, including patients' characteristics, indications for endoscopy and endoscopic findings were extracted using a questionnaire. Some endoscopists did not routinely report

the indication for endoscopy (clinical presentations) and place of residence of the patients leaving some records with missed data. During analysis, the frequencies of these variables were calculated from the total number of patients with complete data excluding those with missed information.

Endoscopic evaluation of patients was performed using Pentax fiber optic gastro-duodenoscope and following standard procedures [5]. All the endoscopic procedures were diagnostic. To facilitate easier passage of the endoscope tube, anesthesia was done by local throat/oropharyngeal Xylocaine spray. All anatomic regions of the esophagus, stomach, first and second parts of the duodenum were examined and endoscopic findings noted. Biopsies for histopathological diagnoses were taken from suspected malignant lesions in the stomach and esophagus. Biopsies were also taken for histopathological diagnoses and urease test for the detection of *H.pylori* in all patients with peptic ulcers, gastritis and duodenitis. Upper gastro-intestinal endoscopies were considered complete if the second part of duodenum was reached. Most of the patients had UGIE as an elective, outpatient procedure. The endoscopy team during the period of study consisted of three gastroenterologists and two general surgeons.

Descriptive data analysis was performed using the Statistical Package for Social Science (SPSS) for Windows version 20. Qualitative variables were expressed as frequencies and quantitative variables (normally distributed) as means ± standard deviation (SD).

Ethical approval for this research was obtained from the Research and Ethics Committee of the Faculty of Medicine and Health Sciences, University of Aden. All records were confidentially handled and patients' names were coded into numbers to mask their identity.

Results

A total of 259 patients underwent UGIE during the fifteen-months' study period (January 2014 to March 2015). Of all the UGIE, 95.8% were performed by gastroenterologists (the remaining by general surgeons) and 86.5% were complete (the second part of duodenum was reached).

The mean age of the patients was 43.9±17.8 years (ranged 13-89 years). While patients' age ranged from childhood to old age, those in the third and sixth decades constituted the largest percentages (21.8% and 18.3%, respectively), followed by those in the fourth and fifth decades (14.3% and 15.5%, respectively). There were 51% males and 49% females. Most of patients came from Aden governorate (57.4%) followed by those from neighboring governorates of Lahej and Abyan (18.1% and 10.8%, respectively). The characteristics of the endoscopy patients are shown in Table 1.

The most common indication for UGIE was epigastric pain (57.1%). Other common indications were gastroesophageal reflux disease symptoms (33.7%), vomiting (18.9%) and upper GI bleeding (14.9%). Other indications are dislpayed in Table 2.

Table 1: Personal Characteristics of Endoscopy Patients

Characteristics	No.	%*
Sex (n=259)		
Male	132	51
Female	127	49
Age (n=252)**		
10-19	16	6.3
20-29	55	21.8
30-39	36	14.3
40-49	39	15.5
50-59	46	18.3
60-69	33	13.1
70-79	16	6.3
80-89	11	4.4
< 50	146	57.9
≥ 50	106	42.1
Range [Mean ± SD 13-89 [43.9 ± 17.8]		
Place of residence (n=249)**		
Aden	143	57.4
Lahej	45	18.1
Abyan	27	10.8
Al-Dala'a	11	4.4
Taiz	11	4.4
Shabwah	2	0.8
Others	10	4.0

**Percentages are calculated from the total number of related characteristics. **Patients with missed data were excluded.*

Table 2: Indications for UGIE (n=175)

Indications	No.	%*
Epigastric pain	100	57.1
Reflux related symptoms	59	33.7
Vomiting	33	18.9
Upper gastrointestinal bleeding	26	14.9
Dyspepsia	18	10.3
Nausea	17	9.7
Anemia	9	5.1
Weight loss	7	4.0
Portal hypertension	7	4.0
Anorexia	6	3.4
Dysphagia	5	2.9
Abnormal radiology	4	2.3
Others	9	5.1

**All percentages are calculated from the total number of patients who had their indications for endoscopy recorded (175). Patients with missed data were excluded.*
Percentages cannot be summed to 100% as some patients had more than one indications.

As shown in Table 3, 23.6% of the UGIE were normal. Gastritis or duodenitis was the commonest finding (39%) followed by hiatus hernia (22.4%), esophagitis (20.5%), varices (9.3%) and peptic ulcer (6.9%). There were 11 cases of upper GI cancer (4.2%).

Table 3: Findings of UGIE (n=259)

Endoscopic findings	No.	%*
Gastritis/duodenitis	101	39.0
Normal endoscopy	61	23.6
Hiatus hernia	58	22.4
Esophagitis	53	20.5
Varices	24	9.3
Peptic ulcer	18	6.9
Gastric or esophageal cancer	11	4.2
Stenosis/obstruction	11	4.2
Gastric polyp	1	0.4
Others	10	3.9

**Percentages cannot be summed to 100% as some patients had more than one finding.*

Table 4 shows the characteristics of some of endoscopic findings. Of the 101 patients with gastritis/duodenitis, 74.2% had gastritis. Most of the hiatus hernias (78.3%) were small in size and most of the peptic ulcers were duodenal ulcers (77.8%). Among the 11 patients with upper GI cancer, gastric cancer was the commonest type (81.8%). Stenosis/obstruction of the upper GI tract was found in 11 patients. The common sites of stenosis were the esophagus and duodenum (36.4% for both) and the stenosis was severe and could not passed through it in 27.3% of patients.

Table 4: Characteristics of Some Endoscopic Findings

Endoscopic findings	No.	%*
Gastritis/duodenitis (n=101)		
Gastritis	75	74.2
Duodenitis	12	11.9
Both	14	13.9
Hiatus hernia (n=46)**		
Small	36	78.3
Medium/Large	10	21.7
Varices (n=23)**		
Grade I/II	12	52.2
Grade III/IV	11	47.8
Peptic ulcer (n=18)		
Gastric	4	22.2
Duodenal	14	77.8
Cancer (n=11)		
Esophageal	2	18.2
Gastric	9	81.8
Stenosis site (n=11)		
Esophageal	4	36.4
Gastric	3	27.2
Duodenal	4	36.4
Stenosis degree (n=11)		
Can pass through	8	72.7
Cannot pass through	3	27.3

**Percentages are calculated from the total number of related finding. **Patients who had their characteristics of endoscopic finding not recorded were excluded.*

Discussion

This study shows that UGIE can be performed with a reasonable degree of competence even in a resource-limited environment like ours. While there are a number of published literatures on the quality of endoscopy in the developed world [16,17], the same cannot be said for the developing world [15]. The American Society for Gastrointestinal Endoscopy/ American College of Gastroenterology (ASGE/ACG) Taskforce on Quality in Endoscopy has identified a number of quality assurance parameters for upper GI endoscopy. For example, it stated that apart from carrying out a complete examination with retroflexion in the stomach, one of the basic characteristics of quality UGIE is completion of therapeutic procedures like those for upper GI bleeding [18]. While a lot is known about factors which affect the quality of endoscopy in developed countries, for developing countries this is less clear. Major issues are the lack of equipment, manpower, and the high cost of procurement and maintenance of equipment [19,20]. In the present study, complete examination is achieved in 86.5% of cases. The second part of duodenum was not reached in 13.5% of cases and the most expected cause for this (stenosis/obstruction of the upper GI tract) was found only in 11 patients (4.2%). More endoscopy training and experience are needed to increase the rate of complete examination.

The most common indication for UGIE were epigastric pain (57.1%). This is comparable to the results of Kolber *et al* in Canada 2009 [17] and Aduful *et al* in Ghana 2007 [7]. Reflux related symptoms, the second common indication at 33.7% was similar to that reported by Kolber *et al* [17], but in another two studies it was less frequent, preceded by upper GI bleeding and vomiting [6,7].

The endoscopic findings of Gastritis/duodenitis (39%) and normal endoscopy (23.6%) as the most common findings were comparable to other reports by Kolber *et al* in Canada 2009 [17] and Ismaila *et al* in Nigeria 2012 [21].

The percentage of normal endoscopy in the current study (23.6%) was similar to 24.1% by Kolber *et al* [17] but more frequent than 15.6% reported by Ismaila *et al* [21]. The normal endoscopy rate needs to be

reduced by careful history taking and examination, especially in young patients. This may reduce the number of patients requiring endoscopy and help prolong the lives of the endoscopies.

There is a rising demand for endoscopy in Yemen, because of its diagnostic and therapeutic applications. More endoscopists will be required to provide quality endoscopic procedures in the country as current numbers of gastroenterologists are inadequate. To meet this demand, endoscopic procedures will need to be performed by different specialties among which surgeons, who performed only 4.2% of the endoscopies in the current study. A number of endoscopic findings require surgical management and this helps to simplify the process of treatment in our environment.

This study had some limitations. The interruptions of the study as a result of breakdown and unavailability of equipment have contributed to a small sample size during the study period. In addition; the therapeutic upper GI procedures, a basic assessment of quality, were not performed because of lack of required accessory equipment.

Conclusion

The endoscopic findings of UGIE which were carried out at Al-Gamhoria Teaching Hospital are comparable to those reported by many other studies in the literature. This implies that despite the challenges of poor equipment and training in a resource poor setting, endoscopy can be performed competently with good outcomes. However, more local studies of endoscopic procedures across specialties are required to verify more accurately the quality of endoscopy.

References

1. Lau JY, Sung J, Hill C, Henderson C, Howden CW, Metz DC. Systematic review of the epidemiology of complicated peptic ulcer disease: incidence, recurrence, risk factors and mortality. Digestion 2011; 84(2):102-13.
2. Bello IS, Arogundade FA, Sanusi AA, Adesunkanmi AR, Ndububa DA. Gastro-oesophageal reflux disease: a review of clinical features, investigations and recent trends in management. Nigerian J Medicine 2004; 13:220-6.
3. Hendricks D, Parker MI. Oesophageal cancer in Africa. IUBMB Life 2002; 53:263-8.
4. Tytgat GNJ. Role of endoscopy and biopsy in the work up of dyspepsia. Gut 2000;50(4):13-6.
5. Adam HA, Jonathan CO, Brian SA, Peter CO, Christopher WI. Cotton and Williams' Practical Gastrointestinal Endoscopy, The Fundamentals. 7th Edition. Indianapolis: J Wiley, 2014.
6. 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.
7. Aduful HK, Naaeder SB, Darko R, Baako BN, Clegg-Lamptey JNA, Nkrumah KN, *et al*. Upper gastrointestinal endoscopy at the Korle Bu Teaching Hospital

Accra, Ghana. Ghana Med J 2007;41(1):12-6.
8. Kwan V. Advances in gastrointestinal endoscopy. Intern Med J 2012;42(2):116-26.
9. Sivak MV. Gastrointestinal endoscopy: past and future. Gut 2006;55(8):1061-4.
10. Wells CW. The characteristics of an excellent endoscopy trainer. Frontline Gastroenterology 2010; 1:13-8.
11. Williams J, Russell I, Durai D, Cheung WY, Farrin A, Bloor K, *et al*. Effectiveness of nurse delivered endoscopy: findings from randomised multi-institution nurse endoscopy trial (MINuET). BMJ 2009;338: 231.
12. Hilsden RJ, Tepper J, Moayyedi P, Rabeneck L. Who provides gastrointestinal endoscopy in Canada? Can J Gastroenterol 2007;21(12):843-6.
13. American Society for Gastrointestinal Endoscopy. Appropriate use of gastrointestinal endoscopy. Gastrointest Endosc 2000;52(6):831-7.
14. Rex DK, Petrini JL, Baron TH, Chak A, Cohen J, Deal SE, *et al*. (ASGE/ACG Taskforce on Quality in Endoscopy) Quality indicators for endoscopy. Gastrointest Endosc 2006; 6 (4): 16-28.
15. Watermeyer G, Van Wyk ME, Goldberg BA. Audit of provincial gastroenterology services in the Western Cape. S Afr J Surg 2008;46(3):68-72.
16. Tran Cao HS, Cosman BC, Devaraj B, Ramamoorthy S, Savides T, Krinsky ML, *et al*. Performance measures of surgeon-performed colonoscopy in a Veterans Affairs medical center. Surg Endosc 2009;23(10): 2364-8.
17. Kolber M, Szafran O, Suwal J, Diaz M. Outcomes of 1949 endoscopic procedures performed by a Canadian rural family physician. Can Fam Physician 2009;55(2):170-5.
18. Cohen J, Safdi MA, Deal SE, Baron TH, Chak A, Hoffman B, *et al*. Quality of indicators for esophagogastroduodenoscopy. Gastrointest Endosc 2006; 63(4): 10-5.
19. Olokoba AB, Olokoba LB, Jimoh AAG, Salawu FK, Ehalaiye BF. Challenges of establishing an upper gastrointestinal tract endoscopy unit in a resource-poor setting. Res J Med Sci 2008;2(5): 212-6.
20. Mandeville KL, Krabshius J, Ladep NG, Mulder CJJ, Quigley EMM, Khan SA. Gastroenterology in developing countries issues and advances. World J Gastroenterol 2009; 15(15):2839-54.
21. Ismaila BO, Misauno MA. Gastrointestinal endoscopy in Nigeria-a prospective two-year audit. Pan Afr Med J 2013; 14(22):1865.