

DIAGNOSTIC UPPER GASTROINTESTINAL ENDOSCOPY

DR. KHALID MAHMOOD

Associate Professor of Medicine
PGMI, Lady Reading Hospital
Peshawar

DR. ZIA-U-DIN, MRCP

Senior Registrar (Medicine)
PGMI, Lady Reading Hospital
Peshawar

DR. MOHAMMAD ILYAS SAEEDI, MRCP

Professor of Medicine
PGMI, Lady Reading Hospital
Peshawar

Dr. Hamzullah Khan, MBBS

PGMI, Lady Reading Hospital
Peshawar

Dr. Riaz Mohammad, MBBS

PGMI, Lady Reading Hospital
Peshawar

Dr. Mustafa Kamal, MBBS

PGMI, Lady Reading Hospital
Peshawar

Article Citation:

Mahmood K, Zia-ud-Din, Saeedi MI, Khan H, Mohammad R, Kamal M. Diagnostic upper gastrointestinal endoscopy. Professional Med J Dec 2009; 16(4): 503-509.

ABSTRACT..Objective: To evaluate Oesophagogastroduodenoscopy (OGD) in term of it's indications and endoscopic findings. **Design:** Retrospective, audit. **Place and duration of the study:** Medical "C" unit, Department of Medicine Government Lady Reading Hospital Post Graduate Medical Institute Khyber Medical University Peshawar from July 2002 to June 2007. **Subjects and Methods:** Adult patients who underwent upper gastrointestinal (GI) endoscopies during the last 5 years period were included in the study. The procedure was performed as per the standard protocol with diagnosis based on established criteria. **Results:** A total of 2282 were scoped, 53.3% (n=1216) were female and 46.7% (n=1066) male. The mean age of the study population was 43.75 Standard Deviation (SD) \pm 18.00. Dyspepsia (54.5%), upper GI bleed (12.3%), recurrent vomiting (11.1%), and dysphagia (7.8%) accounted for the common indications of the procedure. Endoscopy was normal in 16.4% (n=374) of patients. Amongst the others (n=1908) single endoscopic diagnosis was made in 91% of the patients and in the remaining 9% of patients combination of lesions were seen. The endoscopic findings included gastritis and duodenitis alone or in combination (29.4%), oesophagitis (13.9 %), duodenal ulcer (6.6%), gastric ulcer (7.4%), oesophageal varices (3.7%) and growth oesophagus (2.9 %). Gastric ulcer was more common than duodenal ulcer. **Conclusion:** Upper GI endoscopy is safe and an excellent diagnostic modality with high diagnostic yield. Dyspepsia, upper GI bleed, recurrent vomiting and dysphagia are the commonest indication for OGD. Gastro-duodenitis, oesophagitis, peptic ulcer disease, oesophageal varices and growth oesophagus are the common endoscopic diagnosis.

Key words: Upper GI endoscopy (OGD).Indications. Endoscopic findings.

INTRODUCTION

Flexible upper GI endoscopy is the dominant modality for the diagnosis of upper gastrointestinal (GI) disease. Since its inception in 1960 it has evolved considerably and is used more and more for the diagnosis and treatment of gastro luminal pathologies. The procedure is becoming increasingly common and is carried out by gastroenterologist, internist and general surgeon¹. The

purpose of endoscopy is to identify the specific etiology of the patient, s symptoms and thereby institute

Article received on: 22/09/2008
Accepted for Publication: 08/08/2009
Received after proof reading: 30/09/2009
Correspondence Address
Dr.Khalid Mahmood
Associate Professor
H No. 18 Sector K-3, St. No. 13 Phase -III,
Hayatasad, Peshawar
khalidm30@hotmail.com

appropriate therapy. Early endoscopy for every dyspeptic patient leads to more normal results and is not cost effective². Normal OGD however is reassuring both for the patient and physician.

Dyspepsia is defined as recurrent pain or discomfort centered in the upper part of abdomen. It is usually associated with early satiety, upper abdominal fullness, eructation, heartburn, nausea and vomiting^{3,4}.

Dyspepsia and heartburn are fairly common in the general population at large. The annual prevalence of recurrent upper abdominal pain or discomfort (dyspepsia) in the United States and other Western countries is approximately 25%⁵. Dysphagia, vomiting and upper GI bleed (haematemesis and or malaena) are the other GI complaints signifying sinister upper gastrointestinal pathology. These along with selected cases of dyspepsia are important indications for OGD⁶.

Our study is primarily an audit of upper GI endoscopy performed in adult patients during the last 5 years. It focuses on the indications, the endoscopic findings and analysis of the various sub groups. The aim is to ascertain the indications of upper GI endoscopy, the pattern of diseases found during the procedure and to compare it with the earlier studies.

MATERIALS AND METHODS

The endoscopy record of the last 5 years for Medical "C" ward Lady Reading Hospital Post Graduate Medical Institute Khyber Medical University Peshawar was analyzed. Upper GI endoscopies were performed in standard way using Olympus video endoscope⁷. Oropharyngeal lignocain anaesthesia was used in majority of patients. In some cases parenteral Diazepam or Midazolam was used for sedation. Endoscopic diagnosis was based on widely accepted criteria⁸.

We generally perform diagnostic upper GI endoscopy due to lack of facilities for interventional OGD. Our unit does OGD twice per week on rotation with the two other medical units. We receive patient from every part of North West Frontier Province (N.W.F.P) and adjoining

Afghanistan. Our study included patients with age ranging between 10 to 80 years. They were either outpatient or inpatients.

All patients who had successful OGD during this period i.e. July 2002 to June 2007 were included in the audit. Endoscopy was incomplete or could not be accomplished in 54 (2.3%) patients. This was due to lack of patient cooperation and/or failure on the part of endoscopist. These patients were excluded from the analysis. Patients who were positive for hepatitis B or C were not scoped in our unit due to logistical problems. They were referred to a nearby gastroenterology unit for OGD. These positive cases were therefore not included in the analysis.

The patient's record including name, age, sex, address, and indications for OGD, procedure performed, and endoscopy findings were documented. Histopathology of the biopsy specimen was retrieved wherever possible. Helicobacter pylori status was available for few cases only.

All these information were entered into a database program, SPSS 10 (Statistical Package for Social Sciences) version 10. The data was subsequently analyzed in frequency and cross-tabulations.

RESULTS

Upper GI endoscopies were performed on total of and 2282 patients. We performed 586 in 2003, 434 OGD in year 2004, 408 in year 2005, 416 in 2006. The rest (438) were performed in the 2nd half of year 2002 and 1st half of year 2007. No patient died during the procedure. One patient had respiratory arrest and was resuscitated promptly. Others had minor problems of choking sensation and abdominal distention during the procedure and throat pain and numbness afterwards. The age of the patients ranged from 10 to 80 years with mean age of 43.75 years, Standard Deviation (SD) +18.00. Female (53.3%) outnumbered male (46.7 %) in the study population. Table I.

Age groups (years)	Male	Female	n and % of Total
11-20	4.9%	8.6%	n=308, 13.5%
21-30	8.6%	7.8%	n=375, 16.4%
31-40	7.8%	9.4%	n=393, 17.2%
41-50	6.6%	11.9%	n=420, 18.4%
51-60	6.6%	10.2%	n=384, 16.8%
61-70	9.8%	4.1%	n=317, 13.9%
71-80	2.5%	1.2%	n=85, 3.7%
Total	n=1066, 46.7%	n=1216, 53.3%	n=2282, 100.0%

Dyspepsia (54.5%) was the commonest indication for endoscopy. Other indications included upper GI bleed presenting as haematemesis or malaena (12.3%), recurrent vomiting (11.1%), and dysphagia (7.8%). Anorexia and weight loss constituted 5% of the patients. The other (Misc.) indications (9.4%) included heartburn and acid regurgitation (5.34%), iron deficiency anaemia, chronic liver disease patients who were B and C negative, patients with chronic diarrhea, foreign body ingestion, intractable hiccup and epigastric mass. See Table II.

	Frequency	Percent
Dyspepsia	1244	54.5
Upper GI bleed	281	12.3
Vomiting	253	11.1
Dysphagia	178	7.8
Anorexia & wt. loss	112	4.9
Miscellaneous.	214	9.4
Total	244	100.0

Endoscopy was normal in 16.4% (n=374) of patients. In the remaining patients 83.6% (n=1908), most patients (n=1736, 91%) a single endoscopic diagnosis was made.

Gastroduodenitis (13.1%), gastritis (11%) oesophagitis (13.9%), gastric ulcer (7.4%) duodenal ulcer (6.6%), hiatus hernia (4.9%), oesophageal varices (3.7%), new growth oesophagus (2.9%), and duodenitis (5.3%) constituted the commonest pathologies. Barrett's oesophagus (1.2%), benign oesophageal stricture (1.2%), and new growth stomach (1.2%) represented small percentage of cases. The other (miscellaneous) findings (2%) on OGD were gastric outlet obstruction (n=8), Mallory Weis tear (n=11), arterio-venous (A-V) malformation (n=6), achalasia (4) duodenal stenosis (n=2), duodenal diverticulae (n=4), duodenal polyps (n=2), worms (n=5), foreign body stomach (n=3).

In 9% of patients (n=172) multiple pathologies i.e. esophagitis, hiatus hernia, gastritis, gastric ulcer, duodenitis and duodenal ulcer in varying combinations were reported.

Dyspepsia upper GI bleed, recurrent vomiting and dysphagia were the four commonest indications for OGD and were analysed separately as per their endoscopy findings. Table IV.

Endoscopic findings	Frequency	Percent
Oesophagitis	317	13.9

Barrett,s	27	1.2
Esophagus		
Carcinoma esophagus	66	2.9
Oesophageal varices	85	3.7
Oesophageal stricture	27	1.2
Hiatus hernia	112	4.9
Gastritis	251	11
Doudenitis	123	5.3
Gastroduodenitis	302	13.1
Gastric ulcer	169	7.4
Doudenal ulcer	151	6.6
Carcinoma stomach	27	1.2
Combination	206	9.0
Misc.	45	2
Normal	374	16.4
Total	2282	100.0

New growth oesophagus was reported in 66 (2.9%) patients and presented with dysphagia. It was localized to the lower 1/3rd in 45 cases and middle 3rd in 21 cases. Histopathologically it was evenly divided between the two main types i.e. squamous and adenocarcinoma.

Subgroup analysis showed duodenal ulcer and growth oesophagus to be more common in male while the reverse was the case for gastric ulcer. This was true even as projected in percentage of the total patients of

the respective sex to offset the numerical dominance of female patients. Carcinoma oesophagus was reported in (71.1%) of male as compared to (28.6%) of female. Overall gastric ulcer was slightly more common (7.4%) than duodenal ulcer (6.6%). Again gastric ulcer was more commonly reported in female (61.1%) as compared to male (38.9%). Duodenal ulcer was more common in male (56.3%) as compared to female (43.8%). Normal OGD was almost equally common in male (48.6%) and female (51.4%) and all age groups.

Though carcinoma oesophagus was more common (57%) in patient above 60, we had 3 young patients with less than 40 years of age having the disease. Same was the case with gastric ulcer being more common above 60 years of age (55.7%), however we had one patient who had gastric ulcer at the age of 18. In case of duodenal ulcer 75.3% were below age 50. All the patient with carcinoma stomach were above 50.

Majority of patients i.e.66 % either denied intake of non steroidal anti inflammatory drugs (NSAIDs) or aspirin and or clopidogrel or this was not available. Amongst the others (34%), Aspirin was used by 11%, Clopidogrel by 2.5%, NSAIDs. by 12.4% and combination of the above drugs by 8.1%. The various pathologies amongst NSAIDs users vs. nonusers were oesophagitis (17.4% vs.13.2%), gastritis (15.2% vs. 9.6%), gastroduodenitis (14.8% vs. 10.2%) and gastric ulcer (11% vs. 5.4%). Aspirin intake compared to non intake was associated with oesophagitis (14.8% vs. 13.2%), gastritis (11.1% vs.9.6%), gastroduodenitis (14.8% vs. 10.2%) and gastric ulcer (14.8% vs. 5.4%). H. pylori status was checked in 22% of cases. Among them 12.9% were positive and 9.1% were negative. Majority of our patient (69%) were inpatient admitted in the hospital. Sedation was used in 4.1% of the patients only. The rate of serious complications was 0.4%.

Table-IV. Endoscopy findings, Indications for OGD Cross tabulation

Endoscopy findings	Dyspepsia	Dysphagia	Vomiting	Upper GI bleed	Misc.
	% of Total	% of Total	% of Total	% of Total	% of Total

Oesophagitis	9.8%	0.8%	1.6%	-	1.6%
Ca. Esophagus	-	2.5%	0.4%	0.2%	-
Gastrodudenitis	9.0%	0.8%	2.0%	1.2%	0.5%
Gastritis	7.4%	-	0.8%	0.8%	2%
Doudenitis	3.7%	0.4%	0.4%	0.8%	-
Gast. ulcer	3.3%	-	1.6%	1.6%	0.8%
Duod. ulcer	4.9%	-	0.8%	0.8%	-
Ca. stomach	0.8%	-	-	0.4%	-
Oesoph. varices	-	-	-	2.9%	0.8%
Oesoph. stricture	-	1.2%	-	-	-
Combination	5.7%	-	0.4%	1.6%	1.2%
Misc.	4%	1.2%	1.5%	.4%	2%
Normal	5.7 %	0.8%	1.6%	1.6%	5.4%
% of Total	54.5%	7.8%	11.1%	12.3%	14.3%

DISCUSSION

Endoscopy is a safe procedure where cardiorespiratory complications are minimized in non-sedated patients when appropriately selected. We had only one patient who sustained cardiorespiratory arrest and was resuscitated. Others had minor problems of choking sensation and abdominal distention during the procedure and throat pain afterwards. The lesser rate of complication was probably that we mainly did diagnostic upper GI endoscopies and without sedation. Significant fall in oxygen saturation is more marked in the sedated patients during endoscopy leading to complications⁹. Dyspepsia (54.5%), upper GI bleed (12.3%), recurrent vomiting (11.1%), dysphagia (7.8%) and heartburn and acid regurgitation (5.34%) comprised the major indications for upper GI endoscopy in our series. Almost similar indications were reported in another large study from our area¹⁰. Upper abdominal pain and dyspepsia were placed in separate groups in the aforementioned study while as per the Rome II criteria upper abdominal pain is the defining feature of dyspepsia¹. Moreover more patient with gastro-oesophageal reflux disease was scoped in that study. The overlap between upper

abdominal pain (dyspepsia) and reflux symptoms (heartburn, regurgitation) was striking in another study¹¹. This may partly explain the discrepancy between the results of these studies. Another large retrospective study from Rawalpindi reported lower figure for dyspepsia i.e. 42.6% and higher for upper GI bleed i.e. 32.8%¹². Over 10% patients with chronic liver disease were included in that study. We excluded patients with B or/and C positive chronic liver disease for reason already explained. This could explain the higher number of cases with upper GI bleed in the aforementioned study. A study from India reported dyspepsia in 59% of patient undergoing OGD¹³. Endoscopic diagnosis was made in 83.6% of the patient who underwent the procedure. In the remaining 16.4% of the patients no specific gastrointestinal pathology could be identified. The rate of normal endoscopy is comparable to another local study¹⁴. These patients probably suffered from functional dyspepsia which is fairly common in our patients.^{15,16} In our series normal endoscopy was reported slightly more in female (51.4%) as compared to male (48.6%) patients. The prevalence rate of functional dyspepsia is reported to be higher among women¹⁷. Gastritis alone or in combination

with duodenitis (gastroduodenitis) was the commonest reported abnormality (24.1%) being more common in patients who presented with dyspepsia. A study from Saudi Arabia reported antral gastritis to be the commonest gastroscopy finding¹⁸. A smaller study from rural population of Karachi reported gastritis in over 60% of the dyspeptic patients¹⁹. The latter study relied heavily on histopathology and biopsy was taken from both normal and abnormal mucosa and henceforth led to over diagnosis of gastritis. We based our diagnosis on gross appearance of the gastric mucosa. Nonspecific histological gastritis may occur in endoscopically normal looking mucosa²⁰. The frequency of peptic ulcer disease in the study population was 14%. This is comparable to the earlier study from our area¹⁰ whereby peptic ulcer disease was reported in 15.42% of the patients. Overall gastric ulcer was slightly more common (7.4%) than duodenal ulcer (6.6%). This is comparable to study from Rawalpindi¹². Other important endoscopic findings included oesophagitis (13.9%), and duodenitis (5.3%), oesophageal varices (3.7%) and carcinoma oesophagus (2.9%). This is in concordance with published data²¹. Duodenal and gastric ulcer together (19.5%), gastro oesophageal varices (23.5%), gastroduodenitis (22.76%) and combined lesions (13%) constituted important causes of upper GI bleed. Other causes of haematemesis and malaena included Mallory Weis tear, new growth oesophagus, and stomach and A-V malformations. Almost similar causes of upper GI bleed have been reported in literature²²⁻²³. The less number of cases with varices is due to the endoscopy protocol excluding B & or C positive chronic liver disease patients. Patient with chronic liver disease due to B & or C commonly presents with variceal bleed. There is lower frequency of oesophageal malignancy (2.9%) in our study. The population represented both local people from N.W.F.P as well as Afghan refugees. In a study from our area upper GI cancer accounted for 42.67% of cases in Afghan refugees (oesophageal cancer 31.21% and gastric cancer 11.46%)²⁴. The study targeted more patients having dysphagia (44.58) than with other complaints leading to preponderance of carcinoma oesophagus. Najam et. Al¹⁰ reported 10% prevalence of malignancy in their series including locals only. This is in contrast with other studies from Pakistan¹². whereby

lower frequency of oesophageal malignancies was found. We had more patients with carcinoma oesophagus in their young age as compared to western studies. Internationally the incidence of adenocarcinoma of the esophagus is rising²⁵. The reason for the high prevalence of this form of cancer is still to be elucidated. Barrett's metaplasia accounted for 1.2% of our cases, which is a harbinger of adenocarcinoma oesophagus but squamous cell carcinoma was equally common. More epidemiological studies need to be undertaken to find the prevalence and causes of this type of cancer. Heicobacter pylori status and history of drug intake was available in some of our our patients. Further more biopsy confirmation of the gastroduodenal inflammation was done in small number of cases. These were certain limitation of the study, which could be rectified in future analysis but we feel that they would not have altered the main findings.

CONCLUSION

Dyspepsia, upper GI bleed, heartburn /acid regurgitation, recurrent vomiting and dysphagia are common indications for upper GI endoscopy. Upper GI endoscopy is a useful diagnostic modality to identify the specific pathology. Gastroduodenitis, oesophagitis, peptic ulcer disease, hiatus hernia and oesophageal malignancy are the commonest endoscopic diagnosis. Carcinoma oesophagus is common in our province both in local population as well as in Afghan refugees. Gastric ulcer was slightly more common than duodenal ulcer. A significant proportion of patients had normal OGD.

Copyright © 08 Aug, 2009

REFERENCES

1. Fanning A, Ponsky JL. **Gastrointestinal endoscopy in ACS Surgery, Principles & Practice**, Section 3, 2002.
2. Iqbal M, Ahmed S, Ashraf S. **Role of prompt Endoscopy in diagnosis of dyspepsia at Combined Military Hospital, Rawalpindi**. Pak Armed Forces Med J 2003;53:188-92.
3. Tally NG, Stanghellini V, Heading RC, Koch KL, Malagelada JR, Tytgat GN. **Functional gastrointestinal disorder Gut** 1999; 45:1137-42.

4. Heading RC. **Definition of dyspepsia.** Scand J Gastroenterol (Suppl) 1991; 182:1.
5. Talley NJ, Silverstein MD, Agraus L. **AGA technical review: evaluation of dyspepsia.** Gastroenterology 1998; 114: 582-95.
6. Axon ATR, Bell GD, Jones RH, Quine MA, McCloy RF. **Guidelines on appropriate indications for upper GI endoscopy.** BMJ 1995;310:853-6.
7. Cotton PB, Williams CB. **Practical Gastrointestinal Endoscopy.** 3rd ed. Oxford. Blackwell Science Ltd, 1995; 23-55.
8. Kasugai T. **Endoscopic diagnosis in gastroenterology.** Tokyo: igaku-shoin 1982;49: 140.
9. Bhalla A, Sood A, Sachdeva A, Duseja A, Gupta V. **Cardiorespiratory compromise under conscious sedation during upper gastrointestinal Endoscopy** J Coll Physicians Surg Pak 2006; 16:585-9.
10. Shah NH, Shah MS, Khan I, Hameed K. **An audit of Diagnostic Upper GI Endoscopy and comparison of booked versus open access cases.** J Coll Physicians Surg Pak 1999; 9: 174-6.
11. El-Serag HB, Tally NJ. **The prevalence and clinical course of functional dyspepsia.** Aliment Pharmacol Ther 2004; 19:643-54.
12. Khurram M, Kharr HB, Hasan Z, Umar M, Javed S, Asghar T, et al. **A 12 years Audit of Upper Gastrointestinal Endoscopic Procedures.** J Coll Physicians Surg Pak. 2003; 13: 321-4.
13. Katelaris OH, Tippet GH, Norbu P, Lowe DG, Brennan R, Fathing MJ. **Dyspepsia, Helicobacter pylori and peptic ulcer in a randomly selected population in India.** Gut 1992; 33: 1462-6.
14. Ziauddin. **Endoscopic findings in dyspepsia-A prospective study of 200 cases.** J Potsgrad Med Inst 2003; 17: 235-9.
15. Ahmad R. **Management of Dyspepsia.** Pak J Med Sci 2004;20:55-60.
16. Hussain I, Khan JA, Naz R, Mahboob M. **Functional Dyspepsia; A common problem in Balochistan.** Professional Med J 2003;10:294-7.
17. Shaib Y, EL-Serag HB. **The prevalence and risk factors of functional dyspepsia in a multiethnic population in the United States.** Am J Gastroenterol 2004; 99: 2210-16.
18. Rabbani A. **Experience with Endoscopy at Bin Jalawi Hospital K.S.A.** J Ayub Med Coll Abbottabad 2005;17:37-9.
19. Ahmad J, Haider I, Choudhri AN. **Dyspepsia in rural cohort.** J Coll Physicians Surg Pak. 2004; 14: 91-3.
20. Kenneth R, McQuaid MD. **Symptoms and signs of gastrointestinal disease.** In: Mcphee SJ, Papadakis MA. Current medical diagnostic and treatment 46th ed. New York: Lange Med Book/McGraw-Hill, 2007; 595-9.
21. Satti SA, Ahmad SI, Habib M, Naseemullah M. **Esophagogastroduodenoscopy in Primary Gastroluminal Dyspepsia: A Study of 400 Cases.** J Rawal Med Coll 2001;5:50-2.
22. Adam T, Javid F, Khan S. **Upper Gastrointestinal bleeding: An etiological study of 552 cases.** J Pak Inst Med Sci 2004;15:845-8.
23. Butt BA, Cheema TM, Manzoor MS, Rabbani A, Khurram M, Jamshed A, Shafi MS. **Endoscopic evaluation of patients with upper GI bleed in holy month of Ramadan.** J Rawal Med Coll 2004;8:65-8.
24. Shah NH, Shah MS, Khan I, Hameed K. **Dyspepsia in Afghan Refugees - Do Prompt Endoscopy.** J Ayub Med Coll Abbottabad 1999; 11: 51-3.
25. Spechler SJ. **Barrett's esophagus and esophageal adenocarcinoma: Pathogenesis, diagnosis, and therapy.** Med Clin North Am 2002;86:1423-45.