

# Endoscopic Findings In Patients Undergoing Upper Gastrointestinal Endoscopy For Various Indications: A Retrospective Study

Ajit Khanal<sup>1,2</sup>, Swarup Shrestha<sup>1</sup>, Ananta Shrestha<sup>2</sup>, Thupten Lama<sup>2</sup>, Romeo Bir Singh Kansakar<sup>3</sup>

## Abstract

**Introduction:** Upper gastrointestinal (UGI) endoscopy is a safe procedure performed for analysis of indications and findings in patient presenting with various gastrointestinal symptoms including dyspepsia. This study aimed to evaluate the findings of UGI endoscopy in a tertiary care level hospital in Kathmandu.

**Methods:** A retrospective cross-sectional observational study of consecutive patients who had undergone UGI endoscopy at Department of Gastroenterology, Alka Hospital over a period of nine years (2016-2024) was conducted. Data was extracted from the records of the patients including demographic, clinical presentation, indications and findings and was analysed using SPSS version 30.

**Results:** Eight thousand five hundred and fifty-two patients who underwent UGI endoscopy for dyspepsia and various other indications were included for the study, 4339 (50.7%) males, 4213 (49.3%) females, age range of 2-103years (mean age  $\pm$  SD = 45.80  $\pm$  15.38). The most common finding seen were gastritis 4298(50.3%), gastro-duodenitis 560 (6.5%), gastric ulcer 429 (5%), duodenal ulcer 276 (3.2%), duodenitis 277 (3.23%), oesophagitis 170 (2%), hiatus hernia 194 (2.22%), gastric polyp 153 (1.8%), oesophageal varices 100 (1.2%), gastrointestinal malignancy (0.78%) and no lesions; that is normal findings in 1687 (19.7%).

**Conclusion:** UGI endoscopy is a relatively safe procedure and is performed for various indications including the commonest presentation of dyspepsia. Gastritis was the most common finding followed by Gastroduodenitis, Gastric and duodenal ulcers, Duodenitis, Hiatus Hernia, esophagitis, Polyps, Esophageal varices and Malignancy, while one-fifth of those undergoing the procedure had functional dyspepsia with normal findings.

**Keywords:** Duodenal ulcer; gastritis; gastroduodenitis; gastric ulcer; oesophagitis; upper gastrointestinal (UGI) endoscopy.

## Author affiliations:

<sup>1</sup>Department of Gastroenterology, Bir Hospital, Kathmandu, Nepal.

<sup>2</sup>Department of Gastroenterology, Alka Hospital, Lalitpur, Nepal.

<sup>3</sup> Department of GI & General Surgery, Green City Hospital, Kathmandu, Nepal

## Correspondence:

Dr. Ajit Khanal,  
Department of Gastroenterology,  
Bir Hospital, Kathmandu, Nepal.

**Email:** [ajit.khanal@gmail.com](mailto:ajit.khanal@gmail.com)

## Disclosures:

**Ethical Clearance:** Taken

**Conflict of interest:** None

**Financial aid:** None

## Copyright information:



Authors retain copyright and grant the journal right of first publication with the work simultaneously licensed under Creative Commons Attribution License under CC-BY 4.0 that allows others to share the work with an acknowledgement of the works's authorship and initial publication of this journal.

## How to cite this article:

Khanal A, Shrestha S, Shrestha A, Lama T, Kansakar RBS. Endoscopy findings in patients undergoing upper gastrointestinal endoscopy for various indications: a retrospective study. J Soc Surg Nep. 2024;27(2):48-52.

## DOI:

<https://doi.org/10.3126/jssn.v27i2.76229>

## Introduction

Patients present to a Gastroenterology clinic with various gastrointestinal symptoms including but not limited to dyspepsia, GI bleeding, dysphagia, odynophagia, anorexia, nausea, vomiting, early satiety, weight loss etc. Dyspepsia is a major healthcare concern due to its prevalence affecting up-to one in five individuals worldwide<sup>1</sup>, its impact on quality-of-life, the associated significant health resource utilization with a considerable financial burden is estimated to be over \$18 billion per annum in the United States (USA).<sup>2,3</sup>

Various diagnostic tests are available for evaluating dyspepsia.<sup>4</sup> Endoscopy is recommended as the investigation that remains both cost-effective and good patient satisfaction regardless of presence or absence of alarming features.<sup>5</sup> One-half of all upper gastrointestinal endoscopies are performed each year for dyspepsia in the United States.<sup>4</sup>

Many decades have passed since the introduction of UGI endoscopy services in Nepal. This service, however, is still unavailable in many parts of the country. People are still obliged to come to big cities for UGI endoscopy. So, this study was conducted amongst patients undergoing UGI endoscopy in a high-volume tertiary care hospital like Alka Hospital with a large study population unprecedented in the country to summarize findings in UGI endoscopy in patients presenting with various symptoms including dyspepsia over the last nine years.

## Methods

The UGI endoscopies performed in Alka Hospital, Kathmandu, Nepal from February 2016 to September 2024, for patients presenting with various symptoms including dyspepsia were retrospectively analysed. All clinico-epidemiological data were reviewed and analysed. The patients, aged 2 to 103 years, who were referred from inpatient and outpatient departments were included. Prior consent was taken from all patients who were subjected for upper GI endoscopy, pre medicated with lidocaine mouth spray and Fujinon video endoscope was used to visualize upper GI tract up to second part of duodenum to identify and interpret the various findings encountered. Demographic characteristics, indications for UGI endoscopy and findings of the study sample were summarized in tables using descriptive statistics, including frequencies and percentages.

## Results

A total of 8552 documented records of endoscopies performed during the specified period were analysed. The mean age was 45.8±15.38 years; 4213 (49.3%) were women and 4339 (50.7%) were men. In our study, the age range of patients who underwent UGI endoscopy was 2 to 103years (Table 1). More than four-fifth (82.89%) of patients had single pathologic findings and remaining

had multiple pathological findings (Table 3). Majority of dyspeptic patients had gastritis (50.3%), followed by gastro-duodenitis 560 (6.5%), gastric ulcer 429 (5%), duodenal ulcer 276 (3.2%), duodenitis 277 (3.23%), oesophagitis 170 (2%), hiatus hernia 194 (2.22%), gastric polyp 153 (1.8%), oesophageal varices 100 (1.2%) and malignancy 67 (0.78%). Nearly one-fifth (19.7%) of total patients who underwent UGI endoscopy had normal findings (functional dyspepsia) (Table 2).

**Table 1. Characteristics of patients who had UGI Endoscopy (n=8552)**

AGE GROUP	SEX		TOTAL n (%)
	FEMALE	MALE	
0-10	2	4	6 (0.1)
11-20	77	75	152 (1.8)
21-30	650	603	1253 (14.7)
31-40	1069	1109	2178 (25.5)
41-50	940	969	1909 (22.3)
51-60	749	731	1480 (17.3)
61-70	419	499	918 (10.7)
71-80	235	249	484 (5.7)
>81	72	100	172 (2)
<b>TOTAL</b>	<b>4213</b>	<b>4339</b>	<b>8552 (100)</b>

**Table 2. Characteristic of patients who had NORMAL UGI Endoscopy (n=1697)**

AGE GROUP	SEX		TOTAL n (%)
	FEMALE	MALE	
0-10	2	2	4 (0.2)
11-20	26	44	70 (4.2)
21-30	124	202	326 (19.3)
31-40	214	262	476 (28.2)
41-50	137	199	336 (20)
51-60	105	138	243 (14.4)
61-70	78	66	144 (8.5)
71-80	23	40	63 (3.7)
>81	10	15	25 (1.5)
<b>TOTAL</b>	<b>719</b>	<b>968</b>	<b>1697 (100)</b>

## Discussion

This study outlines the various findings noted during the UGI endoscopies performed in a tertiary hospital in Kathmandu, Nepal over a period of nine years.

Dyspepsia is affecting 20% to 40% of the global population, and accounts for 3% to 5% of frequent primary care.<sup>6</sup> The American College of gastroenterology (ACG) and the Canadian Association of gastroenterology (CAG) guidelines on dyspepsia suggest dyspepsia be investigated

**Table 3. UGI endoscopy findings in patients (n=8552)**

Findings in endoscopy	Sex		Total n(%)
	Female	Male	
Gastritis	2134	2164	4298 (50.3)
Gastroduodenitis	197	363	560 (6.5)
Gastric Ulcer	195	234	429 (5)
Duodenal Ulcer	94	182	276 (3.2)
Duodenitis	88	189	277 (3.2)
Hiatus Hernia	94	100	194 (2.2)
Oesophagitis	63	107	170 (2)
Gastric Polyp	94	60	154 (1.8)
Oesophageal Varices	27	73	100 (1.2)
Gastric Carcinoma	25	42	67 (0.78)
Biliary Gastropathy	34	32	66 (0.77)
Oesophageal Candidiasis	24	32	56 (0.7)
Duodenal Stricture	11	31	42 (0.5)
Hemorrhagic Gastropathy	16	19	35 (0.41)
GAVE	15	8	23 (0.3)
Duodenal Polyp	6	7	13 (0.2)
Gastric Angiodyslasia	10	5	15 (0.18)
Duodenal Diverticulum	6	8	14 (0.16)
Short Segment Barrets	9	2	11 (0.13)
Achalasia Cardia	3	6	9 (0.1)
Foreign Body Oesophagus	3	6	9 (0.1)
Barretts Oesophagus	3	4	7 (0.1)
Gastric Lipoma	6	1	7 (0.1)
Gastric Oesophageal Varices	1	6	7 (0.1)
Others	3	2	5 (0.1)
Mallory Weiss Tear	0	4	4 (0.04)
Anastomotic Ulcer	1	2	3 (0.03)
Pyloric Stenosis	1	2	3 (0.03)
Oesophageal Diverticulum	1	1	2 (0.02)
Phytobezoaar	0	2	2 (0.02)
Oesophageal Stricture	1	1	2 (0.02)
Cholecystoduodenal fistula	0	1	1 (0.01)
Maltoma	1	0	1 (0.01)
Post-bulbar Diverticulum	1	0	1 (0.01)
Pre-pyloric Erosion	1	0	1 (0.01)
Pseudo Achalasia	1	0	1 (0.01)
Normal Findings	1043	644	1687 (19.7)

with upper gastrointestinal endoscopy.<sup>1</sup> With majority of our patients having only gastritis (50.3%) and no alarming pathologies; they actually comprise of patients with dyspepsia. This is clearly in lieu with studies conducted among Asian countries from India (52.4%)<sup>7</sup>, Pakistan (42.6%)<sup>8</sup> and China (29.9%)<sup>9</sup> in their data in patients undergoing endoscopy for dyspepsia. These evidence-based guidelines for endoscopy proves to have better

outcome for evaluation and treatment interventions and to assess disease morbidity.<sup>10,11</sup>

Endoscopic gastrointestinal lesions were seen among 80.3% in our study and 19.7% had functional dyspepsia. Similar study conducted in Nepal had functional dyspepsia, accounting 49.15% in mid-western Nepal<sup>12</sup>, 29.5% in eastern Nepal<sup>13</sup>, 38% in Lumbini Medical College<sup>14</sup>, 17.87% in Nepal Medical College<sup>14-16</sup> and 27.7% in Patan Hospital<sup>12</sup>. We had few patients taking acid suppressing drugs before the procedure and also, we didn't have exact data of percentage of use of over-the-counter drugs for dyspepsia that could have led to having normal findings during endoscopy. In this study, the prevalence of functional dyspepsia or normal endoscopy is higher in males (57.37%). However other studies show that normal endoscopy findings were more common amongst females.<sup>4</sup> The majority of patients with UGI endoscopy findings in our study were below 50 years (64.2%) with a mean of 45.8years, which is similar to the study from Asian countries. However, elderly from developed nations are more affected due to a higher prevalence of elderly populations.

There has been evidence for gender related differences in dyspepsia where majority reported female gender as a predominant risk factor.<sup>17-19</sup> However, the gender distribution was similar in our study, with males (50.7%).

A significant portion of patients in this study displayed positive findings on endoscopy which were mainly gastro-duodenitis (6.5%), gastric ulcer (5%), duodenal ulcer (3.2%), duodenitis (3.23%), oesophagitis (2%), hiatus hernia (2.22%), gastric polyp (1.8%), oesophageal varices (1.2%) and neoplasms (0.7%). Similar findings were reported by Abdeljawad et al from Atlanta showing peptic ulcer 4.3%, gastroesophagitis 7.9% and malignancy 0.8% among 650 patients.<sup>15</sup>

Of all the patients, half (50.3%) presented with gastritis. Similar descriptive cross sectional study conducted at Gandaki medical College, Pokhara also had gastritis (50.8%) as the most common finding.<sup>20</sup> The findings are consistent with the review done by Kamiya et al, who performed a large review in six different countries in East Asia and found that gastritis was the most frequently occurring diagnosis in Asian countries.<sup>21</sup> It may be due to the higher prevalence of *H. Pylori* infection in East Asia. In our study too like others, significant number of functional dyspepsia patients underwent endoscopy for their gastrointestinal symptoms but were found to have no endoscopic mucosal lesions.<sup>14-16</sup>

In Ethiopia, a study conducted at a Tertiary hospital revealed that dyspepsia(27.8%) was the common indication for UGI endoscopy and upper gastrointestinal bleeding (17.1%), duodenal ulcer (10.6%), gastritis (18.1%), esophageal varices (35.8%) were the most common pathologies detected.<sup>22</sup>

Esophagitis was reported in 560 patients (5.9%) by Andrabi et al in Kashmir, which is slightly higher than our findings.<sup>23</sup> Such variation in proportion of cases reported might be because of different regions, genetic variations, lifestyle and demographic differences.

In western world, peptic ulcer affected older age groups more; likely due to association of more serious conditions with older age and higher *H. Pylori* prevalence.<sup>6</sup> Peptic ulcer is more common in developing countries, and Nepal is not an exception. In our study, Peptic ulcer comprised 8.2%. Gastric ulcer was more common than duodenal ulcer. This is consistent with studies done by Groenen et al (6.7%)<sup>24</sup> and Bhandari et al (5.9%).<sup>25</sup>

Alcohol consumption is one of the risk factors for cirrhosis of liver and esophageal varices.<sup>26</sup> Esophageal varices is quite common in our case (1.2%). The incidence of gastrointestinal malignancy is globally rising.<sup>27</sup> But less than one percent of our findings had the occurrence of gastrointestinal malignancy, which is comparatively low in comparison to studies done in other parts of the world.<sup>28</sup> Our findings are inconsistent due to limitations of our study to estimate the population attributable risks for various risk factors of gastrointestinal cancers and malignancy associated symptoms. History of drug intake and *H. Pylori* status, biopsy confirmation was present in few cases. Some patients in our study had other pathologies (gastric fistula,

duodenal diverticulum/strictures, short segment Barrett's, maltoma, Mallory Weiss tear) as incidental but interesting findings.

Thus, UGI endoscopy has significant implications in dyspeptic patients presenting with various GI symptoms, especially in the elderly, those with independent risk factors, alarm features and uninvestigated chronic symptoms for workup, initiation and continuation of treatment strategy.

Since this study is retrospective, we had the limitations of not being able to follow up the outcome of patients with various diagnosis. In order to verify the findings in our study results, further prospective study should be done.

## Conclusion

This is an unprecedented retrospective study in the country that has analysed such a huge number of UGI endoscopy patients comprising 8552 patients.

Almost three-fourth of UGI endoscopy in our study was performed for dyspepsia. Majority had simple gastritis (50.3%). Gastroduodenitis, peptic ulcer, esophagitis & esophageal varices were the other common findings and 19.7% had normal endoscopic findings. UGI endoscopy is a relatively safe procedure and judicious use of this procedure has paramount and profound clinical importance.

## References

1. Moayyedi P, Lacy BE, Andrews CN, Enns RA, Howden CW, Vakil N. ACG and CAG Clinical Guideline: Management of Dyspepsia. *Am J Gastroenterol.* 2017;112(7):988-1013.
2. Gupta K, Groudan K, Jobbins K, Hans B, Singhania R. Single-Center Review of Appropriateness and Utilization of Upper Endoscopy in Dyspepsia in the United States. *Gastroenterology Res.* 2021;14(2):81-6.
3. Black CJ, Houghton LA, Ford AC. Insights into the evaluation and management of dyspepsia: recent developments and new guidelines. *Therap Adv Gastroenterol.* 2018;11:1756284818805597.
4. Wechsler EV, Ahuja NK, Brenner D, Chan W, Chang L, Chey WD, et al. Up-Front Endoscopy Maximizes Cost-Effectiveness and Cost-Satisfaction in Uninvestigated Dyspepsia. *Clin Gastroenterol Hepatol.* 2023;21(9):2378-88 e28.
5. Lacy BE, Weiser KT, Kennedy AT, Crowell MD, Talley NJ. Functional dyspepsia: the economic impact to patients. *Aliment Pharmacol Ther.* 2013;38(2):170-7.
6. Harer KN, Hasler WL. Functional Dyspepsia: A Review of the Symptoms, Evaluation, and Treatment Options. *Gastroenterol Hepatol (N Y).* 2020;16(2):66-74.
7. Kumari P, Machhan P, Sharma B, Sharma R, Bodh V, Kumar R. Dyspepsia with alarm symptoms in patients aged less than 60 years: Is upper gastrointestinal endoscopy justified in Indian scenario? *Indian Journal of Gastroenterology.* 2022;41(5):430-9.
8. Kamran M, Fawwad A, Rabbani B, Ahmed J. Clinically significant endoscopic findings in a dyspeptic rural population cohort of Sindh, Pakistan: Are we over-investigating? *Pak J Med Sci.* 2022;38(6):1483-8.
9. Mao LQ, Wang SS, Zhou YL, Chen L, Yu LM, Li M, et al. Clinically significant endoscopic findings in patients of dyspepsia with no warning symptoms: A cross-sectional study. *World J Clin Cases.* 2021;9(15):3597-606.
10. Duggan A. Management of dyspepsia at the beginning of the twenty-first century. *Intern Med J.* 2003;33(12):604-9.
11. Buyuk F, Karakaya E, Akar M, Kayman T, Tarhane S, Ozcan HE, et al. A comprehensive study of Helicobacter pylori infection: molecular analysis, antibacterial susceptibility, and histopathological examination. *Antonie van Leeuwenhoek.* 2023;116(12):1261-73.
12. Shrestha R, Karki S, Pandey B, Sharma Y. Upper gastrointestinal endoscopy findings in patient presenting with dyspepsia. *Journal of Patan Academy of Health Sciences.* 2018;2:19.
13. Sherpa TW, Sherpa KT, Nixon G, Heydon J, Heydon E, Dovey S. The prevalence of Helicobacter pylori infection in Sherpa residents of the Upper Khumbu,

- an isolated community in Eastern Nepal. *N Z Med J.* 2012;125(1365):30-7.
14. Chhetri B PM, Pokharel N, Dhungana S, Paudel A. Upper Gastrointestinal Endoscopy in Lumbini Medical College and Teaching Hospital. *J Lumbini Med Coll [Internet].* 30Jun.2013 [cited 7Nov.2024];1(1):7 -9.
  15. Abdeljawad K, Wehbeh A, Qayed E. Low Prevalence of Clinically Significant Endoscopic Findings in Outpatients with Dyspepsia. *Gastroenterol Res Pract.* 2017;2017:3543681.
  16. Shrestha S, Paudel P, Pradhan GB, Shrestha L, Bhattachan CL. Prevalence study of H. pylori infection in dyspeptic patients coming to Nepal Medical College Teaching Hospital, Jorpati, Kathmandu. *Nepal Med Coll J.* 2012;14(3):229-33.
  17. Kim YS, Kim N. Sex-Gender Differences in Irritable Bowel Syndrome. *J Neurogastroenterol Motil.* 2018;24(4):544-58.
  18. van Kessel L, Teunissen D, Lagro-Janssen T. Sex-Gender Differences in the Effectiveness of Treatment of Irritable Bowel Syndrome: A Systematic Review. *Int J Gen Med.* 2021;14:867-84.
  19. Al-Abachi KT. Diagnostic value of endoscopy in adult patients with dyspepsia. *Prz Gastroenterol.* 2022;17(4):274-9.
  20. Dhungana D, Regmi Y. Upper Gastrointestinal Endoscopy Findings in a Tertiary Centre in Pokhara: A Descriptive Cross-sectional Study. *Journal of Nepal Medical Association.* 2021;59.
  21. Kamiya T, Joh T, Sollano JD, Zhu Q, Kachintorn U, Aziz Rani A, et al. Consensus of the present and prospects on endoscopic diagnosis and treatment in East asian countries. *Diagn Ther Endosc.* 2012;2012:808365.
  22. Argaw AM, Ethiopia SS, Lelisa G, Fisseha H, Mulugeta B. Indications and Findings of Upper Gastrointestinal Endoscopy at a Tertiary Hospital in Ethiopia: A Cross-Sectional Study. *Clin Exp Gastroenterol.* 2023;16:187-96.
  23. Vaishnav B, Bamanikar A, Maske P, Reddy A, Dasgupta S. Gastroesophageal Reflux Disease and its Association with Body Mass Index: Clinical and Endoscopic Study. *J Clin Diagn Res.* 2017;11(4):OC01-OC4.
  24. Groenen MJ, Kuipers EJ, Hansen BE, Ouwendijk RJ. Incidence of duodenal ulcers and gastric ulcers in a Western population: back to where it started. *Can J Gastroenterol.* 2009;23(9):604-8.
  25. Bhandari T, Laghu U, Ratna P, Shrestha R. Helicobacter Pylori Infection among Patients Attending the Gastroenterology Department in Tertiary Care Hospital, Kathmandu, Nepal. *Int J Microbiol.* 2022;2022:1508473.
  26. Jakab SS, Garcia-Tsao G. Evaluation and Management of Esophageal and Gastric Varices in Patients with Cirrhosis. *Clin Liver Dis.* 2020;24(3):335-50.
  27. Arnold M, Abnet CC, Neale RE, Vignat J, Giovannucci EL, McGlynn KA, et al. Global Burden of 5 Major Types of Gastrointestinal Cancer. *Gastroenterology.* 2020;159(1):335-49 e15.
  28. Freedman ND, Abnet CC, Leitzmann MF, Mouw T, Subar AF, Hollenbeck AR, et al. A prospective study of tobacco, alcohol, and the risk of esophageal and gastric cancer subtypes. *Am J Epidemiol.* 2007;165(12):1424-33.