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Research Article / Araştırma

Retrospective analyses of the patients evaluated in the general surgery endoscopy unit: 2-year clinical experience

Genel cerrahi endoskopi ünitesinde değerlendirilen hastaların retrospektif analizi: 2 yıllık klinik deneyimimiz

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ABSTRACT

Introduction and Objective: Endoscopy systems are widely used today in many fields involving diagnosis and treatment, and the applications of endoscopy systems continue to expand every day with advancing technological and medical innovations. The aim of this study is to examine patients who underwent endoscopic evaluation in the tertiary care hospital's general surgery endoscopy unit and present our clinical experiences along with current literature information. **Method**: This study population consisted of patients who underwent Gastrointestinal (GI) endoscopy in the General Surgery Endoscopy Unit of Gülhane Education and Research Hospital between July 2021 and July 2023. The study included 1700 patients who presented with complaints of dyspepsia, retrosternal pain, and dysphagia and underwent upper GI endoscopy, as well as 1000 patients who presented with complaints of rectal bleeding, tenesmus, anemia, and anal region pain and underwent lower GI endoscopy. **Results**: The average age of the patients was 46.2±14.7 years (range: 20-82 years). Among the patients who underwent upper GIS endoscopy, dyspeptic complaints (74%) were the most commonly observed symptom. Of the lower GIS endoscopic examinations, 82.2% were total colonoscopies,13% were rectosigmoidoscopies and 4.8% were rectoscopies. **Conclusion**: Endoscopy has become the gold standard for the diagnosis of GIS cancers. It is crucial for patients to have easy access to endoscopy units and to have their examinations done in a timely manner for the early diagnosis and treatment of these cancers. GIS endoscopy is an important component of the multidisciplinary approach to the diagnosis and treatment of malignant diseases of the digestive system.

ÖZ

Giriş ve Amaç: Endoskopi sistemleri günümüzde tanı ve tedaviyi içeren birçok alanda yoğun olarak kullanımdadır ve endoskopi sistemlerinin kullanım alanları gelişen teknolojik ve tıbbi yeniliklerle beraber her geçen gün artmaktadır. Bu çalışmanın amacı üçüncü basamak hastane genel cerrahi endoskopi ünitesinde endoskopik değerlendirme yapılan hastaların incelenip; klinik deneyimlerimizi güncel literatür bilgileri eşliğinde sunmaktır. **Gereç ve Yöntem:** Çalışmanın popülasyonunu Temmuz 2021 ve Temmuz 2023 yılları arasında Gülhane Eğitim ve Araştırma Hastanesi, Genel Cerrahi Endoskopi Ünitesinde GİS endoskopisi yapılmış hastalar oluşturmaktadır. Çalışmaya alt ve/veya üst GİS endoskopisi yapılan toplamda 2700 hasta dahil edildi. Çalışmaya genel cerrahi polikliniğine dispepsi, retrosternal ağrı ve disfaji şikayetleri ile gelen ve üst GİS endoskopisi yapılan 1700 ve rektal kanama, tenesmus, anemi ve anal bölgede ağrı şikayetleri ile gelen ve alt GİS endoskopisi uygulanan 1000 hasta dahil edildi. **Bulgular**: Hastaların yaş ortalaması 46,2 ± 14,7 yıl (20-82 yaş) idi. Hastaların %63'üne üst GİS endoskopisi; %37'sine alt GİS endoskopisi yapılmıştır. Üst GİS endoskopisi yapılan hastaların semptomları arasında dispeptik yakınmalar (%74) en sık gözlenen semptom idi. Alt GİS endoskopik incelemelerinin %82,2'si total kolonoskopi, %13'ü rektosigmoidoskopi ve %4,8'i rektoskopi idi. Olguların %22'sinde polip, %9'unda divertikül, %4,3'ünde internal hemoroidal hastalık ve %2'sinde malignite tanısı endoskopik olarak konulmuştur. **Sonuç**: GİS kanserlerinin tanısında endoskopi altın standart haline gelmiştir. Bu kanserlerin erken tanı ve tedavisi için hastaların endoskopi ünitelerine kolay ulaşabilmeleri ve muayenelerinin zamanında yapılması çok önemlidir. Tanı ve tedavide yaşanabilecek gecikmeler GİS malignitelerinde morbidite ve mortaliteyi artırmaktadır. GİS endoskopisi sindirim sisteminin malign hastalıklarındaki muldisipliner tanı ve tedavi yaklaşımının önemli bir parçasını oluşturmaktadır.

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INTRODUCTION

The development of fiber optic technology in the mid-20th century, along with other technological advancements, led to the emergence of flexible endoscopy systems. Fiber optic endoscopes were first used in the 1950s (Campbell IS., 2016), and later, modern endoscopy systems were developed. In light of medical advancements, endoscopy has become an essential component in the diagnosis of gastrointestinal system (GIS) malignancies and has become the gold standard diagnostic method.

Today, endoscopy systems are extensively used in many fields involving diagnosis and treatment. In addition to providing the opportunity for biopsy and endoscopic treatment, they also offer a more objective diagnostic approach. Besides providing for percutaneous gastrostomy and placement of jejunostomy tubes, controlling GI bleeding, removing foreign bodies, endoscopic polypectomy, and mucosal resections constitute the main usage fields of endoscopy systems. In addition, diagnostic endoscopic procedures performed before gastroesophageal reflux surgery also give surgeons an idea about the surgical technique to be preferred (Sivak MV.2006; Buldanlı et al., 2023).The applications of endoscopy systems will continue to expand in the future with advancing technological and medical innovations.

The aim of this study is to examine patients who underwent endoscopic evaluation in the tertiary care hospital's general surgery endoscopy unit and present our clinical experiences along with current literature information.

METHODS

Study procedure and population

The research is designed as a retrospective and also descriptive study. The study population consists of patients who underwent GIS endoscopy in the General Surgery Endoscopy Unit of Gülhane Education and Research Hospital between July 2021 and July 2023. The study included patients aged 18 and above who underwent either upper or lower GIS endoscopy. This study was approved by the University of Health Sciences Gulhane Training and Research Hospital Clinical Research Ethics Committee (Date: 31.08.2023, Decision No: 2023/193). The study was conducted in accordance with ethical standards as outlined in the 1964 Helsinki Declaration.

A total of 2700 patients who underwent either upper or lower GIS endoscopy were included in the study. Among these, 1700 patients presented to the general surgery outpatient clinic with problems of dyspepsia, retrosternal pain, and dysphagia, and underwent esophagogastroduodenoscopy, while 1000 patients presented with complaints of rectal bleeding, tenesmus, anemia, and anal region pain, and underwent lower GIS endoscopy. In total, 2900 patients underwent endoscopic evaluation. After applying the inclusion criteria, the study was conducted with the remaining 2700 patients. Patients were divided into two groups based on whether they underwent upper or lower GIS endoscopy. Patients who did not have proper bowel preparation, those who were not suitable for anesthesia, those who could not tolerate the procedure, and those with missing medical records in the retrospective review were excluded from the study. Additionally, patients under the age of 18 and those who underwent endoscopy under emergency conditions were not included in the study. All patients were instructed to stop oral food intake 12 hours before the procedure. Midazolam, fentanyl, and propofol were used for anesthesia. The procedures were performed using Olympus endoscopy systems when sedation reached a sufficient depth.

Grading was performed in cases diagnosed with esophagitis according to the Los Angeles classification (Grade A: one or more erosions limited to the mucosal layer and not exceeding 5 mm in size. Grade B: one or more erosions limited to the mucosal layer and exceeding 5 mm in size. Grade C: erosions extending onto the mucosal folds but involving less than three-fourths of the circumference. Grade D: confluent erosions involving more than three-fourths of the mucosal folds).

Biopsies were taken from the prepyloric antrum and corpus regions in all patients, as well as from areas and lesions suspected to be problematic.

Statistical Analysis

Statistical analyses were conducted using the Statistical Package for the Social Sciences version 22.0 software package (Chicago, USA). The normal distribution conformity of the variables was examined through visual methods (histograms and probability plots) and analytical methods (Kolmogorov-Smirnov, Shapiro-Wilk tests). Descriptive statistics were presented as mean and standard deviation for normally distributed numerical data, median and minimum-maximum values for non-normally distributed numerical data, count and percentage for nominal data.

RESULTS

The average age of the patients was 46.2 ± 14.7 years (20 - 82 years) The age distribution is shown in Figure 1. In our study, the female-to-male ratio was 1.5/1. The American Society of Anesthesiologists (ASA) score

was "I" in 25.4% of patients, "II" in 67.6%, and "III" in 7%. The mean body mass index (BMI) of the patients was 27.0 ± 3.6 kg/m^2. 33.5% of patients were smokers, and 16.8% consumed alcohol. 32.3% of patients had comorbid diseases. The most frequently observed comorbid conditions were hypertension (25.4%), cardiovascular diseases (18.3%), and diabetes mellitus (16.9%) (Table 1).

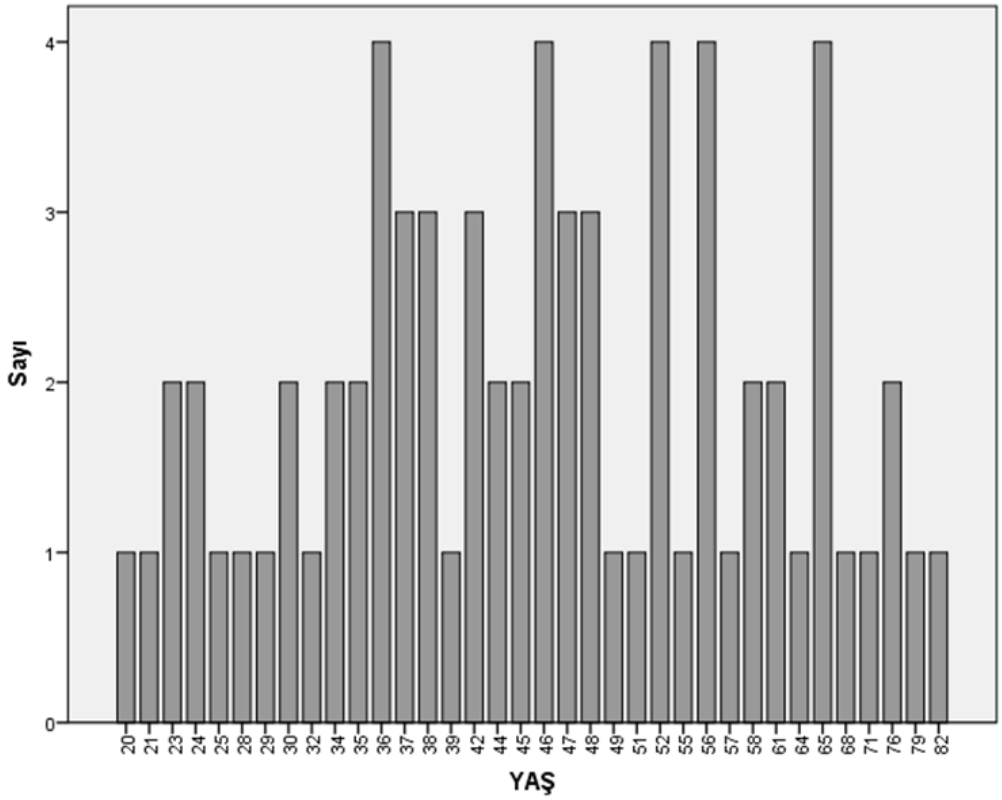

Figure 1. Age distribution of the patients

Table 1. Demographical And Clinical Characteristics Of The Patients

Characteristics		Distribution
Age (years)	*Mean ± DS*	46.2 ± 14.7
Gender	*N (%)*	
Female		1636 (60.6)
Male		1064 (39.4)
ASA	*N (%)*	
1		685 (25.4)
2		1825 (67.6)
3		190 (7.0)
BMI (kg/m^2)	*Mean ± DS*	27.0 ± 3.6
Smoking (+)	*N (%)*	904 (33.5)
Alcohol (+)	*N (%)*	445 (16.8)
Comorbid Disease (+)	*N (%)*	1142 (42.3)
HT (+)		684 (25.4)
CVD (+)		494 (18.3)
DM (+)		574 (16.9)

Of the patients, 63% underwent esophagogastroduodenoscopy, while 37% underwent lower GIS endoscopy. Among patients who underwent upper GIS endoscopy, the most frequently observed symptom was dyspeptic complaints (74%). Other symptoms included dysphagia (20%) and retrosternal burning sensation (16%). The clinical diagnoses of patients who underwent upper GIS endoscopic examination included gastritis in antrum (67.2%), pangastritis (25.2%), ulcers (34.9%), hiatus hernia (11.3%), polyps (5.3%), esophagitis (9.1%), and duodenitis (9.1%). Due to the examination of the ulcer cases, 19.4% were located in the antrum, 7.5% in the pylorus, 2.5% in the duodenum, and 2.2% in the corpus. When examining cases with polyps, it was observed that 3.2% of polyp cases were located in the fundus, 1.4% in the antrum, and 0.9% in the corpus. Among cases with esophagitis, it is detected that 7.6% were in Grade A, 1.3% in Grade B, and 0.3% in Grade C.

The histopathological diagnoses of cases who underwent esophagogastroduodenoscopic examination were determined as chronic gastritis (96.8%), H. pylori infection (62.8%), intestinal metaplasia (14%), malignancy (1.9%), low-grade epithelial dysplasia (0.9%), hyperplastic polyp (1.6%), Candida esophagitis (0.6%), and atypical reactive changes (3.9%).

Of the lower GIS endoscopic examinations, 82.2% were total colonoscopies, 9% were rectosigmoidoscopies, and 4.8% were rectoscopies. Among the cases, diagnoses of polyps in 22%, diverticula in 9%, internal hemorrhoidal disease in 4.3%, and malignancy in 2% were made through endoscopy. Among cases with polyps, 68.5% were in the sigmoid colon, 16.8% were in the rectum, 12.7% were in the descending colon, and 2% were in the ascending colon.

During the preoperative period, the median CRP level measured in patients was 4.4 mg/dl (0.1-32.4 mg/dl), lymphocyte level was 1.2 x 10^3/µL (0.5-2.8 x 10^3/µL), urea level was 33 mg/dl (9-42 mg/dl), mean leukocyte level was 7.7 ± 2.4 x 10^3/µL, neutrophil level was 5.8 ± 2.1 x 10^3/µL, platelet level was 299 ± 64 x 10^3/µL, albumin level was 4.1 ± 0.5 mg/dl, hemoglobin level was 13.0 ± 1.2 g/dl, and creatinine level was 0.81 ± 0.17 mg/dl (Table 2).

DISCUSSION

Dispeptic problems refer to symptoms such as epigastric pain, retrosternal burning, early satiety, nausea, and vomiting (Heading RC et al., 1991). In one study, it was found that 75% of patients presenting with dyspeptic complaints did not have any underlying organic pathology. However, it was also noted that symptoms in 25% of cases could potentially indicate serious problems (Bytzer P et al., 2001). Malignancies is the most important one of these problems. Especially in high-risk patient groups and those with alarm symptoms, upper GIS endoscopic examination is essential and important for early diagnosis and treatment (Dere Ö et al., 2019). In our study, when looking at the cases included, the main complaint of patients who underwent upper GIS endoscopic examination was indigestion. Additionally, high-risk patient groups and those with alarm symptoms were subjected to endoscopic examination for further evaluation.

Rectal bleeding, weight loss, constipation, iron-deficiency anemia, occult blood in the stool, and weight loss can be symptoms of a dangerous gastrointestinal disease. In these groups and in patients presenting with dyspeptic problems, it is crucial to first differentiate malignancies as part of the diagnostic process. Diagnostic lower GIS

Table 2. Laboratory Results And Distribution Of The Patients In Preoperative Period

Characteristics		Distribution
CRP (mg/dl)	*Med (min-max)*	4.4 (0.1-32.4)
Leucocyte (10^3/µL)	*Mean ± DS*	7.7 ± 2.4
Neutrophil (10^3/µL)	*Mean ± DS*	5.8 ± 2.1
Lymphocyte (10^3/µL)	*Med (min-max)*	1.2 (0.5-2.8)
Platelet (10^3/µL)	*Mean ± DS*	299 ± 64
Albumin (mg/dL)	*Mean ± DS*	4.1 ± 0.5
Hemoglobin (g/dL)	*Mean ± DS*	13.0 ± 1.2
Hematocrit (%)	*Mean ± DS*	37.8 ± 3.0
Urea (mg/dL)	*Med (min-max)*	33 (9-42)
Creatinine (mg/dL)	*Mean ± DS*	0.81 ± 0.17

*CRP; C-Reactive Protein

endoscopy is the most effective technique for detecting these entities (Demirbaş Yüceldi S., 2023).

Endoscopy is considered a low-risk and eligible technique, with low complication rates. The procedure-related complication rate for upper GIS endoscopic examinations is reported to be 0.13% [10]. In lower GIS endoscopic examinations, this rate is stated as 0.4% (Jentschura D., 1994).

The number of patients requiring esophagogastroduodenoscopic examinations has been steadily increasing in last years. The main reasons for this increase are the aforementioned dyspeptic complaints, rectal bleeding, constipation, anemia, and other symptoms leading to increased outpatient clinic visits. Similar increases in GIS cancer cases are observed both in our country and worldwide (Bray F., 2018). Therefore, endoscopic examination has not only been used for diagnostic purposes in symptomatic patients but has also become a part of cancer monitoring programs (Kara Y et al., 2019).

In a study that examined the data of 396 patients who underwent upper GIS endoscopic examination in 2017, the retrospective analysis revealed the detection of stomach cancer in one case (0.02%) (Yıldız İ et al., 2018). In another study involving 5551 patients, the cancer rate was reported as 2.3%. Various studies on cases undergoing endoscopic examination have reported malignancy rates of 1.8%. Also in another study the malignancy ratio was stated as 1.1% (Dye C et al., 2002; Ferlengez E et al., 2012; Ayuo Po et al., 2014).

Endoscopy has become widely used due to the increasing number of patients requiring endoscopic examination, the opportunity for early diagnosis of GIS malignancies, endoscopic treatment of precancerous masses, therapeutic interventions in cases of hemorrhage or strictures, and the introduction of mucosal resections. In recent years, with the proliferation of advanced endoscopic techniques, low complication rates have been reported, and it provides an opportunity for objective diagnosis. As a result, there is an increased demand for endoscopy units and endoscopists. Therefore, this study emphasizes the importance of both endoscopy units and surgical endoscopy.

The most significant limitations of the study were its retrospective nature and the fact that endoscopic procedures were not performed by a single operator.

CONCLUSION

Esophagogastroduodenoscopy has become the gold standard for the diagnosis of GIS malignancies. It is crucial for patients to have easy access to endoscopy units and for their examinations to be conducted promptly for the early diagnosis and treatment of these cancers. Delays in diagnosis and treatment can increase the morbidity and mortality associated with GIS malignancies. GIS endoscopy is an integral part of the multidisciplinary approach to the diagnosis and treatment of malignant diseases in the digestive system.

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