

# Cancer incidence rate in 3217 gastrointestinal system endoscopic procedures: Single surgeon experience

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## ABSTRACT

**Introduction:** Gastrointestinal system cancers are the most common malignant neoplasms in the world. Endoscopic diagnostic methods have an active role in the early diagnosis of gastrointestinal system cancers and in improving treatment outcomes. In this study, a single surgeon's gastrointestinal system endoscopic procedures were evaluated to determine the cancer incidence rate.

**Materials and Methods:** The data obtained from 3217 endoscopic procedures were evaluated retrospectively.

**Results:** Of the cases examined, 1818 (56.52%) were female and 1399 (43.48%) were male. The mean age was 44.3 for women and 46.5 for men. Of the procedures, 2245 were esophagogastroduodenoscopy (EGD) and 972 were colonoscopy. Of the EGD cases, 1443 (64.27%) were female and 802 (35.72%) were male. Of the colonoscopic procedures, 375 (38.58%) were female and 597 (61.41%) were male. While the malignancy rate was 0.44% in esophagogastroduodenoscopies, this rate was found as 2.46% in colonoscopic examinations.

**Conclusion:** Endoscopic examination is the most important diagnostic method in diagnosing cancers in the gastrointestinal tract early.

**Keywords:** Cancer incidence, Endoscopy, Gastrointestinal system

## Introduction

Endoscopy is the most reliable diagnostic method for examining the gastrointestinal tract. Endoscopy allows direct visualization of the mucosa and biopsy for diagnosing lesions such as atrophy, metaplasia, dysplasia, and cancer, and therapeutic interventions.<sup>[1]</sup> Compared to alternative diagnostic strategies, endoscopy is more sensitive in diagnosing various gastric and intestinal lesions.<sup>[2]</sup> In this study, the results of gastrointestinal system endoscopic procedures performed by a single surgeon were evaluated.

## Materials and Methods

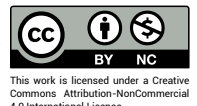
Ethical approval (Approval Number: 2022/632) was provided by the Institutional Research and Ethics Committee of the University of Health Sciences, Kosuyolu Higher Specialty Training and Research Hospital. A written consent form for data assessment was obtained from all patients.

The endoscopic findings of a total of 3217 procedures performed in the endoscopy unit between August 2017 and June 2021 by a single surgeon at Istanbul Pendik State Hospital and the histopathological results of the biopsies were analyzed retrospectively.



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Patients who underwent esophagogastroduodenoscopy (EGD) examination had dysphagia, retrosternal burning, epigastric pain, nausea, vomiting, hematemesis, unexplained iron deficiency anemia, and occult blood in the stool.

On the other hand, those who underwent colonoscopic examinations had changes in bowel habits, weight loss, tenesmus sensation, hematochezia, occult blood positivity in the stool, and a history of colorectal cancer in first-degree relatives.

Pentax brand devices were used in the procedures. Consent was obtained from all patients before the procedure. All procedures were performed after a minimum of 8 h of fasting. Xylocaine, a 2% spray, was used for pharyngeal anesthesia. Patients were prepared for the procedure with a 3-day aqueous diet and colon cleansing 1 day before the procedure for the colonoscopy examination. Demizolam was used as a sedative during the procedure. Sedation was not applied in patients who underwent rectosigmoidoscopy. Routine antrum biopsy was taken in EGD endoscopies. Biopsy was taken only in cases with lesions in colonoscopic examinations.

## Results

Of the 3217 cases examined, 2245 (69.78%) were EGD and 972 (30.21%) were colonoscopy. The mean age was 44.3 for women and 46.5 for men. The ages of the cases ranged from 18 to 84 years.

Of the patients who underwent EGD examination, 1443 (64.27%) were female and 802 (35.72%) were male. Tumors were detected in 10 (0.44%) of 2245 EGD cases. Of these cases, 3 (30%) were female and 7 (70%) were male. In the cases of colonoscopy with malignancy, the mean age was 59 (range 46–75) in women and 61.57 (range 48–75) in men. Of the tumors in EGD examinations, 2 (20%) were esophagus and 8 (80%) were stomach (Table 1). One of the esophageal tumors was  $\frac{1}{3}$  mid-located squamous cell carcinoma in situ and the other was lower-end ade-

nocarcinoma. Four of the gastric-origin tumors were located in the antrum, two in the corpus, one in the cardia, and one in the corpus and cardia. Adenocarcinoma was detected in the pathological examination of all tumors originating from the stomach. Thirty-two (1.42%) gastric polyps and 8 (0.35%) duodenal polyps were detected in the cases, ranging from 1 to 10.

As a result of EGD examination, 1046 (46.59%) gastritis, 385 (17.14%) esophagitis, 220 (9.79%) bile reflux, 122 (5.43%) gastric ulcer, 235 (10.46%) duodenal ulcer, 10 (0.44%) cancer, and 22 (0.97%) other pathologies (such as polyps, diverticulum, varicose veins, and pyloric stenosis) were detected (Table 2).

Three hundred and seventy-five (38.58%) women and 597 (61.41%) men underwent colonoscopies. Tumors were detected in 24 (2.46%) of 972 AGIS cases. Of these cases, 6 (25%) were female and 18 (75%) were male. In AGIS cases with tumors, the mean age of women was 55.66 (range 39–73) and men's was 62.74 (range 55–70). Of the tumors in AGIS examinations, 16 (66.66%) tumors originated from the rectum and 8 (33.33%) from other segments of the colon (Table 3).

Colon tumors were located in four sigmoid colons, two transverse colons, one ascending colon, and one cecum (Table 4). One of the rectal cancer cases had synchronous

**Table 2. Macroscopic diagnoses in patients who underwent esophagogastroduodenoscopy**

Diagnosis	Number (n, %)
Esophagitis	385 (17.14)
Gastritis	1046 (46.59)
Bile reflux	220 (9.79)
Stomach ulcer	122 (5.43)
Duodenal ulcer	235 (10.46)
Cancer	10 (0.44)
Polyp	40 (1.78)

**Table 1. Cancer rates detected in EGD examination**

Localization	Female (n=1443) (%)	Male (n=802) (%)	Total (n=2245) (%)
Esophagus	1 (0.06)	1 (0.001)	2 (0.08)
Stomach	1 (0.06)	7 (0.87)	8 (0.35)
Total	2 (0.17)	8 (0.99)	10 (0.44)

**Table 3. Cancer rates detected in colonoscopic examination**

Localization	Female (n=375) (%)	Male (n=597) (%)	Total (n=972) (%)
Rectum	2 (0.53)	14 (2.34)	16 (1.64)
Colon	4 (1.06)	4 (0.67)	8 (0.82)
Total	6 (1.6)	18 (3.01)	24 (2.46)

**Table 4. Distribution of colorectal cancers by localization at colonoscopy**

Tumor localization	Number (n=24, %)
Rectum	16 (66.66)
Rectosigmoid	3 (12.5)
Sigmoid colon	1 (4.16)
Transverse colon	2 (8.33)
Ascending colon	1 (4.16)
Cecum	1 (4.16)

tumors at two different points. In one case of rectal cancer, there was invasive adenocarcinoma in the head of the synchronous polyp. In other cases, carcinoma in situ was detected in the head of the synchronous tubulovillous adenoma, or severe dysplasia was detected in the tubular adenoma in the sigmoid colon. In the case of transverse colon adenocarcinoma, adenocarcinoma was found in the polyp found in the rectum, and severe dysplasia was found in the synchronous polyp in the transverse colon. In one case of sigmoid colon carcinoma, a polyp with severe dysplasia was also detected in the rectum. In 10 (41.66%) of a total of 24 colorectal cancer cases, polyps were also detected in the colon, ranging from 1 to 5. Synchronous polyp carcinoma was present in 3 (12.5%) of 972 cases who underwent colonoscopy, and severe dysplasia was present in the other 3 (12.5%) cases. Colorectal polyps ranging from 1 to 20 were found in 215 (22.11%) cases. Two of the cases (0.2%) were evaluated as polyposis coli.

In colonoscopies, apart from cancer and polyps, 286 (29.42%) hemorrhoids, 180 (18.51%) anal fissures, 145 (14.91%) diverticula, 28 (2.88%) ulcerative colitis or Crohn's, and 34 (3.49%) other diseases of the colon (i.e., perianal fistula, angiodysplasia) were detected (Table 5).

**Table 5. Macroscopic diagnoses in colonoscopy**

Diagnosis	Number (n, %)
Hemorrhoids	286 (29.42)
Anal fissure	180 (18.51)
Diverticulum	145 (14.91)
Polyp	215 (22.11)
Cancer	24 (2.46)
Ulcerative colitis or crohn	28 (2.88)
Other diseases of the colon	34 (3.49)

## Conclusion

Endoscopy is the gold standard in the diagnosis of gastrointestinal system cancers. Gastrointestinal endoscopy best achieves the primary tumor's tissue diagnosis and anatomical localization. Early use of endoscopy in patients presenting with gastrointestinal complaints was associated with a higher rate of early cancer detection.<sup>[3]</sup> In addition to diagnosing gastrointestinal system diseases, endoscopy stops gastrointestinal bleeding, dilatation of structures, and stent placement in advanced tumors.<sup>[4]</sup>

Endoscopic examination and biopsy are the most important methods in diagnosing gastric cancer. In the examination, all stomach parts can be seen and the fundus and cardia can be evaluated. Colonoscopy has a high diagnostic value when the endoscopic examination is combined with a biopsy.<sup>[5]</sup> In many studies, the frequency of cancer in the endoscopic examination of EGD varies between 0.4% and 3%.<sup>[3,6,7]</sup> In our study, the frequency of cancer in EGD was 0.44%, which was consistent with the literature.

Diagnosis and removal of colon polyps are important in reducing the frequency and mortality of colorectal cancers. All polyps should be removed because of the criticality of their histological structures. The probability of adenomatous polyps increases with age. In many studies, the incidence of polyps in colonoscopic examination varies between 6% and 20%.<sup>[8-10]</sup> In our study, this rate was found

to be 22.11%, consistent with the literature. The mean age of the patients with polyps was 57.64, which was higher than the average age of the patients who underwent the colonoscopic examination.

Colorectal cancer-related death ranks high among all cancer-related deaths. Colorectal cancers are third in women and fourth in men among all cancers.<sup>[11]</sup> In many studies, the incidence of colorectal cancer in colonoscopic examination varies between 2% and 14%.<sup>[12-14]</sup> In our study, this rate was found to be 2.46% and was found to be compatible with the literature.

Colorectal cancers are significantly more common in men.<sup>[15,16]</sup> Consistently, 75% of colorectal cancer cases were men in our study.

Colorectal cancers most commonly develop in the rectum and rectosigmoid region. Similarly, our study revealed 83.33% of colorectal cancers in the rectum and rectosigmoid region.

In brief, gastrointestinal system endoscopy allows direct visualization of the tumor and biopsy of the lesion. This feature has a critical role in the early diagnosis and treatment of many gastrointestinal system tumors without delay. We recommend endoscopic examination as the first choice when diagnosing gastrointestinal system cancers.

## Disclosures

**Ethics Committee Approval:** Ethical approval (Approval Number: 2022/632) was provided by the Institutional Research and Ethics Committee of the University of Health Sciences, Kosuyolu Higher Specialty Training and Research Hospital.

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** None declared.

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