

# Detection of Factors That Cause Delay to Surgical Treatment of Patients with Gastrointestinal Malignancies in Patients of Hospital during 2 Years

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## Research Article

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# Abstract

**Background:** Many patients with gastrointestinal malignancies suffer from false treatments and incorrect diagnostic studies before diagnosis. This study examines the time taken to diagnose gastrointestinal cancer, identify the cause of delay, and judge its clinical importance.

**Materials and Methods:** Patients with gastrointestinal malignancies (Esophageal, gastric, and colorectal) who were admitted for the first surgery were considered. The delay of diagnosis and treatment and responsible factors were analyzed from patients' history by recall of patients and reviewing para-clinical data, patient's records, and pathology report.

**Results:** A total of 123 patients underwent diagnostic endoscopy 140 times. This study shows that the rate of biopsy in the three groups of patients with esophageal, gastric and colorectal cancers was 0.8%, 11.4% and 87.8%, respectively, which was not significantly different. A comparison of the number of patients who have undergone endoscopy more than once in the three groups of esophageal, gastric and colorectal malignancies shows that 6% of patients with esophageal cancer and 12% of patients with gastric cancer have undergone endoscopy more than once. This rate was 82% in patients with colorectal cancer (P Value = 0.05).

**Conclusion:** from this study can we educate the public about the symptoms of these diseases; and work that can be offered as a suggestion in this field, in prioritizing surgeries related to malignancies referred to medical centers, as well as establishing a systemic management of the initial diagnosis and finally treatment leading to surgery in patients with malignancies in each classification is.

## 1. Introduction

A little experience for any gastrointestinal surgeon is enough to realize the fact that many patients with gastrointestinal malignancies undergo surgery at a stage that has long been symptomatic, and some of which at that stage are non-tumorous (1). When reviewing the medical literature for indices pertaining to such problems, we found that some scientific data describing the effect of pretreatment delay on treatment results are virtually non-existent to evaluate the potential consequences of treatment delay on resectability rate and postoperative morbidity and mortality in patients with colorectal and gastric cancer included in a medical center study (2).

They can be harvested. At first glance, it may seem that the reason for this fact is the late referral of patients to the health care system. But in a comprehensive and systematic view, it seems that the main cause of this delay in treatment is not only patients and the problems of the health care system are also involved. Therefore, it is necessary to study this issue scientifically and consider its practical solutions, considering all possible factors in creating the above problem. This study, while recognizing the main causes of delay in diagnosis and treatment of patients with gastrointestinal malignancies, identifies appropriate strategies to shorten the process of diagnosis and surgical treatment of these patients and is a justification for providing national programs in this regard. Two ways have been suggested to reach an

early diagnosis: tumor diagnosis during the asymptomatic period and reduction of diagnostic delay. Public health policies in Western countries such as the United Kingdom have established screening programs in which symptomatic patients may be assisted by a gastroenterologist within two weeks (3). This is a cheaper option, but its efficacy is unknown (4). Furthermore, there is no agreement as to which other factors may be associated with tumor extension (5–9).

## **2. Objective**

Our aim in this study is to observe the factors and time taken to diagnose colorectal cancer, identify the source of delay, and assesses its clinical importance and examined the length of delay in diagnosis and the reasons.

## **3. Materials And Methods**

### **3.1. Ethics**

This study was approved by the Ethics Committee of Milad General Hospital. Informed agreement was obtained from all participants or their parent or legal guardian.

### **3.2. Study Population**

This study was performed on patients in the surgical wards of the Milad General Hospital from March 2018 to March 2020 at during which 125 patients were admitted. All patients were examined sequentially but two patients were excluded from the study due to unavailability of documents and files. The inclusion criteria were patients with gastrointestinal cancer (esophageal, gastric and colorectal cancers) who referred for the first surgery and were in Iran from the beginning of their disease at this hospital. Patients with a recurrence of the disease who had previously undergone surgery related to their current disease in another hospital and patients who had undergone part of their diagnosis and treatment in another country were excluded from the study (exclusion criteria). Information was extracted from patients' history (through interviews with patients or companions), patient diagnostic documents (endoscopy, radiology, and pathology), surgical ward file and patient's final pathology report. Then, the delay in the diagnosis and treatment of patients was analyzed and the effect of each was determined.

### **3.3. Statistics**

Timely reminder of illness events due to the available evidence and getting help from companions and family, the reminder bias was reduced as much as possible. Data that were analyzed in terms of number were analyzed by Chi-Square test and items that were compared by means were analyzed by Student T-Test and One-way Anova tests. Multivariate regression test was used to investigate several factors on delay in diagnosis. Analyses were carried out with SPSS software 22.0 (IBM, Armonk, NY, USA).

## **4. Results**

Of 125 patients admitted, 2 were not included in the study due to non-compliance with the inclusion criteria and a total of 123 patients were examined. In total, 2 patients (1.62%) had esophageal malignancy, 14 patients (11.38%) had gastric malignancy and 107 patients (86.9%) had colorectal malignancy. The mean age of patients was 60.94 years and ranged from 27 to 90 years. Median age was 61.00. 80 patients (65%) were male and 43 patients (35%) were female.

Table 1  
Components of Delay in Surgical Treatment of 123 Patients with Gastrointestinal Cancers

Components of Delay in Treatment of Patients (n = 123)	Number of Patients (Percentage)
Delay due to non-referral of the patient after the onset of symptoms	5(4%)
The patient had no problem, it was taken quickly	20(16%)
Delay due to scopy without definitive diagnosis	7(5%)
Delay due to dissatisfaction with surgery	1(0.81%)
Time between referral for surgery to referral	8(6%)
Duration from clinic to hospitalization	36(29%)
Chemoradiotherapy before surgery	46(37%)

Table 2  
Frequency of Biopsy

Location	Frequency	Percentage
Colon	108	87.8
Esophagus	1	0.8
Stomach	14	11.4
<b>Total</b>	<b>123</b>	<b>100</b>

Table 3  
Causes of Delay in Surgical Treatment of Up-To-Date Patients by Tumor Site

Time Intervals	Colorectal 108 n =	Stomach n = 14	Esophagus n = 1
Time to start symptoms until the first visit	1 (0.92)	0	0
Endoscopy without definitive diagnosis	7 (6.48)	0	0
Preoperative chemoradiotherapy	31 (28.70)	13 (92.85)	1 (100)
Referral for surgery until referral	8 (7.40)	0	0
From clinic to hospitalization	36 (33)	0	0
From the onset of symptoms to surgery	1 (0.92)	1 (7.14)	0
*24 patients had no problems with delayed referral.			
+Data are expressed by Number (%).			

Table 4  
Number of Endoscopy and Biopsy of 123 Patients with Gastrointestinal Cancer before Surgery

Endoscopy / Biopsy	Number (%)
Number of endoscopies or colonoscopies before surgery	123 (100)
Number of repeated biopsies	17 (13)
Colonoscopy or endoscopy without diagnosis of malignancy, with positive biopsy	17 (13)
Endoscopy or colonoscopy with diagnosis of malignancy, with positive biopsy	106 (86)

A total of 123 patients underwent diagnostic endoscopy 140 times (average 1 times per patient). The results of these endoscopies are shown in Table 3. This study shows that only in 106 of patients (86%) endoscopy, both malignancy and appropriate biopsy were taken. In 17 cases (13%), despite the diagnosis of malignancy and biopsy, the biopsy result was negative in terms of malignancy and a quarter of all biopsies (36 cases) were (re-biopsy). The rate of biopsy in the three groups of patients with esophageal, gastric and colorectal cancers was 0.8%, 11.4% and 87.8%, respectively, which was not significantly different. A comparison of the number of patients who have undergone endoscopy more than once in the three groups of esophageal, gastric and colorectal malignancies shows that 6% of patients with esophageal cancer and 12% of patients with gastric cancer have undergone endoscopy more than once. This rate was 82% in patients with colorectal cancer (P Value = 0.05).

## 5. Discussion

The usual and trouble-free process in diagnosing gastrointestinal malignancy is that after the onset of clinical symptoms and referral to the health care system, the doctor suspects the patient and performs diagnostic procedures, the most important of which is gastrointestinal endoscopy (4, 10). This test will confirm the tumor and the pathological examination of the biopsy will confirm it. If the above process goes easily, the patient is referred for surgical treatment as soon as possible. But in fact, many problems arise in this simple process. Factors that can lead to delays in surgical treatment include: late symptoms of the disease, delay in the initial visit of the patient, lack of necessary attention of physicians in the initial treatment of patients, inappropriate diagnostic-therapeutic measures, inappropriate endoscopy and or without biopsy, long pathological examination of biopsies, financial problems for hospitalization and surgery, long surgical appointments, long preoperative examinations, the attitude of some people and even doctors that surgery is useless in these patients (11). The result of the above problems is that a significant number of patients are diagnosed at a more advanced stage, which has consequences such as inability to cure the patient, shortening of patient survival, negative socio-economic effects in society and public distrust of the health that system seeks treatment (12). To determine the importance of each of the above problems, without a comprehensive review, it is not possible to determine the priority and the necessary budget for possible solutions. Doing this study will indicate which of the problems is a priority and which is the best way to solve this problem. The results of the above study indicate a delay of one year in the surgical treatment of patients with gastrointestinal cancers (including esophageal, gastric and colorectal cancers), which could indicate a national problem in the diagnosis and treatment of this group of diseases. Examination of the experiences of other countries also shows a delay in the diagnosis of these diseases (13). In a study in United Kingdom, 27 patients with esophageal cancer and 80 patients with gastric cancer, found that the interval between the onset of symptoms and diagnosis was 17 weeks (1 to 168 weeks) and the stage of diagnosis in patients with esophageal cancer. It has a significant relationship with delay in diagnosis (14, 15).

## 5.1. Conclusion

According to the work done in this hospital, one of the important factors in delaying the treatment of patients, especially cancer patients and gastrointestinal cancer, can be the lack of fast and timely hospitalization and operating room, after which the patient must be wait a while for the surgery. From the beginning of symptoms to the start of treatment and transfer of the patient to specialists, this should be done by a general practitioner or in the emergency room. Assigning part of continuing education programs for physicians, especially general practitioners, to gastrointestinal cancers to focus on symptoms and clinical suspicion, indications for diagnostic or referrals, types of diagnostic tests, and the value of each are priority strategies. Development of endoscopic standards and monitoring of endoscopic procedures performed in the country are other solutions. The next step is to educate the public about the symptoms of these diseases; and work that can be offered as a suggestion in this field, in prioritizing surgeries related to malignancies referred to medical centers, as well as establishing a systemic management of the initial diagnosis and finally treatment leading to surgery in patients with malignancies in each classification is.

## 5.2. Limitation of Study:

One of them is that collection of some data based on patient statements. Although many cases have been collected using written documents and paraclinical results and patient records, there are still cases such as the distance from the onset of symptoms to the visit to the doctor or the distance from the visit to the general practitioner to the specialist visit. For per case we just collected their information only by asking the patient. Therefore, for future more detailed and extensive studies, it is recommended that relevant information be collected from the physicians of the patients under study to increase the validity of the study.

Another limitation of the study was that the patients were hospitalized in the surgical ward, so patients with advanced or metastatic cancers who were not candidates for surgery were not included in the study and were referred directly for chemoradiotherapy. Therefore, the rate of non-surgical cancers in the community is probably higher than the rate obtained in this study. To solve the above problems, it is necessary to conduct a wide-ranging study that examines patients in the early stages of the process, and also considers patients from different social backgrounds. It is also necessary to gather the necessary information from more human resources, such as doctors.

## Declarations

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### Conflict of Interest Statement:

There is no Financial Disclosure in this study.

### Financial Disclosure:

Authors disclosed no conflicts of interests.

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### Author Contributions:

Dr. Sahel Valadan Tahbaz; conceived of the presented idea, developed the theory and performed the computations, verified the analytical methods. Dr. HosseinYahyazadeh; supervised the findings of this work, discussed the results and contributed to the final manuscript. Marzieh Beheshti; contributed to the design and implementation of the research, analysis of the results and to the writing of the manuscript.

## References

1. Maconi G, Manes G, Porro GB. Role of symptoms in diagnosis and outcome of gastric cancer. *World J Gastroenterol*. 2008;14(8):1149–55.
2. Haugstvedt TK, Viste A, Eide GE, Soreide O. Patient and physician treatment delay in patients with stomach cancer in Norway: is it important? The Norwegian Stomach Cancer Trial. *Scand J Gastroenterol*. 1991;26(6):611–9.
3. Williams JG, Roberts SE, Ali MF, Cheung WY, Cohen DR, Demery G, et al. Gastroenterology services in the UK. The burden of disease, and the organisation and delivery of services for gastrointestinal and liver disorders: a review of the evidence. *Gut*. 2007;56(Suppl 1):1–113.
4. Martin IG, Young S, Sue-Ling H, Johnston D. Delays in the diagnosis of oesophagogastric cancer: a consecutive case series. *BMJ*. 1997;314(7079):467–70.
5. Dulal S, Paudel BD, Wood LA, Neupane P, Shah A, Acharya B, et al. Reliance on Self-Medication Increase Delays in Diagnosis and Management of GI Cancers: Results From Nepal. *JCO Glob Oncol*. 2020;6:1258–63.
6. Gillis A, Dixon M, Smith A, Law C, Coburn NG. A patient-centred approach toward surgical wait times for colon cancer: a population-based analysis. *Can J Surg*. 2014;57(2):94–100.
7. Korsgaard M, Pedersen L, Laurberg S. Delay of diagnosis and treatment of colorectal cancer—a population-based Danish study. *Cancer Detect Prev*. 2008;32(1):45–51.
8. Macdonald S, Macleod U, Campbell NC, Weller D, Mitchell E. Systematic review of factors influencing patient and practitioner delay in diagnosis of upper gastrointestinal cancer. *Br J Cancer*. 2006;94(9):1272–80.
9. Roncoroni L, Pietra N, Violi V, Sarli L, Choua O, Peracchia A. Delay in the diagnosis and outcome of colorectal cancer: a prospective study. *Eur J Surg Oncol*. 1999;25(2):173–8.
10. Gomez-Dominguez E, Trapero-Marugan M, del Pozo AJ, Cantero J, Gisbert JP, Mate J. The colorectal carcinoma prognosis factors. Significance of diagnosis delay. *Rev Esp Enferm Dig*. 2006;98(5):322–9.
11. Tomlinson C, Wong C, Au HJ, Schiller D. Factors associated with delays to medical assessment and diagnosis for patients with colorectal cancer. *Can Fam Physician*. 2012;58(9):e495–501.
12. Harris GJ, Simson JN. Causes of late diagnosis in cases of colorectal cancer seen in a district general hospital over a 2-year period. *Ann R Coll Surg Engl*. 1998;80(4):246–8.
13. Hosokawa O, Watanabe K, Hatorri M, Douden K, Hayashi H, Kaizaki Y. Detection of gastric cancer by repeat endoscopy within a short time after negative examination. *Endoscopy*. 2001;33(4):301–5.
14. Neal RD, Tharmanathan P, France B, Din NU, Cotton S, Fallon-Ferguson J, et al. Is increased time to diagnosis and treatment in symptomatic cancer associated with poorer outcomes? Systematic review. *Br J Cancer*. 2015;112(Suppl 1):92–107.
15. Arvanitakis C, Nikopoulos A, Giannoulis E, Theoharidis A, Georgilas V, Fotiou H, et al. The impact of early or late diagnosis on patient survival in gastric cancer in Greece. *Hepatogastroenterology*.

1992;39(4):355-7.