Small Bowel Resection in Malignancy

Malignitede İnce Bağırsak Rezeksiyonu

Abstract

Aim: The diagnosis of small bowel (SB) tumors is often delayed due to the lack of specific symptoms and inadequacy of conventional endoscopic and imaging methods. In this study, we aimed to evaluate the clinical and pathological features of SB resections in patients with malignancy and determine the necessary approaches for early diagnosis.

Methods: Patients who underwent SB resections for primary or metastatic tumors between 2012 and 2019 were evaluated retrospectively. Demographic data, diagnostic workup, surgical treatment patterns, histopathological features, and outcome parameters were documented.

Results: The study included 61 patients (38 males, 23 females), with a mean age of 59 years. Twenty-four patients had primary SB tumors and 37 had metastatic tumors. Adenocarcinoma was the most common type of primary tumor while the colon was the most common origin for metastatic involvement. Twenty (32%) patients underwent emergency operations. Acute mechanical intestinal obstruction was the most common indication for emergency surgery. Forty-one (68%) patients underwent elective operations. The most common symptom was abdominal pain, followed by weight loss, loss of appetite, nausea and vomiting, and constipation and diarrhea.

Conclusion: The most important parameters that determine the prognosis are histological type and tumor stage. Considering SB tumors during the differential diagnosis of non-specific abdominal complaints is critically important for the early diagnosis of the disease.

Keywords: adenocarcinoma; malignancy; metastasis; small bowel

Öz

Amaç: İnce bağırsak tümörlerinin teşhisi, spesifik semptom eksikliği ve de konvansiyonel endoskopi ve görüntüleme yöntemlerinin yetersizliği nedeniyle genellikle gecikir. Bu çalışmada malign vakalarda ince bağırsak rezeksiyonlarının klinik ve patolojik özelliklerini değerlendirmek ve erken tanı için gerekli yaklaşımları belirlemek amaçlanmıştır.

Yöntem: 2012–2019 yıllarında primer veya metastatik tümörler için ince bağırsak rezeksiyonu uygulanan hastalar retrospektif olarak değerlendirildi. Demografik veriler, tanı çalışmaları, cerrahi tedavi yöntemleri, histopatolojik özellikler ve takip parametreleri incelendi.

Bulgular: Çalışmaya yaş ortalaması 59 yıl olan 61 hasta (38 erkek, 23 kadın) dahil edildi. Yirmi dört hastada primer ince bağırsak tümörü, 37 hastada metastatik tümör vardı. Adenokarsinom en yaygın primer tümör tipi iken metastatik tutulum için en yaygın köken kolon idi. Yirmi (%32) hastada acil operasyon uygulandı. Akut mekanik bağırsak tıkanıklığı acil cerrahi için en yaygın endikasyondu. Kırk bir (%68) hastada elektif operasyon uygulandı. En sık görülen semptom karın ağrısı olup bunu kilo kaybı, iştahsızlık, bulantı ve kusma, kabızlık ve ishal izlemekteydi.

Sonuç: Prognozu belirleyen en önemli parametreler histolojik tip ve tümör evresidir. Spesifik olmayan karın şikayetlerinin ayırıcı tanısında ince bağırsak tümörlerinin göz önünde bulundurulması hastalığın erken teşhisi için kritik önemdedir.

Anahtar Sözcükler: adenokarsinom; ince bağırsak; malignite; metastaz

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INTRODUCTION

Small bowel (SB) tumors are extremely rare although the three sections of the SB (the duodenum, jejunum, and ileum) constitute 75% of the length of the entire digestive tract. SB tumors are not among the twenty most common types of cancer; their incidence among all tumors is below 1% and they make up 3% of all digestive tract tumors (1,2).

The most common malignant lesions found in the SB are metastatic tumors. The literature contains reports of various tumors metastasizing to the SB, including breast, lung, and kidney tumors (3–5). Williamson et al. reported the most common primary site of metastasis as the lungs, breast, and colon (6), while Idelevich et al. reported SB metastasis in breast, colon, lung, kidney and ovary cancers and malign melanoma (7). Histopathologically, the most common types of primary malignant lesions are adenocarcinomas, carcinoids, gastrointestinal stromal tumors (GISTs), and lymphomas.

The diagnosis is often delayed due to the lack of specific symptoms and clinical findings. Abdominal pain, anemia, nausea, vomiting, and weight loss are the most common but nonspecific, unhelpful symptoms of presentation (8,9). Many patients remain asymptomatic until the advanced stages of the disease, and acute obstruction, perforation, and massive hemorrhage are likely to be the first clinical manifestations. Imaging methods may fail in the diagnosis. While until recently the time-consuming and poorly tolerated barium enteroclysis was the mainstay of diagnosis, CT and MRI techniques using enteroclysis are more able to identify the tumoral lesions. Capsule endoscopy and enteroscopy techniques are the best methods for investigating the SB. However, despite the advantage of direct visualization of the mucosa, the widespread use of these methods is limited by the high costs associated with them (10).

In this study, we aimed to characterize the clinical and histopathological features of SB resections performed to treat primary and metastatic tumors in a tertiary university hospital.

MATERIALS AND METHODS

We retrospectively reviewed the medical records of patients who underwent SB resections for primary or metastatic malignant tumors at the Tokat Gaziosmanpaşa University Hospital between January 2012 and January 2019. Patients with benign tumors and under the age of 18 were excluded. Demographic data, diagnostic workup, surgical treatment patterns, histopathological features, and outcome parameters were documented. Follow-up data were collected from the medical records and by telephone interviews.

Statistical analysis

The data collected were coded using the SPSS (20.0) software. The Kaplan–Meier method was used for survival analysis. The significance of the survival-related variables was assessed by the Cox regression model. $p<0.05$ was considered statistically significant.

Study ethics

The study protocol was approved by the Ethics Committee of the Tokat Gaziosmanpaşa University.

RESULTS

Of the 61 patients (38 males, 23 females) included in the study, 24 had primary tumors while 37 had metastatic lesions (Figure 1). In the primary tumor group, the final pathological diagnosis was adenocarcinoma in 10 patients, GIST in 9, lymphoma in 3, and carcinoid in 2. There were 37 patients with distant metastasis to the SB who underwent partial resection or resection and anastomosis of the intestine. The metastatic lesions resected from the SB mostly originated from the colon (21 patients), followed by the stomach (6), ovaries (4), pancreas (3), kidney (2), and lungs (1) (Figure 2).

The mean patient age was 59.1 (20–82) years. The mean age for patients with primary SB tumors and metastatic lesions was 51.4 years and 63.6 years, respectively; and the difference between the two groups was statistically significant ($p<0.05$).

All of the 61 patients were symptomatic (Table 1). The most common symptom was abdominal pain, followed by weight loss, loss of appetite, nausea and vomiting, and constipation and diarrhea.

Twenty patients underwent emergency operations. The diagnosis was perforation in 5 patients while acute obstruction in 15. Four of the patients who were operated on for obstruction had invagination. Forty-one

Table 1. Symptoms at the time of diagnosis

Symptom	n	%
Abdominal pain	57	93
Weight loss	53	87
Loss of appetite	51	84
Nausea/vomiting	40	66
Constipation	26	43
Diarrhea	7	11
Melena/hematochezia	5	8

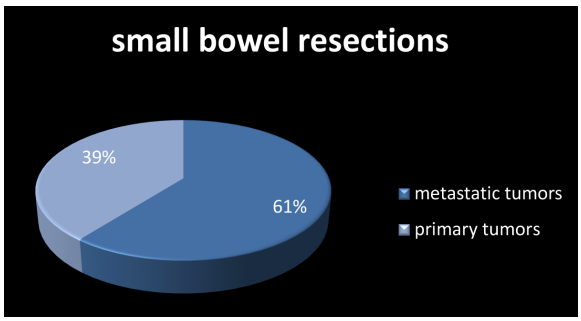

Figure 1. Percentage chart for the primary and metastatic SB tumors

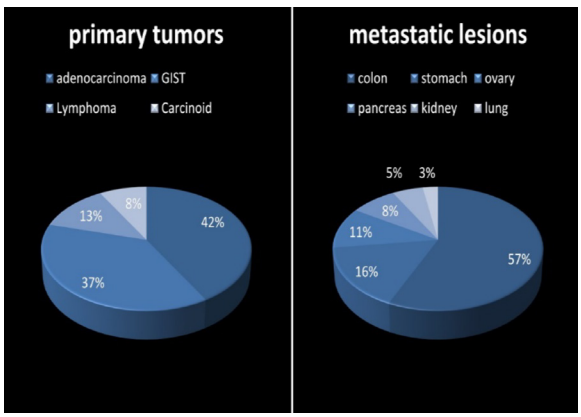

Figure 2. Histopathological diagnoses of the 61 patients

patients had an elective operation.

Two patients in the primary tumor group and 14 patients in the metastatic lesion group died within the first postoperative year. The 1-year survival rate was 91% and 62% for the patients with primary SB tumors and metastatic lesions, respectively ($p<0.05$).

DISCUSSION AND CONCLUSION

The mucosal layers of both small and large bowel are lined by simple columnar epithelial cells. These cells are continuously renewed in every 4–5 days. There is a constant process of renewal and apoptosis (11). Despite the similarities, the probability of tumor development in the large bowel is 15 to 25 times higher than that for the small intestine (1,2). Although the reason for this has not been fully understood, the explanations offered include increased lymphoid tissue, secretion of high amounts of IgA, diluted content, rapid transit time, and less bacterial load in the SB (12,13).

Metastatic involvement is more common than primary tumors. In our study, 37 of the 61 SB resections were done for metastatic lesions. Metastatic spread may develop through the adjacent tissue or the hematogenous/lymphatic route. Primary intra-abdominal tumors are more likely to invade the serosa of the SB, which can be called disseminated metastasis. In our study, the colon was the most common primary focus of tumor for metastasis to the SB. Retroperitoneal and extraperitoneal primary tumors of the breast, lungs, kidney, and pancreas metastasize to the bowel through the hematogenous/lymphatic route (14).

There is no specific symptom of SB malignancy. In our study the nonspecific abdominal pain was the most common symptom. Nonspecific abdominal pain is defined as "pain for which no immediate cause can be found and specifically does not require surgical intervention". It is usually a self-limiting condition (15,16). Given the frequency of digestive tract diseases such as gastritis, cholelithiasis, and gastroenteritis, this symptom may easily be disregarded. Accordingly, any patient presenting with abdominal pain should be subject to further examination considering the possibility of malignancy. In three previous studies, abdominal pain, weight loss, and nausea/vomiting were similarly reported as the most common symptoms (8,17,18).

More than 30 subtypes of primary malignant SB tumors have been defined (19). Among these, adenocarcinomas, GISTs, carcinoids, and lymphomas are the most frequently diagnosed tumors. Our study showed a similar distribution, with adenocarcinomas being the most common, followed by GISTs, lymphomas, and carcinoids. The duodenum, ileum, and jejunum was the most common localization for adenocarcinomas and carcinoids, GISTs, and lymphomas, respectively.

Metastatic SB tumors are more aggressive, with a lower survival rate than that in primary tumors. The survival rate is highly dependent on tumor type and

the disease stage at the time of diagnosis. In our study, the survival rate was found to be significantly longer for patients with primary SB tumors than for those with metastatic tumors.

In conclusion, SB tumors are very rare tumors and, because of the lack of specific symptoms and inadequacy of diagnostic methods, are often diagnosed in advanced stages. In the evaluation of patients with chronic nonspecific abdominal pain, it is important to consider SB tumors in the differential diagnosis. Histopathological type and tumor stage are the most important parameters determining the prognosis.

Conflict-of-Interest and Financial Disclosure

The authors declare that they have no conflict of interest to disclose. The authors also declare that they did not receive any financial support for the study.

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