CASE REPORT / OLGU SUNUMU

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Widespread Tumor Deposit Without Lymph Node Metastasis in Colon Cancer: A Case Report Regarding the Significance of Tumor Deposit Number

Kolon Kanserinde Lenf Düğümü Metastazı Olmadan Yaygın Tümör Depoziti: Tümör Depoziti Sayısının Önemine İlişkin Bir Olgu Sunumu

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Abstract

Colon cancer is one of the most common malignancies worldwide, and tumor stage and lymph node metastasis are among the most important factors determining prognosis. Tumor deposits are defined as tumor nodules located in the pericolic or mesenteric adipose tissue that do not contain lymph node structures; in the current TNM classification, their presence in the absence of lymph node metastasis is classified as N1c. Tumor deposits are associated with adverse histopathological features such as poor differentiation, lymphovascular invasion, and advanced tumor stage, and are considered an independent poor prognostic factor affecting survival. Furthermore, it has been reported that a high tumor deposit burden may be associated with clinical outcomes similar to, or even worse than, those of lymph node-positive disease. These findings suggest that current staging systems do not adequately reflect the tumor deposit burden and that more comprehensive prognostic evaluations are needed in this patient group. This case describes the clinical condition of a patient with numerous tumor deposits in the absence of lymph node metastasis and compares this condition with cases reported in the literature.

Keywords: Colon cancer, tumor deposit, lymph node, staging

Öz

Kolon kanseri, dünya genelinde en sık görülen malignitelerden biri olup prognozu belirleyen en önemli faktörler arasında tümör evresi ve lenf nodu metastazı yer almaktadır. Tümör depozitleri, perikolik veya mezenterik yağ dokusunda yer alan, lenf nodu yapısı içermeyen tümör nodülleri olarak tanımlanmakta ve güncel TNM sınıflamasında lenf nodu metastazı olmaksızın varlığında N1c kategorisinde değerlendirilmektedir. Tümör depozitleri; kötü diferansiyasyon, lenfovasküler invazyon ve ileri tümör evresi gibi olumsuz histopatolojik özelliklerle ilişkili olup, sağkalım üzerinde bağımsız bir kötü prognostik faktör olarak kabul edilmektedir. Ayrıca, yüksek tümör depozit yükünün, lenf nodu pozitif hastalığa benzer hatta daha kötü klinik sonuçlarla ilişkili olabileceği bildirilmektedir. Bu bulgular, mevcut evreleme sistemlerinin tümör depozit yükünü yeterince yansıtmadığını ve bu hasta grubunda daha kapsamlı prognostik değerlendirmelere ihtiyaç olduğunu düşündürmektedir. Bu olgumuzda da lenf nodu metastazı olmaksızın çok sayıda tümör depoziti içeren bir hastanın klinik durumu anlatılarak literatürle karşılaştırılmıştır.

Anahtar Kelimeler: Kolon kanseri, tümör depoziti, lenf nodu, evreleme

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Introduction

Colon cancer is the 4th most common malignancy in the world. In 2018, more than 1 million new cases of colon cancer were diagnosed worldwide, and more than 500.000 people died from colon cancer (1). The spread of colon cancer is a multi-stage and heterogeneous process. The tumor can primarily advance along the intestinal wall, reach the serosa, and directly invade neighboring organs. The most common route of spread is the lymphatic pathway, where tumor cells first metastasize to the pericolic lymph nodes, then to more central lymphatic stations, which is defined as stage N in the TNM classification. Hematogenous spread occurs primarily via the venous system and most frequently results in liver metastases via the portal circulation; this process is closely related to extramural venous invasion. Furthermore, if the tumor extends beyond the serosa, it can spread to the peritoneal surfaces, leading to peritoneal carcinomatosis. Finally, tumor deposits are defined as discrete tumor nodules that do not contain lymph node structures and are located within pericolic or mesenteric adipose tissue. Although the pathogenesis of these formations has not been fully elucidated, they may be related to lymphatic, venous, or perineural spread. Cases with tumor deposits in the absence of lymph node metastasis are classified as N1c in the TNM system, suggesting alternative tumor biology beyond classical patterns of spread. The presence of tumor deposits directly affects survival (2). There are publications arguing that adjuvant chemotherapy should be considered in cases with tumor deposits without lymph node metastasis (3).

Studies focusing particularly on patients with tumor deposits without lymph node metastasis (N1c) are quite limited. The majority of existing data include heterogeneous patient groups or evaluate tumor deposits together with lymph node-positive patients (4). Therefore, this case report aims to contribute to conclusions regarding the clinical behavior and prognosis of cases that are lymph node-negative but tumor deposit-positive. In addition, there are new studies showing the relationship between the number of tumor deposits and prognosis (5). Our case, despite being N0, could contribute to the literature because of the presence of numerous tumor deposits and the associated prognosis.

This case presentation aims to discuss the current literature regarding the aggressive pathology observed in a patient with a colon tumor who presented with ileus, underwent emergency surgery, and was found to have tumor deposits without lymph node metastasis.

Case Presentation

A 75-year-old male patient presented to the emergency department with nausea, vomiting, abdominal pain, and an absence of stool for three days. Physical examination revealed mild abdominal distension and guarding. Blood tests showed elevated acute-phase reactants. An abdominal X-ray showed no pathological findings. Oral and intravenous contrast-enhanced thoracic and abdominal CT scans were performed. The CT scan revealed an obstructive mass in the proximal transverse colon. Dilatation was observed in the colon segment between the ileocecal valve and the mass (Figure 1). There were no metastases to the lungs, liver, or other organs. The patient was admitted to the ward with a diagnosis of ileus. On the following day, a relapse was observed, and elevated acute phase reactants were detected in the blood. Emergency surgery was planned. The patient gave informed consent for the surgery.

The patient underwent a right hemicolectomy and an end ileostomy because of their debilitated condition at the time of surgery. The patient was extubated and admitted to the surgical intensive care unit. After 3 days in the intensive care unit, they were transferred to the ward and discharged on the 12th postoperative day. The patient presented to the outpatient clinic with the pathology results. The pathology was consistent with T4N1C undifferentiated colon carcinoma. Subtype differentiation could not be determined due to aggressive tumor biology. There were 13 reactive lymph nodes, but numerous tumor deposits were present. Surgical margins were negative. The patient was referred to the medical oncology unit for adjuvant chemotherapy.

A computed tomography (CT) scan performed for systemic treatment planning revealed extensive metastases in the lungs and liver. These metastases were not visible on the CT scan obtained 45 days earlier (Figure 2). Adjuvant systemic chemotherapy was planned for the patient.

Discussion

Tumor deposits in colon cancer are defined as tumor nodules located within the pericolic or mesenteric adipose tissue that do not contain lymph node structures or significant vascular structures. While their biological origins are not entirely clear, mechanisms such as discontinuous lymphovascular spread, perineural invasion, or extranodal extension of microscopic nodal metastases have been proposed. Current data support the idea that the presence of tumor deposits is not only a morphological finding but also an indicator of aggressive tumor biology.

Because tumor deposits have prognostic significance, the TNM classification includes the N1c category, which refers to the presence of tumor deposits without regional lymph node metastasis. Large series in the literature have shown that overall survival is significantly worse in patients with positive tumor deposits than in patients with negative lymph nodes (N0) (2). This suggests that the presence of tumor deposits without

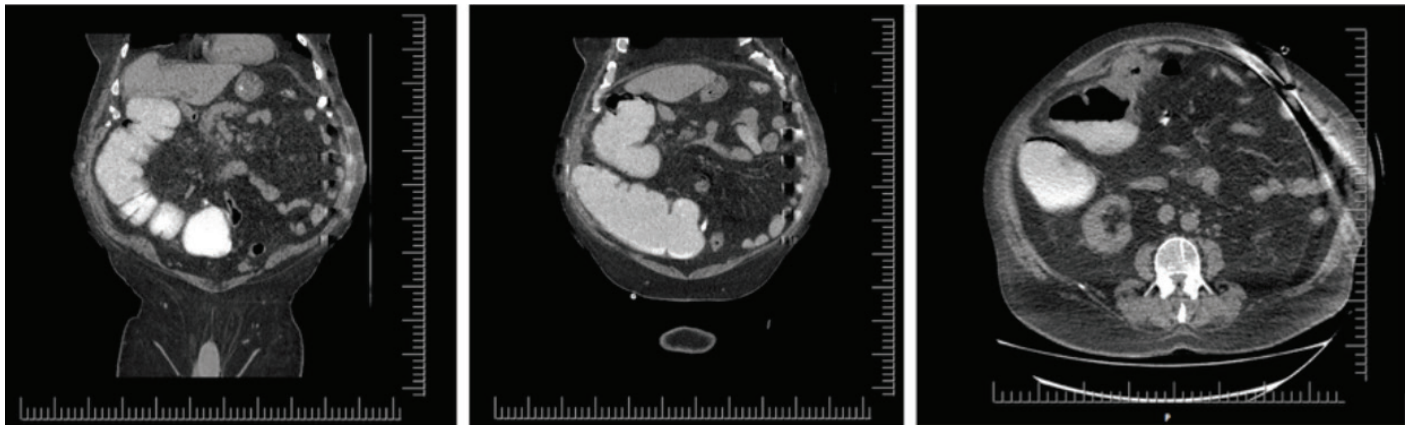

Figure 1. Preoperative CT scan images of the patient
CT: Computed tomography

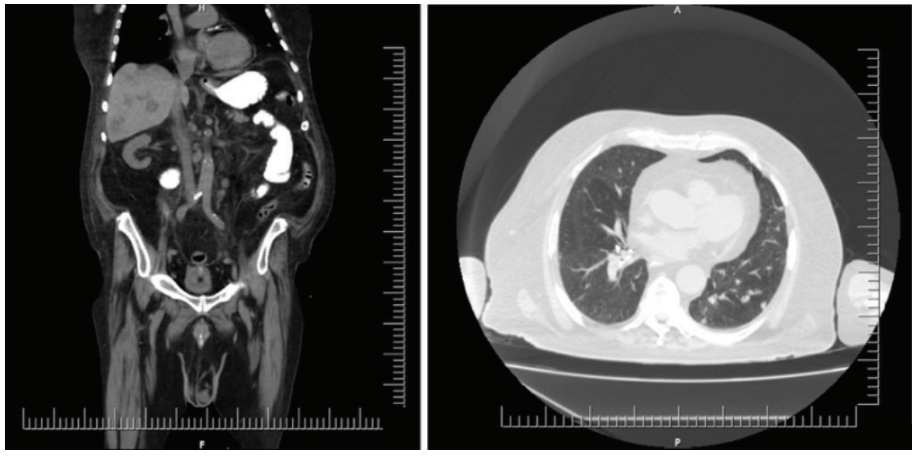

Figure 2. CT scan before adjuvant chemotherapy (liver and lung metastases)
CT: Computed tomography

lymph node involvement indicates that the disease is in a more advanced biological stage (6).

Not only the presence of tumor deposits but also their number is of prognostic importance. Various studies have reported an inverse relationship between the increase in the number of tumor deposits and survival, and that the prognosis of patients with a large number of tumor deposits can approach N2 disease (7). In line with these findings, some researchers are proposing new subclassifications (e.g., "N2c") that incorporate tumor deposit burden in addition to the parameters of the current TNM classification. In the presented case, the presence of a large tumor deposit, despite the absence of lymph node metastasis, seems consistent with the aggressive course of the disease.

Furthermore, the presence of tumor deposits is strongly associated with other unfavorable histopathological features such as poor differentiation, lymphovascular invasion, perineural invasion, and advanced T stage (6). This supports the idea that tumor deposits may be an indicator of systemic spread. Indeed, the presence of tumor deposits has been reported as an independent poor prognostic factor even in early-stage colon cancers (8). In our case, the extensive tumor deposits and the aggressiveness of the primary colon tumor are correlated.

A significant limitation of the current TNM classification is that it does not take into account the number of tumor deposits. Recent studies have shown that composite indices that evaluate the number of tumor deposits and the number of negative lymph nodes together can predict prognosis more accurately (9). This suggests that the current staging system may be insufficient, especially in patients with a high tumor deposit burden.

Clinically, the management of N1c patients remains controversial. These patients are considered stage III, and adjuvant chemotherapy is recommended; however, their prognosis is heterogeneous. Some studies show that tumor-deposit-positive patients benefit from systemic treatment similarly to lymph-node-positive patients. This suggests that tumor deposit should be evaluated as equivalent to lymph node metastasis in clinical

decision-making (10). The presented case demonstrates that the absence of lymph node metastasis does not necessarily indicate a good prognosis. The presence of dense tumor deposits is associated with rapid disease progression, consistent with the aggressive biological behavior reported in the literature.

Tumor deposits are significant prognostic factors in colon cancer and can affect the course of the disease, even without lymph node metastasis. Given the impact of the number of tumor deposits on prognosis, current staging systems should be revised to incorporate this parameter in greater detail. Undoubtedly, the prognosis for a patient with a single tumor deposit differs from that of a patient with multiple tumor deposits. More aggressive treatment approaches should be considered for patients with a high tumor-deposit burden.

Conclusion

In patients with colon cancer without lymph node metastasis, the presence of tumor deposits, especially in high numbers, indicates a biologically aggressive course of the disease. This case reveals that not only the presence but also the number of tumor deposits are determining factors in prognosis, and that the current TNM staging system may be insufficient for this patient group. More careful prognostic evaluations and aggressive treatment approaches should be considered for patients with a high tumor deposit burden.

One of the author of this article (M.A.G.) is a member of the Advisory Board of this journal. He had no involvement in the peer-review process or editorial decision regarding this manuscript. The peer-review process and editorial decision were handled independently by another editor.

Ethics

Informed Consent: The patient gave informed consent for the surgery.

Footnotes

One of the author of this article (M.A.G.) is a member of the Advisory Board of this journal. He had no involvement in the peer-review process or editorial decision regarding this manuscript. The peer-review process and editorial decision were handled independently by another editor.

Authorship Contributions

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