

Isolated Splenic Metastases from Rectal Carcinoma Five Years after Surgery: Case Report

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1. Abstract

Primary splenic tumors and splenic metastases are uncommon, and metastatic splenic tumors are even rarer [1]. According to reports, the most common source of splenic metastases include melanoma, tumors of the breast, lung, ovary, colon, stomach, and pancreas [2-3]. Splenic metastases after rectal cancer surgery is very rare. This paper reports a case of a patient with splenic metastases from rectal cancer 5 years after surgery. We discuss the route of metastasis and treatment of this case.

2. Introduction

Splenic malignancies are mostly lymphocytic tumors and splenic metastases are rare. This paper reports a 41-year-old male patient who underwent a successful resection of low rectal cancer in our hospital 5 years ago. Three months ago, Computed Tomography(CT) scan revealed a tumor in the spleen, considered as an isolated metastasis. The patient underwent splenectomy and postoperative pathological examination confirmed metastatic adenocarcinoma. The patient was followed up for 3 months after surgery, there was no abdominal metastasis or recurrence. The splenic metastasis from rectal carcinoma 5 years after surgery is rare. We review the literature and report this case.

3. Case Report

Patient, male, 41 years old. The patient was admitted to our hospital in May 2016 due to repeated abdominal pain and discomfort, changes in stool shape and bleeding. Colonoscopy suggests: rectal eminence venereal changes with stenosis. CT: there was a high possibility of neoplastic lesions in sigmoid colon and upper rec-

tum; irregular thickening of the middle and lower rectum wall; multiple enlarged lymph nodes are seen in the abdominal cavity, pelvic cavity and bilateral inguinal area. Pathological diagnosis: adenocarcinoma. After their cycles of FOLFOX6 chemotherapy, the patient underwent low rectal anterior resection and knot-rectal anastomosis in August 2016. Postoperative pathological: rectal ulcerated moderately differentiated adenocarcinoma invaded serous layer, metastasis was observed in 11/14 mesenteric lymph nodes, tumor stage (T4N2M0). Four cycles of FOLFOX6 chemotherapy were performed postoperatively, followed by concurrent radiotherapy.

Reexamination was conducted every 3 months and no abnormality was found. Abdominal CT of the patient at 2021-03-15 indicated a low-density mass shadow in the spleen, about 3.1cm×4.2cm in size. Abdominal CT: splenic mass, metastatic tumor was considered; the adjacent left diaphragmatic surface; swollen lymph nodes adjacent to the abdominal aorta. So the patient underwent 10 cycles of FOLFIRI chemotherapy and bevacizumab treatment. CT (Figure 1) was re-examined after chemotherapy: spleen mass was considered metastasis; swollen abdominal lymph node was not observed. The patient underwent laparoscopic splenectomy on 2011-09-08. During the operation, it was found that the spleen capsule and the diaphragm were densely adhered, and part of the diaphragm was removed. Postoperative pathology: adenocarcinoma; check out the signet ring cells; there are no tumor cells in the diaphragm. After 3 months of follow-up, the abdominal CT showed no swollen intraperitoneal lymph node and new lesions.

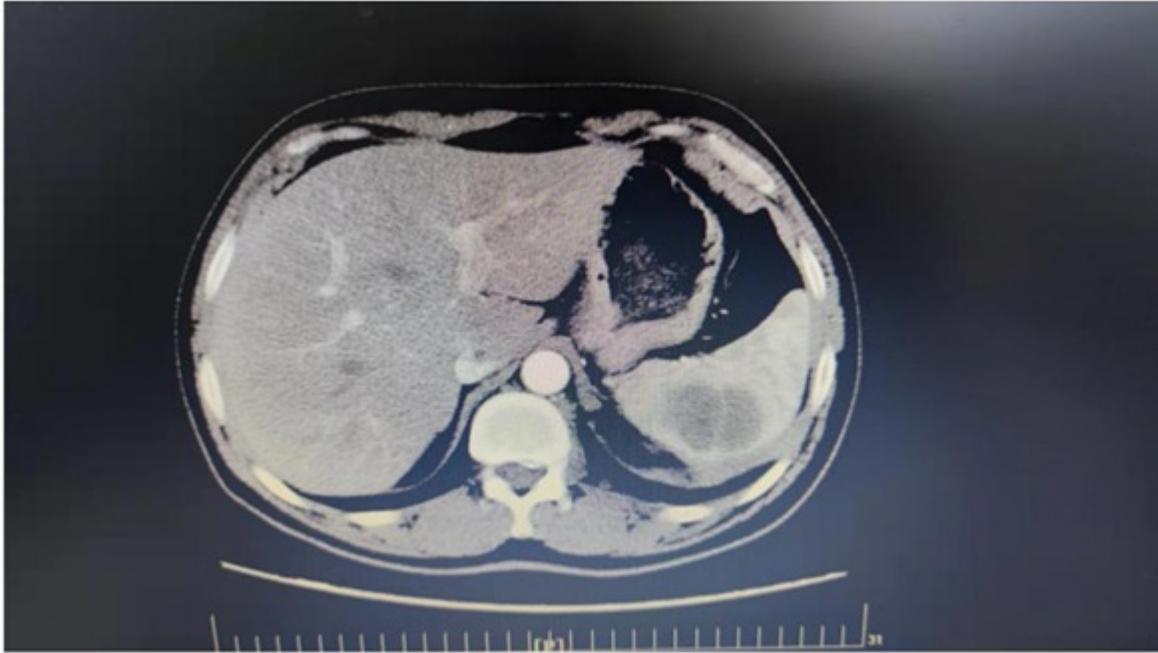


Figure 1: Computed Tomography (CT) scan of a patient with splenic metastasis from rectal Carcinoma.

4. Discuss

Splenic tumors include primary and metastatic tumors. Primary tumors include hemangioma, lymphoma, lymphangioma, hamartoma, coastal hemangioma, hemangioendothelioma, hemangiopidoma and hemangiosarcoma [4]. Primary cystadenocarcinoma of the spleen is very rare [5]. Autopsy reports from a large number of cancer patients showed splenic metastasis rates ranging from 2.3% to 7.1% [6-7]. Splenic metastases are usually a late stage performance of cancer patients [8]. It is rare for non-hematological diseases to metastasize to the spleen, and the primary tumors are mostly melanoma, breast, lung, ovary, colon, stomach, and pancreas tumors [2-3]. A study found that 20.9% of patients in 29364 patients with carcinoma had metastases, but only 59 patients had splenic metastases (accounting for 0.002% of 29,364 patients) [9]. Colorectal cancer is the third most common cancer in the world, and about 20% of patients presenting with metastatic disease [10-11]. At present, distant recurrence is the main cause of cancer-related death in patients with rectal cancer [12]. The liver is the most common site of distant metastasis, other common sites include local lymph nodes, lungs, and peritoneum, and less common sites include the brain and bone [13]. The spleen is a rare site for colorectal cancer metastasis. An autopsy found that 21(2%) of 1019 patients with colorectal cancer were found to have splenic metastases, and none of them were isolated splenic metastases [14]. A recent paper found 34 cases of isolated splenic metastasis after colorectal cancer surgery in PubMed database, including 28 cases of heterochronous metastasis [15].

The spleen is a highly vascularized organ with a large number of reticuloendothelial cells, but metastatic lesions are rare [16]. The reason for the low incidence of splenic metastases is unclear, and

several hypotheses have been proposed from anatomic, physiological, and immunological perspectives: 1) There is an acute angle at the beginning of the splenic artery that restricts tumor cell metastasis to the spleen; 2) The spleen prevents tumor cells implanting into vascular endothelial cells through rhythmic contraction; 3) Lymphocytes and macrophages can prevent tumor cell implantation and proliferation in the spleen, or can inhibit tumor cell survival; 4) The parenchyma of the spleen lacks the input of lymphatic vessels, and only a few rare lymphatic vessels are confined to the splenic capsule [17-19].

This article introduces a case of heterogeneous and isolated splenic metastasis. I believe that this tumor is formed by lymphatic metastasis. The reasons are as follows: 1) The spleen is located in the upper left abdomen and is far away from the rectum, so do not consider for the time being; 2) Due to the special anatomical structure of the artery, it is not considered; 3) If tumor cells retrograde into the splenic vein via the inferior mesenteric vein and colonize the spleen, liver metastasis should occur first, and then systemic metastasis should occur. No liver metastasis was found in this patient 5 years after operation, so we believe that it is not through the splenic vein; 4) There is lymphatic input under the splenic capsule, and the tumor in this case is located just under the capsule. The patient found enlarged celiac lymph nodes 6 months before splenectomy, but no further examination due to the lack of PET examination. After systemic chemotherapy and targeted therapy, no enlarged lymph nodes were found, but the splenic tumor was enlarged. To sum up, we believe that this patient developed splenic metastases through lymphatic metastasis.

Because of the small number of cases, there is no randomized trial to verify the therapeutic effect of splenectomy on isolated splenic metastasis of colorectal cancer.

At present, most of the cases in the literature used splenectomy to treat isolated splenic metastases, which seems to be an effective method for the treatment of splenic metastases [20-21]. If left untreated, splenic metastasis may lead to splenic rupture and forced surgical treatment. The survival after splenectomy is not clear, and the data reported in the literature show that they may survive for up to seven years [22].

5. Conclusion

Splenic metastasis derived from rectal cancer is rare, and most patients are found in regular reexamination of imaging. If it is a solitary splenic metastasis, splenectomy can effectively improve the prognosis of patients.

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