



(CASE REPORT)



ISOLATED SPLENIC METASTASIS FROM COLORECTAL ADENOCARCINOMA: A CASE REPORT

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ABSTRACT

This educational case report presents a clinical scenario designed to illustrate the imaging approach to isolated splenic metastasis from colorectal adenocarcinoma. Imaging findings, differential diagnosis and limitations are discussed to support structured radiological interpretation.

Keywords: Splenic Metastasis; Colorectal Carcinoma; CT; MRI.

1 INTRODUCTION

Isolated splenic metastasis from colorectal adenocarcinoma presents diagnostic challenges because imaging findings may overlap with more common conditions. Cross-sectional imaging is important for identifying lesion origin, defining anatomical relationships and guiding subsequent evaluation.

2 CASE REPORT

A 62-year-old male patient with a previous history of sigmoid colon adenocarcinoma was referred to our radiology department for routine oncological surveillance. The patient had undergone surgical resection of the primary colorectal tumor followed by adjuvant chemotherapy approximately three years before the current presentation. Postoperative follow-up had initially been uneventful, with no radiological evidence of local recurrence or distant metastatic disease on previous surveillance examinations.

At the time of presentation, the patient was clinically stable and reported no significant abdominal symptoms. He denied abdominal pain, fever, unexplained weight loss, nausea, vomiting, or changes in bowel habits. Physical examination revealed a well-healed abdominal surgical scar without palpable abdominal masses, tenderness, or clinically detectable splenomegaly. Routine laboratory investigations, including complete blood count, liver function tests, and renal function parameters, were within normal limits. Serum carcinoembryonic antigen (CEA) levels were assessed as part of the oncological surveillance protocol.

A contrast-enhanced computed tomography (CT) examination of the chest, abdomen, and pelvis was performed to evaluate for possible tumor recurrence or metastatic disease. CT imaging demonstrated a solitary, well-circumscribed, rounded lesion located within the splenic parenchyma, measuring approximately 32 × 28 mm in maximal axial dimensions. The lesion was predominantly hypoattenuating relative to the surrounding normal splenic tissue and showed heterogeneous internal attenuation on the portal venous phase.

Following intravenous administration of iodinated contrast material, the lesion demonstrated mild peripheral enhancement, while its central component remained relatively hypoenhancing. The enhancement pattern suggested a predominantly solid lesion with possible central necrotic or poorly vascularized components. No macroscopic calcifications, intralesional fat, or hemorrhagic components were identified on CT. The external contour of the spleen remained preserved, without evidence of capsular disruption or extension into the surrounding perisplenic fat.

The remaining splenic parenchyma demonstrated homogeneous enhancement, without additional focal lesions. There was no associated splenomegaly, perisplenic fluid collection, or regional lymphadenopathy. Examination of the liver revealed no suspicious focal hepatic lesions, and the adrenal glands, pancreas, and kidneys showed no significant abnormalities. No evidence of peritoneal carcinomatosis, ascites, or suspicious abdominal lymphadenopathy was identified. The colorectal anastomotic region showed no suspicious mural thickening or adjacent infiltrative soft tissue suggestive of local tumor recurrence.

Given the patient's oncological history and the indeterminate nature of the splenic lesion on CT, complementary abdominal magnetic resonance imaging (MRI) was performed for further tissue characterization.

The MRI protocol included axial and coronal T2-weighted sequences, axial T1-weighted sequences, diffusion-weighted imaging (DWI) with apparent diffusion coefficient (ADC) mapping, and dynamic contrast-enhanced T1-weighted fat-suppressed sequences following intravenous gadolinium administration.

On T1-weighted images, the lesion appeared predominantly hypointense relative to the surrounding splenic parenchyma. T2-weighted imaging demonstrated a heterogeneous lesion with predominantly intermediate to mildly increased signal intensity, without the markedly hyperintense appearance typically associated with simple cystic lesions. The lesion remained well delineated, with no evidence of infiltration into adjacent structures.

Diffusion-weighted imaging demonstrated high signal intensity on high b-value images, associated with corresponding low signal intensity on ADC maps, indicating restricted water diffusion. This finding suggested increased tissue cellularity and supported the possibility of a malignant lesion, although it was not considered specific for metastatic disease.

Following intravenous gadolinium administration, the lesion demonstrated mild heterogeneous peripheral enhancement during the early post-contrast phases, with persistent relative hypoenhancement of its central portion. On delayed sequences, the lesion remained less enhancing than the surrounding splenic parenchyma. No definite extracapsular extension, vascular invasion, or additional splenic abnormalities were observed.

The combination of CT and MRI findings raised a strong suspicion of a secondary splenic lesion, particularly in view of the patient's previous colorectal adenocarcinoma. Nevertheless, alternative diagnoses, including primary splenic lymphoma, atypical vascular tumors, and inflammatory or granulomatous lesions, were considered in the differential diagnosis.

A comprehensive staging assessment was subsequently undertaken to evaluate the presence of additional metastatic sites. Thoracic CT demonstrated no suspicious pulmonary nodules or mediastinal lymphadenopathy. Abdominopelvic imaging revealed no evidence of hepatic metastases, peritoneal implants, or local colorectal tumor recurrence. No suspicious osseous lesions were identified within the examined skeletal structures.

Following multidisciplinary discussion involving radiologists, oncologists, and gastrointestinal surgeons, the isolated splenic lesion was considered highly suspicious for a metachronous metastasis from the previously treated sigmoid adenocarcinoma.

Given the apparently solitary nature of the lesion and the absence of other detectable metastatic sites, surgical management by splenectomy was proposed for definitive diagnosis and local disease control.

Histopathological examination of the resected splenic specimen revealed a malignant epithelial proliferation composed of atypical glandular structures with nuclear pleomorphism and areas of necrosis. The morphological appearance was

compatible with metastatic adenocarcinoma. Immunohistochemical analysis demonstrated an intestinal differentiation profile, supporting a colorectal origin in conjunction with the patient's previous histopathological findings.

The final diagnosis of isolated metachronous splenic metastasis from sigmoid colorectal adenocarcinoma was therefore established.

The postoperative course was uneventful, and the patient was referred to the oncology department for further therapeutic assessment and continued clinical, biological, and radiological surveillance.

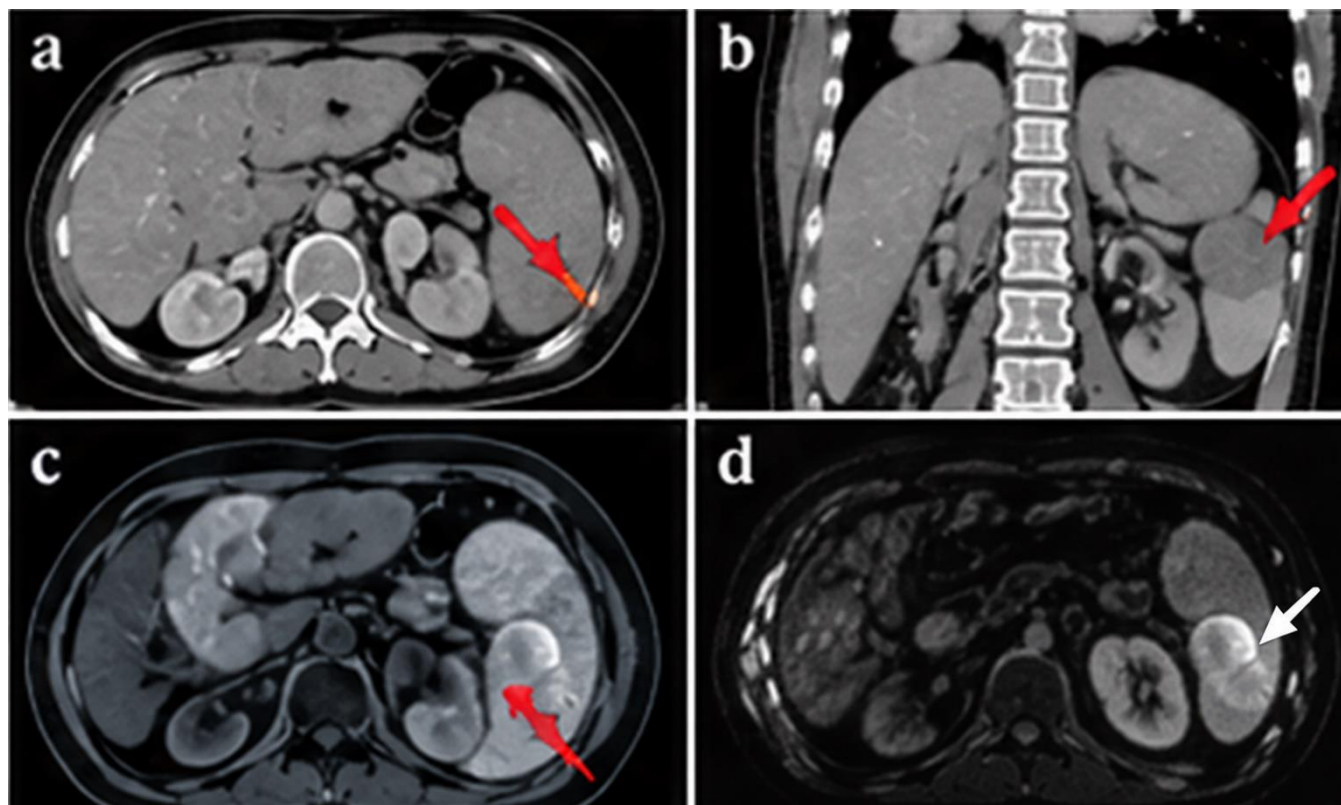


Figure 1: (a) Axial contrast-enhanced CT illustrating a solitary splenic lesion (red arrow); (b) coronal CT reconstruction showing the lesion (red arrow); (c) axial MRI depiction of the splenic abnormality (red arrow); (d) diffusion-weighted MRI illustration (white arrow).

3 DISCUSSION

The differential diagnosis of a solitary splenic lesion includes lymphoma, vascular lesions, abscess and metastatic disease. In a patient with a history of colorectal malignancy, a new lesion warrants correlation with prior studies and multidisciplinary assessment. Contrast-enhanced CT evaluates distribution and staging, while MRI provides additional tissue characterization. Imaging alone cannot establish metastatic histology.

For actual clinical reporting, the assessment should incorporate complete imaging sequences, patient history, prior examinations, multidisciplinary review and histopathology where indicated. The illustration is not sufficient to make or verify a diagnosis.

4 CONCLUSION

Isolated splenic metastasis from colorectal adenocarcinoma is an exceptionally rare manifestation of metastatic disease, particularly in the absence of hepatic, pulmonary, or peritoneal involvement. Its diagnosis represents a significant challenge because clinical manifestations are often absent or nonspecific, and imaging findings may overlap with those of primary splenic tumors or benign splenic lesions.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Disclosure of conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Statement of informed consent

Written informed consent was obtained from a legally authorized representative(s) for anonymized patient information to be published in this article.

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