Case Report

Reactive lymphoid hyperplasia of the liver after surgery for advanced sigmoid colon cancer: a case report

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Abstract

We report a case of reactive lymphoid hyperplasia (RLH) mimicking colorectal liver metastases (CRLM) on preoperative workup that was clinically indistinguishable. A 78-year-old woman was found to have locally-advanced sigmoid cancer (T4), and then treated with radical sigoidectomy. One year after the surgery, plain computed tomography (CT) revealed a low-density area in the right hepatic lobe. Metastatic liver tumors could not be ruled out with CT/ magnetic resonant imaging (MRI) and positron emission tomography–CT. Based on these findings, the patient was diagnosed with CRLM at S7 of the liver. The patient underwent right posterior sectionectomy. The tumor was adjacent to the right hepatic vein; however, no invasion was observed. The patient was pathologically diagnosed as having RLH. The patient showed no signs of recurrence 16 months after initial surgery. RLH is clinically indistinguishable from CRLM. Further evaluation is required to elucidate the effective strategies of detecting and treating hepatic RLH.

Keywords: reactive lymphoid hyperplasia; colorectal liver metastases; liver resection

Introduction

Reactive lymphoid hyperplasia (RLH) is thought to represent an immune reaction. RLH has been reported to occur in the gastrointestinal tract or skin; however, it has rarely been reported in the liver [1, 2]. To the best of our knowledge, about 84 cases of RLH in the liver have been reported to date [3, 4]. The imaging characteristics of RLH and colorectal liver metastases (CRLM) share common features, such as low-density appearance on contrast-enhanced computed tomography (CT), hypointensity on T1-weighted magnetic resonant imaging (MRI), and hyperintensity on T2-weighted MRI [5]. As such, the preoperative diagnosis of RLH becomes more challenging in patients with a history of colorectal cancer, as RLH closely resembles CRLM on both CT and MRI. Despite this, only a limited number of reports have addressed these specific diagnostic challenges. Herein, we report a case of RLH mimicking CRLM on preoperative workup that was clinically indistinguishable from liver metastasis.

Case report

A 78-year-old woman with no significant medical history was hospitalized with diarrhea. CT revealed a 13 cm tumor in the sigmoid colon with suspected invasion of the uterus and ovaries, which caused bowel obstruction (Fig 1). After diverting transverse colostomy, the patient underwent a lower anterior resection with a combination of total hysterectomy, bilateral salpingo-oophorectomy, and partial enterectomy for a complete resection of tumor. The final pathology showed that the lesion was 130 × 40 × 25 mm in size, with a well-differentiated adenocarcinoma without lymph node metastases (T4bN0M0 and Stage IIC, based on the 8th Union for International Cancer Control staging). This patient received adjuvant chemotherapy for 6 months following the initial surgery [oral uracil-tegafur (UFT) with leucovorin (LV): UFT 400 mg/day and LV 75 mg/day on Days 1–28, every 35 days for five courses].

One year after the initial surgery, a tumor in Segment 7 (S7) of the liver was detected on CT. The serum hepatitis B surface antigen and hepatitis C antibody test results were negative. Laboratory data on admission, including liver function test results, were unremarkable, including carcinoembryogenic antigen (CEA) and CA19-9 levels. The imaging results are shown in Fig 2. Abdominal ultrasonography revealed a hypoechoic, 10 mm diameter mass in the right hepatic lobe (S7). Plain CT revealed a low-density area in the right hepatic lobe (S7), presenting as a mass with reduced density in both the early and portal phases with contrast enhancement. Gadoxidic acid (Gd-EOB-DTPA)-enhanced MRI (EOB-MRI) revealed a slightly low-intensity lesion on T1-weighted images and a high-intensity lesion on T2-weighted images. Positron emission tomography–computed tomography (PET/CT) showed fluorodeoxyglucose (FDG) accumulation (maximum standardized uptake value, SUVmax = 3.91) in a nodule of the liver S7. We diagnosed this lesion as CRLM at S7. The patient underwent right posterior sectionectomy. The
Figure 1. Preoperative and pathological findings of sigmoid carcinoma. (a) Contrast-enhanced computed tomography reveals a hypodensity mass (dotted line) of ∼12 cm, located in the sigmoid colon, suspiciously invading the rectum (arrows) and uterus (yellow arrows). (b) Macroscopic findings reveal a type 1 tumor measuring 130 × 40 × 25 mm in the sigmoid colon, with direct invasion into the uterine corpus, left ovary, and small intestine.

Figure 2. Radiographical findings of Segment 7 lesion in the liver. (a) On abdominal ultrasound, a hypoechoic tumor, measuring 10 mm (arrows), is identified in Segment 7. (b) Contrast-enhanced computed tomography indicates a 10 mm, hypodensity lesion located in Segment 7 (arrows) at portal phase. This lesion is close to the RHV. (c) Gadoxetic acid-enhanced magnetic resonance imaging shows a 10 mm, hypointensity lesion (arrows) in Segment 7 adjacent to the RHV at hepatic phase. (d) PET/CT reveals FDG accumulation (maximum standardized uptake value, SUVmax = 3.91) in the Segment 7 nodule.

Figure 3. Pathological findings of RLH of the liver. (a) In the macroscopic findings, a whitish, 10 mm tumor is observed in Segment 7 of the liver (dotted line). (b) Microscopic findings show lymphocyte clusters with multiple germinal centers without any atypical lymphocytes, suggesting RLH. No residual lesions are seen on the resection margin.
Discussion

We observed RLH of the liver that was clinically indistinguishable from metastatic CRC. The patient underwent initial surgery for locally advanced sigmoid colon cancer (T4N0M0) and was discharged postoperatively with good progress. He returned for 1-year follow-up imaging (resolution, 7 days) due to RLH and bile ducts being identified, which were confirmed to be consistent with RLH.

Table 1. Previous four cases of RLH mimicking CRLM.

<table>
<thead>
<tr>
<th>Author</th>
<th>Publish year</th>
<th>Age</th>
<th>Sex</th>
<th>Primary tumor</th>
<th>Contrast CT</th>
<th>T1 image MRI</th>
<th>T2 image MRI</th>
<th>PET-CT</th>
<th>Location of RLH</th>
<th>RLH size</th>
<th>Timing</th>
<th>Interval from initial surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sato et al. [7]</td>
<td>2006</td>
<td>75</td>
<td>Female</td>
<td>Ascending, stage unknown</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>14 mm, 20 mm</td>
<td>Synchronous</td>
<td>NA</td>
</tr>
<tr>
<td>Takahashi et al. [10]</td>
<td>2006</td>
<td>77</td>
<td>Female</td>
<td>Ascending, pt2</td>
<td>Low density</td>
<td>Slightly hypointense</td>
<td>Hyperintense</td>
<td>NA</td>
<td>S3</td>
<td>15 mm</td>
<td>Synchronous</td>
<td>NA</td>
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<tr>
<td>Kobayashi et al. [11]</td>
<td>2011</td>
<td>68</td>
<td>Female</td>
<td>NA</td>
<td>Low density</td>
<td>Slightly hypointense</td>
<td>Hyperintense</td>
<td>NA</td>
<td>S1</td>
<td>9 mm</td>
<td>Metachronous</td>
<td>10 years</td>
</tr>
<tr>
<td>Cambuzzi et al. [12]</td>
<td>2022</td>
<td>78</td>
<td>Female</td>
<td>NA, pt1, pt4</td>
<td>Low density</td>
<td>Hypointense</td>
<td>Hyperintense</td>
<td>NA</td>
<td>S8</td>
<td>16 mm</td>
<td>Metachronous</td>
<td>12 months</td>
</tr>
<tr>
<td>Our case</td>
<td>78</td>
<td>Female</td>
<td>Hypointense</td>
<td>Hyperintense</td>
<td>SUV 391</td>
<td>S7</td>
<td>10 mm</td>
<td>NA</td>
<td>Metachronous</td>
<td>12 months</td>
<td>Metachronous</td>
<td>12 months</td>
</tr>
</tbody>
</table>

NA: not assessed or mentioned.
postoperative day without experiencing any complications. This outcome aligns with that of a previous report that supported the favorable outcomes associated with the Glissonian pedicle approach for central tumors and those deeply located in the right liver [14]. As such, sectionectomy using Glissonian approach has been shown to be a technique used to improve perioperative outcomes in liver tumors located in anatomically challenging areas.

Conclusion
RLH of the liver is clinically indistinguishable from CRLM. As such, RLH after colorectal cancer resection is an unsolved clinical challenge, although RLH of the liver discovered during follow-up after the initial surgery for advanced colon cancer is rare.

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Author contributions
K.S. participated in patient care, conceptualization, data curation, visualization, and the writing of the original article. Y.E. and M.S. participated in patient care, reviewed the manuscript, and supervised the report. S.O., Y.U., and K.H. reviewed the article.

Conflict of interest statement
None declared.

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Data availability
The data will be available upon reasonable request to the corresponding author.

Ethics approval and consent to participate
Institutional Review Board approved this study, and an informed consent was obtained from the patient for participating in this study.

Consent for publication
A written consent for publication was obtained from the patient.

References