



Case Report

Nodular Hyperplasia Mimicking Colon Cancer Liver Metastasis

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Abstract

Oxaliplatin-based chemotherapy protocols have improved survival in colorectal cancer as an adjuvant treatment. Nevertheless, sinusoidal obstruction syndrome (SOS) may occur during oxaliplatin therapy. Liver lesions related to sinusoidal obstruction syndrome can mimic liver metastasis. A 35-year-old female patient who has a history of right hemicolectomy due to colon adenocarcinoma 10 years ago, received 9 cycles of 500 mg capecitabine and 100 mg oxaliplatin as an adjuvant chemotherapy. Suspicious nodules were diagnosed at the liver during magnetic resonance imaging (MRI) which was performed 10 years after right hemicolectomy. Surgical intervention was performed. Focal nodular hyperplasia was diagnosed for all the liver lesions after pathological evaluation. Patients with colorectal cancer who received oxaliplatin based chemotherapy with the new onset liver lesions should be examined carefully. Not only radiological evaluation but also core needle biopsy should be used for misdiagnosis and preventing overtreatment.

Keywords: Chemotherapy, liver, metastasis

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Oxaliplatin-based chemotherapy protocols have improved survival in colorectal cancer as an adjuvant treatment.^[1,2] Nevertheless, sinusoidal obstruction syndrome (SOS) which includes pathologic changes at the liver such as sinusoidal dilatation, peliosis and nodular hyperplasia may occur during oxaliplatin therapy.^[3] Liver lesions related to sinusoidal obstruction syndrome can mimic liver metastasis on radiologic images.^[4] These lesions can be misdiagnosed and overtreated as metastatic liver disease. We would like to report a 35 years old lady who seems to have metastatic liver disease due to colon cancer after adjuvant chemotherapy, but the final diagnosis of her liver lesions are focal nodular hyperplasia which were confirmed on pathology.

Case Report

A 35-year-old female patient had a nonspecific bellyache. She has a history of right hemicolectomy due to colon adenocarcinoma 10 years ago. Also, she had received 9 cycles of 500 mg capecitabine and 100 mg oxaliplatin as an adjuvant chemotherapy. Routine physical examination for the patient has been performed. There was no pathological sign. Laboratory test results were in normal range except AFP level (21.30 ng/ml) and CA 125 level (42 u/ml). CEA level was in normal range. Suspicious nodules were diagnosed at the liver during magnetic resonance imaging (MRI) which was performed 10 years after right hemicolectomy (Fig. 1). Differential diagnosis of these liver nodules couldn't be clarified if they were malignant or benign le-

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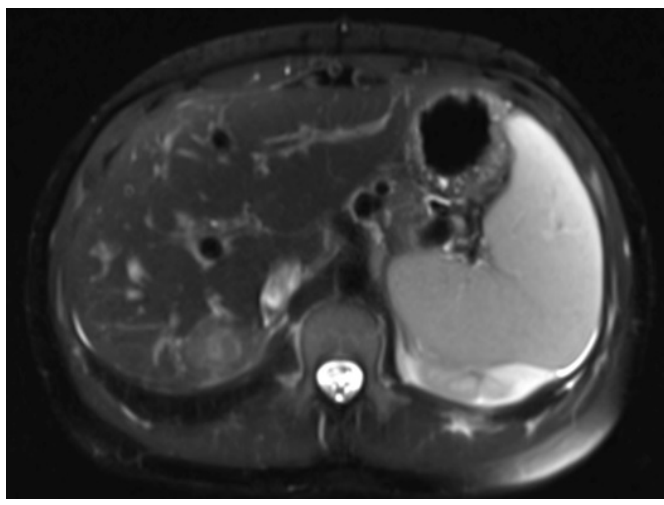


Figure 1. Axial MRI images shows a 3.6 cm mass lesion in segment 6-7 with heterogenous contrast enhancement.

sions, so surgical intervention was planned. There were 4 lesions in the liver. Metastasectomies with intact surgical margins were performed for both of the lesions (Figs. 2 and 3). Patient was discharged 5 days after surgery without any complication. Focal nodular hyperplasia was diagnosed for all the liver lesions after pathological evaluation.



Figure 2. Metastasectomy from segment 6 and 7.

Discussion

Oxaliplatin-based chemotherapy as an adjuvant therapy is routinely used for patients with colorectal cancer.^[5,6] SOS, has some manifestations such as sinusoidal dilatation, peliosis and nodular regenerative hyperplasia as a side effect of oxaliplatin.^[7,8] Deleve et al. showed that the pathologic process is initiated in the liver sinusoidal cells so it is called as sinusoidal obstructive syndrome in 1999.^[9] The injury of sinusoidal endothelial cells causes the sinusoidal wall disjunction.^[10,11] Extravasation of the floating red blood cells into the space of Disse through the opened gaps (peliosis) which starts the depositon of collagens, exposes perisinusoidal fibrosis. This is the main reason of sinusoidal outlet obstruction. The pathologic process is usually widespread and involves all the liver, but sometimes focal areas on non-tumoral liver tissue can be affected which may be misdiagnosed as metastatic liver disease.^[12]

These focally affected liver lesions can be misdiagnosed as metastasis.^[13] Generally the affected areas of liver can be visualised as heterogeneous echotexture lesions on the ultrasonography, on the other hand they are examined as hypodense lesions on multiphase CT scans. Also heterogeneous enhancement may be seen in some cases.^[3] On



Figure 3. Metastasectomy from segment 6 and 7.

T1-weighted portal phase MRI these lesions can be visualised as hypo and iso-intense on pre-contrast phase with no enhancement. And also they can be examined as hyper intense on T2-weighted MRI.^[14] Pathologically proven chemotherapy-induced focal sinusoidal injury and metastatic liver lesions were compared in a study using liver MRI (with liver specific contrast agents). They reported specific findings of focal SOS such as non-spherical shape, ill-defined margin and intermingled signal intensity pattern. When they compare these lesions to metastatic liver lesions they found that ninety percent of the metastatic lesions had peripheral rim enhancement on arterial and portal phase.^[14] There were four lesions visualised at our patient's MRI. The largest one was approximately 3,5 cm at segment 6-7, one of them was 1.2 cm in largest diameter at segment 4 and other two lesions were almost 1 cm in diameter subcapsular localization at segment 2 and 3. Both of them had heterogeneous contrast enhancement.

Colorectal liver metastasis can be diagnosed with various imaging modalities. After the comparison of these tools they found that sensitivity of MRI is better than CT (91% vs 82%) and PET CT (91% vs 60%) in all patients.^[15] In recent metaanalysis MRI has been found as the most sensitive imaging modality to identify colorectal liver metastasis.^[16,17]

Carcino embryonic antigen (CEA) is an important tool in confirming tumour burden and response to adjuvant therapy. In a recent study it is reported that CEA levels of <1.97 ng/ml after chemotherapy may be the evidence of pathologic response with a sensitivity of 73.6%, a specificity of 75% and accuracy of 74.6%.^[18] CEA level of our patient was stable and in normal range during the follow up period. Only the AFP level and CA125 level was slightly high.

Because of the needle tract seeding and bleeding risk core needle biopsy for resectable colorectal liver metastases is quited.^[19] If there is a situation like atypical imaging or suspicious diagnosis, preoperative biopsy can be performed with multidisciplinary discussions. In our daily practice we do not prefer to perform liver biopsy for resectable colorectal liver metastases. We generally prefer to remove these contrast enhanced liver lesions surgically if they have the history of colon adenocancer.

Conclusion

Patients with colorectal cancer who received oxaliplatin based chemotherapy with the new onset liver lesions should be examined carefully. Not only radiological evaluation but also core needle biopsy should be used for misdiagnosis and preventing overtreatment.

Disclosures

Informed consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

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