

Growing occult synchronous adrenal metastasis from rectal cancer after surgery and during adjuvant chemotherapy: A Case Report

Case Report

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Abstract: We report a case of an occult synchronous adrenal metastasis of rectal cancer. A left adrenal mass was found by computed tomography (CT) 6 months after low anterior resection for rectal cancer. This lesion was growing during adjuvant systemic chemotherapy. The level of serum carcinoembryonic antigen and that of adrenal hormones were within the normal range. Radical left adrenalectomy was performed, and histopathological examination revealed metastatic adenocarcinoma compatible with rectal cancer. Adrenal metastasis is not rare in autopsy series. The possibility of adrenal metastasis should be considered in the follow-up of rectal cancer patients. Surgery may be the treatment of choice in occult synchronous metastasis of adrenal gland in rectal cancer.

Keywords: Adrenal metastasis • Rectal cancer

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1. Introduction

Adrenal metastasis is relatively frequent at autopsy but clinically isolated adrenal metastasis is rare.

As a result of increasing accuracy of non-invasive radiological techniques, including computed tomography (CT), magnetic resonance imaging (MRI), and positron emission tomography (PET), metastasis to the adrenal gland can be detected during follow-up after primary surgery. Adrenal metastasis accompanies advanced systemic disease. Furthermore, the treatment options for metastatic lesions resistant to systemic chemotherapy remain undefined. We report a case of occult synchronous metastatic rectal cancer to the adrenal gland that grew during systemic chemotherapy.

2. Case Report

A 66-year old man underwent low anterior resection for rectal cancer. The tumor, located 8 cm above the anal verge, was 2.3 x 2.2 cm in size. There was no metastatic lesion in the abdominal cavity. Microscopic examination showed a moderately differentiated adenocarcinoma with lymphatic tumor emboli. According to the TNM classification, the disease was T3N1M0, stage III. The patient received adjuvant intravenous chemotherapy with the Mayo Clinic regimen (5-fluorouracil/leucovorin) following primary surgery. After the six cycles of chemotherapy, an abdominal CT scan was performed to assess his response to the chemotherapy. It revealed a 2.5-cm-sized left adrenal mass with nodular enhancement (Figure 1). A review of the preoperative abdominal CT scans was subsequently conducted, which confirmed the absence of a lesion in the adrenal gland. The patient's serum carcinoembryonic antigen (CEA) remained within the normal range (<5.0 ng/mL) and a total colonoscopy showed no anastomotic recurrence.

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Figure 1. Enhanced computed tomography showed 2.5 cm sized low density lesion with nodular enhancement.

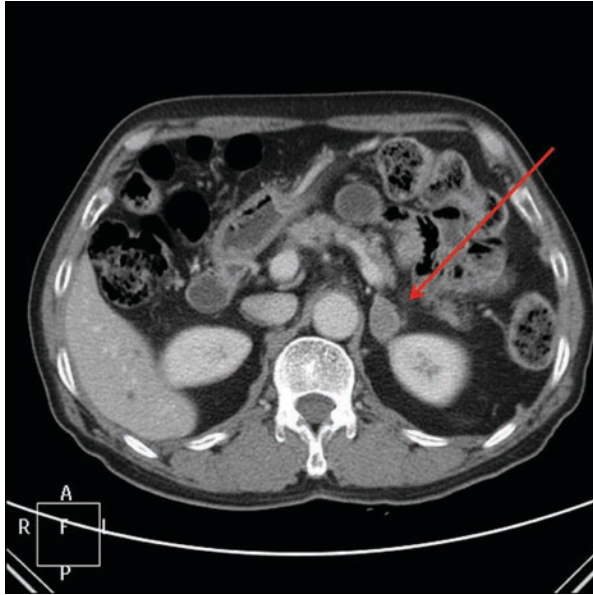


Figure 2. Magnetic resonance imaging showed no internal fatty component with peripheral enhancement in dynamic study.

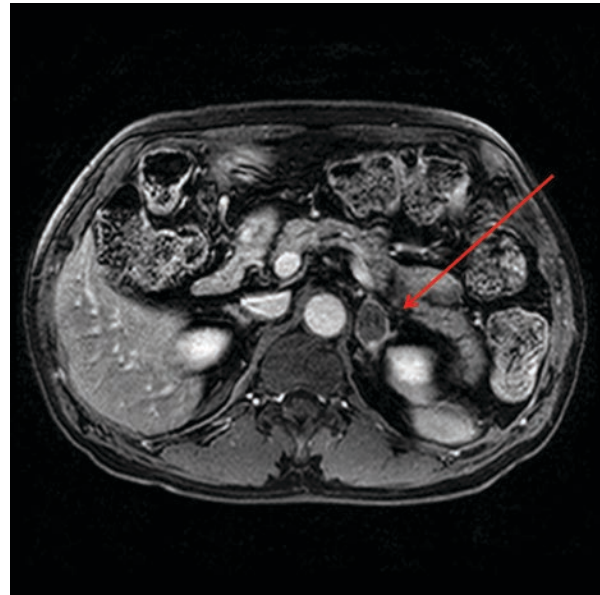


Figure 3. Macroscopically, the tumor was 3.5 x 3.0 cm in size, and its cross-section showed that nearly all the adrenal gland had been replaced by a tumor.



We performed an abdominal MRI to characterize the left adrenal mass, which showed no internal fatty component with peripheral enhancement in the dynamic study (Figure 2). A FDG-PET/CT showed a focal area of increased FDG activity only in the left adrenal gland (SUVmax 6.30). Laboratory examinations showed normal serum and urine levels of cortisol, aldosterone, catecholamines and their metabolites. Based on these data, the left adrenal mass was considered to be a solitary metastasis from the rectal cancer. We performed radical left adrenalectomy for this lesion. Macroscopically the tumor was 3.5 x 3.0 cm in size, and its cross-section showed that nearly all the adrenal gland had been

replaced by a tumor (Figure 3). Microscopic examination showed an adenocarcinoma compatible with recurrent rectal cancer. We managed the patient with oxaliplatin-based chemotherapy (Folfox-4). He has since remained free of recurrence.

3. Discussion

Adrenal metastasis occurs most commonly with lung, kidney, breast, and gastrointestinal carcinoma [1]. Cancer of the colon and rectum tends to recur locally, with the liver as the most frequently involved organ [2]. In one autopsy review of 1000 patients with malignancy, metastases to the adrenal glands were found in 27% of patients. In the autopsy report by Glomus in 1983, the incidence of adrenal metastasis of colorectal cancer ranged from 1.9% to 17.4% [3-5].

The adrenal gland is a silent organ. Patients with adrenal metastases are typically asymptomatic. Many adrenal metastases are solitary and unilateral. These metastatic lesions are not easily distinguished from primary non-functional adrenal tumors [6]. For these reasons, metastatic diseases of the adrenal gland may not be easily identified. The rate of detecting silent adrenal metastasis has increased because of the increased accuracy of abdominal imaging modalities. Unlike pulmonary or hepatic metastasis from colorectal cancer, in which successful metastatectomy clearly leads to survival benefit [7,8], the benefit of resecting

an isolated adrenal metastasis remains controversial. Adrenal metastasis from rectal cancer is usually regarded as a systemic spread and is associated with poor prognosis. Furthermore, tumor progression while undergoing systemic chemotherapy is associated with poor outcome [9].

In a study by Kim *et al.* [9], a disease-free survival of more than six months was shown to be an independent and significant predictor of improved survival in patients following adrenal metastatectomy. In our case, the adrenal metastasis was occult at the time of surgery; the adrenal mass was found to be growing during adjuvant chemotherapy. In this regard, the metastatic lesion might have had a rapid-growing and aggressive biology. It was difficult to decide whether or not to undertake surgical resection of that metastatic lesion, because another occult sites rapidly might become manifest after surgery.

In conclusion, adrenal metastasis should be considered in the follow up of patients who undergo primary surgery for colorectal cancer, although the liver and lung are the main metastatic sites. To detect adrenal metastasis early, radiological modalities such as ultrasonography, CT, and MRI, as well as serum CEA measurement, should be performed regularly. In selected patients, including those with occult synchronous metastatic adrenal disease, surgery may be considered if there is no other systemic metastatic evidence. Our experience provides further support for selective surgical resection of solitary adrenal metastasis in rectal cancer.

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