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CASE REPORT

A Leiomyosarcoma of Inferior Vena Cava Presenting as a Liver Metastasis Mass in a Patient with History of Transitional Cell Carcinoma

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Abstract

The most probable diagnosis for a newly detected mass in the cancer patients is secondary metastasis. However, the multiple primary tumors should not be off the table of diagnoses. In this study, a 70-year-old man with the history of transitional cell carcinoma (TCC) was reported who had been referred due to a newly detected mass in the hepatic segment one which adhered to the inferior vena cava (IVC). Although the most probable diagnosis according to the patient's medical history was secondary metastasis, the biopsy revealed a leiomyosarcoma (LMS) tumor. Therefore, a mass biopsy can be determinative for confirming the diagnosis and further management of cancer patients with a newly detected mass.

Keywords Multiple primary malignancies · Transitional cell carcinoma · Leiomyosarcoma · Metastasis · Hepatic mass

Introduction

Recently, multiple primary malignancies (MPM) have become more prevalent [1]. However, secondary metastases are still the most probable diagnosis for a newly detected mass in the cancer patients [2]. In this report, we present a patient with a history of transitional cell carcinoma (TCC) of bladder who has been referred to our hospital due to a newly detected mass in the caudate lobe. At first, the most probable diagnosis was liver metastasis, but the biopsy changed the diagnosis and the mass was revealed as the leiomyosarcoma (LMS) of inferior vena cava (IVC).

Case Presentation

A 70-year-old male patient with the past medical history of hypertension, diabetes mellitus, and benign prostate hypertrophy who had undergone bladder TCC tumor resection was admitted to the Al-Zahra Hospital. The bladder TCC tumor was diagnosed about 10 years ago which was presented with painless hematuria. The tumor was located near the right ureteral orifice and the histopathological evaluations confirmed a grade 3/3 TCC. Also, the muscularis propria was involved by the tumor and lymphovascular invasion was observed. Biopsies of the prostatic urethra were normal. The pre-surgery metastatic evaluations, including abdominopelvic bone scan, CT scan, and chest radiographs did not exhibit any pathological finding. Therefore, the clinical stage of the tumor was T2N0M0. Radical cystoprostatectomy with pelvic and iliac lymphadenectomy followed by an orthotopic continent urinary diversion was done for the patient. Microscopic metastasis at two perivesical lymph node was observed. Because of the positive lymph nodes and lymphovascular invasion, the patient underwent 3 of 4 planned courses of adjuvant chemotherapy with methotrexate, vinblastine, doxorubicin, and cisplatin which were discontinued due to side effects including nausea, vomiting, anorexia, and anemia. The follow-up was continued for 10 years by annual abdominopelvic ultrasonography. In the last ultrasonography, a mass was detected in the caudate lobe of liver which was confirmed by computed tomography (CT) scanning (Fig. 1). Therefore, the patient was referred to our hospital for liver metastasis resection. The patients did not have any abdominal pain, vomiting, nausea, or considerable weight loss and physical examinations did not

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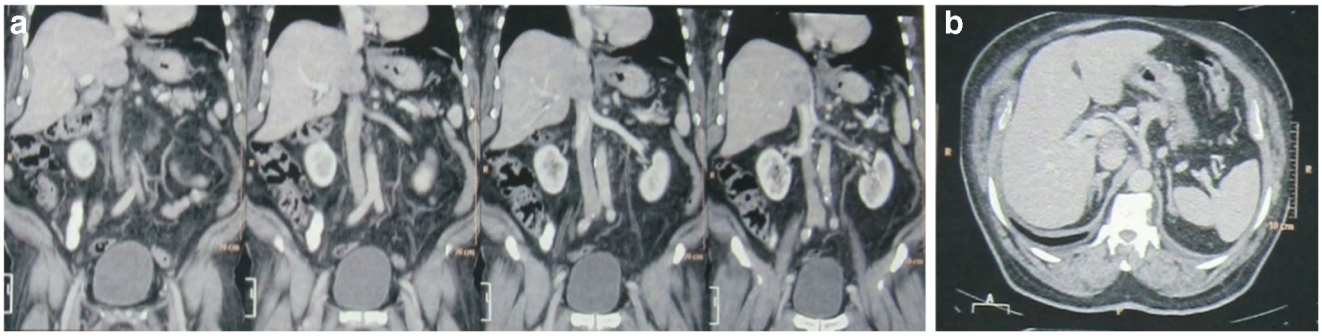

Fig. 1 The CT scan imaging of the mass at **a** coronal and **b** axial axis

reveal any positive findings. The mass located at the caudate lobe which could complicate the surgical procedure and indefinite benefits of surgical resection for TCC secondary metastasis made the team to take a biopsy before any intervention. The most likely diagnosis was TCC secondary metastasis before the biopsy, but the biopsy revealed the LMS of IVC. Therefore, surgical resection of the tumor was selected as the therapeutic plan. The surgeon entered the abdomen via reverse L incision and no significant finding was observed in the exploration. First of all, the liver was released and the short hepatic veins were ligated. The superior margins of the liver were emancipated for getting appropriate access to the intact margins of the tumor and vascular clamping. Subsequently, vascular clamps were placed at the superior and inferior poles of the mass. A subcapsular mass at the anterolateral part of the IVC was observed through tumor resection procedure. At last, the mass and IVC resection with 1-cm safety margins was done and a Dacron graft was substituted instead of the resected IVC (Fig. 2). The mass was a low-grade 5 cm × 4 cm tumor. The histopathology evaluations reported spindle- or cigar-shape mesenchymal cell proliferation in a diffuse fascicular pattern.

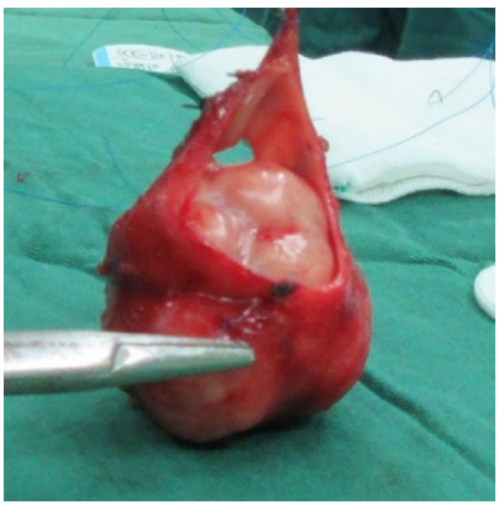

Fig. 2 The resected mass

The mitotic count was approximately 2 per 10 high-power fields (HPF). Therefore, the LMS diagnosis was confirmed. Moreover, resected margins were not involved.

Discussion

MPMs are arising tumors at different sites of the individual patient's body. These tumors should originate from different tissues to avoid misclassification of multifocal/multicentric tumors or secondary metastases as MPMs. The majority of MPMs arise in patients with cancer history as a result of cancer patients' lifetime prolongation, prone genome for rising neoplasms, prolonged exposure to carcinogens, and radiation and chemotherapy for primary cancer [3]. In addition, as the focus is mainly on the primary tumor, there is a high probability of missing coexistence of another primary tumor [2].

In this case, the second primary tumor was an LMS of IVC which is extremely rare [4]. Primary LMS of the IVC is a slow-growing mesenchymal malignancy with poor prognosis [5]. The diagnosing is always challenging due to nonspecific symptoms including palpable abdominal mass, abdominal pain (the most prevalent symptom), lower limb edema, venous stasis, and thrombosis [6]. Clinical findings are very nonspecific and subjective symptoms such as dyspnea, malaise, weight loss, abdominal, or back pain may precede the diagnosis by several years [7]. CT scan and magnetic resonance imaging (MRI) individually or in combination with vena cavography, ultrasound, and echocardiography can cause an early and accurate preoperative diagnosis [8]. However, the biopsy is required for the confirmation of the diagnosis.

In this patient, the liver mass was detected a decade long after the resection of the primary tumor in the bladder. Also, isolated secondary metastasis to the caudate lobe is a very rare event, especially from TCC. Therefore, when there is a newly detected mass at an unusual site for metastasis, which has appeared after a long interval from treating of the primary tumor of the

patient, the probability of raising a new primary tumor would be more than a simple secondary metastasis from the previously treated tumor. Therefore, new primary tumors should never be off the diagnoses table for a newly detected mass in the cancer patients and sometimes they may be more probable that secondary metastasis.

Conclusion

Cancer patients can arise new primary tumors due to immunologic and genetic defects, prolonged exposure to carcinogens, high exposure to the radiation, and chemotherapy for primary cancer treatment. Therefore, new primary tumors should never be off the diagnoses table for a newly detected mass in the cancer patients.

Compliance with Ethical Standards

Conflict of Interests The authors declare that they have no conflict of interest.

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