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Case Report

Primary hepatic malignant melanoma: a case report

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Abstract: Primary hepatic malignant melanoma is a very rare disease. In order to provide clues concerning diagnosis, differential diagnosis and pathogenesis of the disease, a case of a 49 year-old female patient with primary hepatic malignant melanoma is presented. B-mode ultrasound and Contrast-enhanced abdominal computerized tomography (CT) examinations revealed that nodules of varying sizes are diffusely distributed in her enlarged liver. Pathological examination revealed that tumor cells with poor differentiation were located in nests with prominent melanin deposition. Immuno-histochemical staining showed that the tumor cells were positive for HMB-45 and S-100 protein. No evidence for primary malignant melanoma of other sites had been found by comprehensive examinations. Therefore, the patient was diagnosed with primary malignant melanoma of liver. Our case showed that primary malignant melanoma of liver is of histological heterogeneity, and immunohistochemical staining may aid in differential diagnosis between it and other hepatic neoplasms.

Keywords: Liver, melanoma, diagnosis, immunohistochemical staining

Introduction

Melanoma most commonly occurs in skin and might spread to other organs, such as liver, bones and distant lymph nodes. If melanoma of skin is found at early stage, it is highly possible to cure it by surgical removal. If it is found at advanced stage, it would be dangerous. In 2012, approximately 232000 people have melanoma, and 55000 people are dead because of this disease [1].

It might occur in other parts of body such as retina, gastrointestinal tract and genitourinary tract [2-5]. Primary malignant melanoma of liver is a highly rare non-epithelial neoplasm. Few cases have been reported and its pathogenesis is little understood [6-9]. Here we presented a case of primary malignant melanoma of liver in order to provide useful information for diagnosis and clinical treatment.

Case report

A 49 year-old female was admitted to our hospital with complaints of right upper abdominal pain, anorexia and body weight loss for approximate 20 days on Feb 9th, 2011. Physical examination revealed normal heart and lung function without appearance of yellow discoloration of skin and mucous membrane or superficial lymph node enlargement. She had a distended upper abdomen with blunt liver edge 3 cm from the right costal margin and 8 cm from xiphoid, positive liver percussion pain and slightly depressed edema in both lower extremities. Her head, face, anus, genitalia and skin were normal. Her rectal and gynecological examination and electrocardiography result were normal. Routine clinical biochemistry showed that aspartate aminotransferase (AST) 91 U/L, alanine aminotransferase (ALT) 44 U/L, Total-bilirubin (T-BIL) 15.7 μM, Glutamyltransferase (G-GT) 100 U/L, hepatitis virology indicators (-), α-fetoprotein (AFP) (-) and carcinoembryonic antigen (CEA) (-). Besides, the following blood routine test results were recorded: Hb 95 g/L; prothrombin time 13.5 seconds; international normalized ratio 1.107; fibrinogen 2.556 g/L. Based on result of gastroscopy, she was diagnosed with chronic superficial gastritis. But the gastrointestinal barium study revealed no abnormality. Moreover, B-mode ultrasound

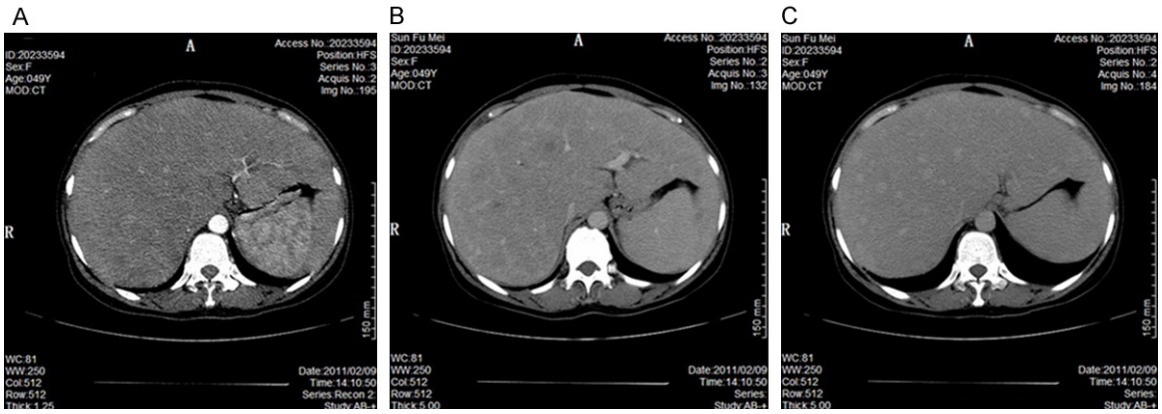

Figure 1. Contrast-enhanced abdominal CT image. A. Heterogeneous enhancement of nodules of varying sizes in an enlarged liver is observed on hepatic arterial phase scan. B and C. On portal venous and delayed phase scan, an attenuated lesion with ambiguous margins is observed accompanying by presence of minimal ascites surrounding the liver.

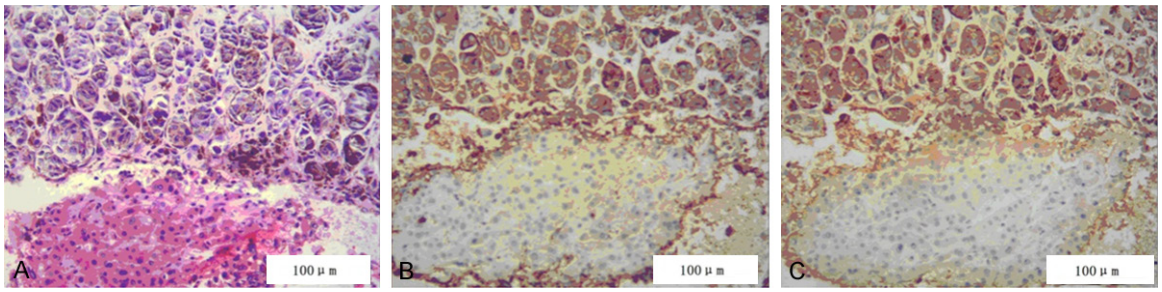

Figure 2. Histopathological images. A. Pleomorphic tumor cells with increasing ratio of nuclear and cytoplasm and clear nucleus are located in nests. Melanin pigments are present in cytoplasm of many tumor cells. B. The tumor cells are positive for HMB45 protein. C. The tumor cells are positive for S-100 protein.

revealed multiple hypoechoic nodules within a distended liver. Contrast-enhanced abdominal computerized tomography (CT) showed diffuse distribution of nodules of varying sizes in the enlarged liver. On hepatic arterial phase scan, heterogeneous lesion enhancement was detected (**Figure 1A**). On portal venous and delayed phase scan, an attenuated lesion with ambiguous margins was detected along with appearance of minimal ascites surrounding the liver (**Figure 1B**, **1C**).

Pathological examination of liver biopsy revealed diffuse distribution of tumor cells with poor differentiation in nests. Pleomorphic tumor cells were characterized by increasing ratio of nuclear and cytoplasm, clear nucleus and obvious cytoplasmic melanin deposition (**Figure 2A**). Immunohistochemical study of the biopsy specimen showed that the tumor cells were positive for HMB45 and S-100 (**Figure 2B**, **2C**). She rejected magnetic resonance imaging (MRI) examination because of its high expense. Exhaustive examination of the skin, eye, par nasal sinuses, parotid gland, vulva and rectum, anus, genital tract, gastrointestinal tract and other parts was performed and no other possible primary site of malignant melanoma was detected. Based on these findings, the patient was diagnosed with primary malignant melanoma of liver.

The patient was discharged 10 days following admission and was died 20 days later.

Discussion

Malignant melanoma of skin is the second leading cancer of skin. Besides, malignant melanoma that occurs in other parts of body, such as esophagus and female genitourinary tract has also been reported [2, 10]. However, primary hepatic malignant melanoma is an exceedingly rare disease. In this study, we pro-

vide a detailed description of clinical and pathological features of a female patient with primary hepatic malignant melanoma.

Due to lack of information on this rare disease, a uniform diagnostic criterion for primary malignant melanoma of liver has not been established. However, Yu Zhang et al propose 3 necessary indicators and 3 secondary indicators for diagnosing this disease after review of relevant literature. The 3 necessary indicators are as follows: histological and pathological appearance of primary malignant melanoma of liver; no evidence for primary malignant melanoma originating from other sites; absence of unknown types of skin lesion and surgical history of eye. Besides, the three secondary indicators are listed as follows: occurrence in one site; occurrence in multiple sites with at least one lesion whose diameter is greater than 5 cm; absence of occult primary foci approved by autopsy result. The patient we reported met three necessary and one secondary indicator which confirmed the diagnosis of primary malignant melanoma of liver.

The pathological appearance of melanoma of liver is similar to that of skin and mucous. Microscopically, round melanocytes in nests is dispersedly distributed in liver. Tumor cells with atypical heavily-stained nuclei and abundant cytoplasm were observed. Melanin granules might be present in tumor cells. But almost no dendritic protrusions are observed. In differential diagnosis, hepatocellular carcinoma and liver vascular tumor had been considered, which were potentially in conformance with appearance of intact capsule and well-circumscribed boundaries. However, immunohistochemical finding confirmed the diagnosis of primary hepatic malignant melanoma.

In contrast with B-mode ultrasound and CT, MRI is of greater diagnostic value for primary malignant melanoma of liver which displays increased signal intensity on T1-weighted image and decreased signal intensity on T2-Weighted image [11]. Unfortunately, the female patient declined MRI examination due to its high cost. The current available treatment modalities for primary malignant melanoma of liver include surgery, radiotherapy, chemotherapy and biotherapy. But its prognosis is considerably poor. Patients often die in a short period after diagnosis. More efforts should be taken to unveil the pathogenesis and etiology of the disease and to lay a base for diagnosis and clinical treatment.

Disclosure of conflict of interest

None.

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