The First Case of Omental Metastasis from Primary Choroidal Melanoma

Hong Zhao1,†, Maopeng Yang1,†, Xiaosan Zhang1, Shu Zhao1, Guodong Yao2, Dan Zhou3, Yan Wang1,* and Qingyuan Zhang1,*

1Department of Medical Oncology, The Third Affiliated Hospital of Harbin Medical University, 2Department of Medical Pathology, The Third Affiliated Hospital of Harbin Medical University and 3Department of Ophthalmology, The First Affiliated Hospital of Harbin Medical University, Harbin, China

*For reprints and all correspondence: Qingyuan Zhang, Department of Medical Oncology, The Third Affiliated Hospital of Harbin Medical University, 150 Haping Rd, Nangang District, Harbin 150081, China. E-mail: dr.zhangqingyuan@gmail.com; Yan Wang, Department of Medical Oncology, The Third Affiliated Hospital of Harbin Medical University, 150 Haping Rd, Nangang District, Harbin 150081, China. E-mail: wangyang@yahoo.cn

†These authors contributed equally to the work and should be considered as co-first authors.

Received August 15, 2012; accepted December 9, 2012

Choroidal melanoma is the most common intraocular malignancy and can be fatal in half of the patients because of metastatic disease. Metastasis of choroidal melanoma to the omentum is extremely rare and, to our knowledge, no such case has ever been described in the literature. Here we present a 41-year-old Chinese man with an omental metastasis, 5 years after he was diagnosed with a spindle-cell-type malignant melanoma of the choroid and had his left eye enucleated. The patient demonstrated some uncommon symptoms, but the diagnosis was confirmed histopathologically. The cells were positive for S-100, HMB-45 and Melan-A proteins. He underwent a complete tumor resection and concomitantly received chemotherapy, biological treatment and traditional Chinese medicine. At 2-year follow-up, this patient continues to do well.

Key words: omentum — metastasis — choroidal melanoma — ginsenoside Rg3

INTRODUCTION

Choroidal melanoma is the most common primary intraocular malignancy in adults; in the general population the incidence was noted to be 5.3—10.9 cases per million population (1). Choroidal melanoma can be fatal in ~50% of patients because of metastatic disease (2). Over 85% of metastatic melanoma occurs in the liver (3), but some reports suggest lung, bone, kidney and brain could also be the metastatic sites (4, 5). Metastatic melanoma has proved to be resistant to all available treatment modalities currently, and the survival rates have not changed in 30 years (3, 6). Several reports express doubts regarding the value of screening and treatment (7, 8).

The omentum is a large fold of peritoneum extending inferiorly from the greater curvature of the stomach into the intestinal loops. Apart from serving as fat deposition, it limits the spread of infection, isolates the wound area and act as a natural defense mechanism by virtue of its milky spots of macrophage collections (9). Solitary solid tumors in omentum are rare, but this organ represents a privileged metastatic site for ovarian as well as gastrointestinal, pancreas, colon and uterine cancers (10).

Here the authors describe an extremely uncommon case of an isolated omental metastasis, appearing 5 years after the diagnosis of a spindle-cell-type malignant choroidal melanoma that respond favorably to our treatment modalities. To the best of the authors’ knowledge, this is the first reported case of omental metastasis from a primary choroidal melanoma.
CASE REPORT

A 36-year-old Chinese male presented to the ocular clinic because of decreased vision and severe eye pain in 2005. He had no remarkable medical and ocular history. Pupils were equal, round and reactive to light. Confrontation visual fields were full to careful finger counting. The slit-lamp examination was unremarkable, with no evidence of iris mass or inflammation. Fundus examination displayed one creamy white choroidal infiltrate located in the nasal part of the left eye. The boundary of the mass was ~4.5 mm away from the macular area and 1.0 mm from the optic disc. A scleral transillumination test showed that the pupil area was opaque. Color Doppler imaging examination revealed the choroidal mass as medium reflective, disorganized lesions. Computed tomography (CT) described that this tumor was 10 mm in thickness and the basal diameter was 18 mm. The patient was diagnosed with choroidal melanoma and subsequently underwent an enucleation of his left eye. Histopathology morphologically confirmed a spindle-cell-type malignant melanoma of the choroid without iris or ciliary body involvement. On immunohistochemical stains, the tumor cells were positive for HMB-45 (Fig. 1), further supporting the diagnosis. Based on the imaging, surgical and pathological findings, the patient’s American Joint Committee on Cancer (AJCC, version 2002) stage is stage IA. He did not receive any radiotherapy, chemotherapy and biological therapy during the postoperative period.

In April 2010, this patient was admitted to the hospital because of acute abdominal pain. On physical examination, body temperature (36.9°C), heart rate (112 beats/min) and blood pressure (85/145 mmHg) were measured. The abdomen was tense but flat, no obvious ascites was observed but there was a significant point of tenderness which located ~5 cm from the umbilicus horizontally. A CT scan of the total body demonstrated that one isolated lesion located within the omentum (30 × 30 mm) (Fig. 2). Considering his clinical history, the possibility of a metastatic tumor in the appendix or omentum became the most prominent diagnosis. The patient was taken to the operating room for a total resection of the tumor; an omental infiltration with diffuse neoplasm was seen during operation. The postoperative course was uneventful, and the patient’s symptoms disappeared after surgery. Histopathology revealed malignant melanoma of the omentum. Further immunohistochemistry showed positive staining for S-100, HMB-45 and Melan-A proteins (Fig. 3), and negative staining for CK. After operation, the patient received a 28-day cycle treatment: 200 mg/m²/day dacarbazine on Days 1–3; 30 mg/m²/day cisplatinum on Days 5–7; 2 MIU/m²/day interleukin-2 on Days 1, 3, 5, 8, 10, 12, 15, 17 and 19. Four cycles later, the patients decided to quit this treatment modality due to a severe bone marrow suppression response. Hereafter, a new 12-week cycle treatment was proposed: 2 MIU/m²/day interleukin-2 on Days 1, 3 and 5 every week for 4 weeks; 20 mg ginsenoside Rg3 twice a day for 4 weeks.

The patient was still alive at the time this article was submitted.

DISCUSSION

Intraocular melanoma, the second most common form of melanoma (11), differs from cutaneous melanoma in many respects. Although it was reported that BRAF and NRAS mutations were found in 66 and 20% of cutaneous melanomas, respectively (12), most studies failed to identify these mutations in intraocular melanoma tissues (13–16). KIT mutations, which are found in ~15–20% of mucosal melanomas and acral lentiginous (17), are not found in intraocular melanoma tissues (18). Recent reports have demonstrated that up to 85% of intraocular melanomas harbor activating GNAQ or GNA11 mutations (19, 20). These molecules could be potential targets that may be amenable to therapeutic intervention.
About 90% of all intraocular melanomas involve the choroid (2); the biological malignancy of choroidal melanoma depends not only on clinical stage but also on the histological grade, genetic type, its morphology, clinical and histological type, mitotic activity, tumor size, tumor location, patient age and competing causes of death (21, 22). In the present case, several high-risk factors have been identified: tumor thickness >2.0 mm at initial diagnosis, presence of symptoms, location of the lesion close to the margin of the optic disc (closer than two disc diameters), presence of associated fluid with the lesion, absence of a depigmented halo around the lesion and absence of drusen. Both these factors and diagnosis determine the follow-up treatment. The principal options available for the treatment of choroidal melanoma are enucleation, proton beam radiotherapy, plaque radiotherapy, transpupillary thermotherapy and observation. Observation is reserved for asymptomatic patient with a widespread metastatic disease, and radiotherapy is the reserved treatment when there is visual impairment (23). Enucleation is the traditional method of treating choroidal melanomas. In the current case, enucleation is preferred because the eye is painful.

Although metastatic disease involving the omentum is far more common than primary tumors, the malignant lesion from choroidal melanoma is very rare. Typically, the prominent feature of omental metastasis is swelling or bloating of the abdomen, some other symptoms include dull pain of the abdomen; indigestion that is persistent; nausea or gas; discomfort in the pelvic region; unexplained appetite loss; lack of energy or fatigue that persists; body weight loss and appearing of ascites. In the current case, the patient shows sharp pain at one special point, usually treated as a possible symptom of appendicitis. Besides, compared with normal conditions, the heart rate and blood pressure are higher.

Since the condition is so rare, there is no consensus on best treatment. Generally, survival appears to depend on complete tumor resection and proper chemotherapy. In the present case, the surgery went smooth and no complications were encountered during the postoperative period. Although the standard chemotherapy seemed the best option, unfortunately the patient showed severe side effects in this case. Under such circumstances, an alternative treatment modality was proposed involving traditional Chinese medicine. Ginsenoside Rg3, a saponin extracted from ginseng, inhibits tumor-induced angiogenesis (24, 25). Several reports indicate that ginsenoside Rg3 inhibits cancer cell growth, invasion and metastasis as a relatively safe medicine in lung carcinoma (26), prostate cancer (27), colorectal cancer (28), ovarian cancer (29) and breast cancer (24). There were no signs of toxicity and no evidence of relapse after our patient received the treatment that combined interleukin-2 with ginsenoside Rg3. At the follow-up 2 years later, our patient was still doing well.

In summary, this case suggests that (i) close, lifelong follow-up for all patients treated for choroidal melanoma is important for early and accurate diagnosis of metastatic disease and (ii) all treatment procedures, including total resection, chemotherapy and other non-standard options should be considered as one of the treatment choices, especially in patients with uncommon disease.

Acknowledgements
We thank Dr Bin Zhao for his suggestions and editorial assistance.

Funding
This work is supported by a Grant from the Start-up Foundation for Scientific Research of The Third Affiliated Hospital of Harbin Medical University (JJZ2011–13).

Conflict of interest statement
None declared.

References


