

Postoperative glioma extracranial metastasis: A case report

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Abstract A case with intracranial glioma after the surgery metastasizing to the spine was described. A 28-year-old female patient who underwent surgery and radiation therapy for glioma in the left frontal lobe and was diagnosed as having extracranial metastasis to L₂-L₄ vertebral body by MRI, PET-CT and pathological examination. The clinical, imaging and pathologic features of the case are described and discussed.

Key words brain; glioma; extracranial metastasis

Gliomas are primary intracranial malignant tumors and surgical resection is the main treatment method. Gliomas can appear local intracranial recurrence or intracranial metastasis after surgery, but rarely metastasize outside the brain. One patient in our hospital with glioma after the surgery metastasizing to the spine is reported as follows.

Case report

The patient (female, 28 years old) was considered for malignant tumor in the left frontal lobe after CT and MRI examination because of headache, giddy, evil, vomiting and limbs weakness on May 14, 2012. All tumors were resected under microscope in other hospital on May 23, 2012, and postoperative pathological diagnosis was astrocytoma grade 2 (left frontal). After one month of surgery, the left frontal tumor bed area was conducted 3D conformal radiation therapy to a total dose of 50 Gy at 2 Gy/fraction five times a week. Early on March 2013, the patient felt waist discomfort accidentally. Because the pain could be eased after resting, the patient paid no more attention. On April 20, 2013, the patient felt waist pain worse combining with soreness and numbness on the bilateral lower limbs, and symptoms did not see obvious improvement after the rest. On April 26, 2013, the patient felt the bilateral lower limbs weakness and could not walk. On April 28, 2013, the patient was hospitalized for treatment in our hospital. The physical examination showed: tenderness and positive percussion pain on both sides of L₃ / L₄, L₄ /

L₅ intervertebral space; negative of the straight leg-raising test on both sides, positive of bilateral femoral nerve stretch pull test; disappearance of bilateral Achilles tendon reflex; disappearance of bilateral knee tendon reflex; IV level of the feeling and muscle force of lower limbs; loss of bilateral parapodum thumb dorsal muscle force; weakness of bilateral dorsalis pedis artery pulse; slightly low temperature of skin and hypesthesia of bilateral limbs and feet. Peripheral blood tumor markers showed: neuron specific enolase (NSE) 21.5 µg/L. The films of L-Spine PA & LAT and Pelvis PA showed: inflammation of the sacroiliac joint on both sides, especially obvious on the right side; lumbar curvature changed straightly, pseudarthrosis formation on both sides of L₅ transverse process, extendment of the psoas major muscle on the left side. The lumbar spine MRI showed: bone destruction of L₂-L₄ vertebral body and left side of the attachment combined with the left soft tissue mass, considered for vertebral metastases (Fig. 1). The whole body PET-CT showed: FDG metabolism increasing in L₃ vertebral body and its accessories, sagittal spinal canal upward and the surrounding psoas major muscle pushed, which be considered for metastatic tumors (Fig. 2). On May 10, 2013, biopsy of the left soft tissue mass near vertebral lumbar was conducted under local anesthesia, the pathological diagnosis was: lumbar metastatic glioma grade 3 (Fig. 3). On May 15, 2013, L₂-L₄ vertebral body, the left side of the accessories and psoas major muscle were conducted 3D conformal radiation therapy to a total dose of 50 Gy at 2 Gy/fraction five times a week. 6 MV-X-ray of Siemens Primus linear accelerator and radiation therapy plan system of Pinnacle were adopted. The treatment process was suc-



Fig. 1 Lumbar MRI images. (a) Sagittal MRI scan (T1); (b) Sagittal MRI scan (T2); (c) Axial MRI scan (T2) (Taken On May 3, 2013)



Fig. 2 Lumbar PET-CT images. (a) Coronal PET-CT scan; (b) Sagittal PET-CT scan; (c) Axial PET-CT scan (Taken On May 6, 2013)

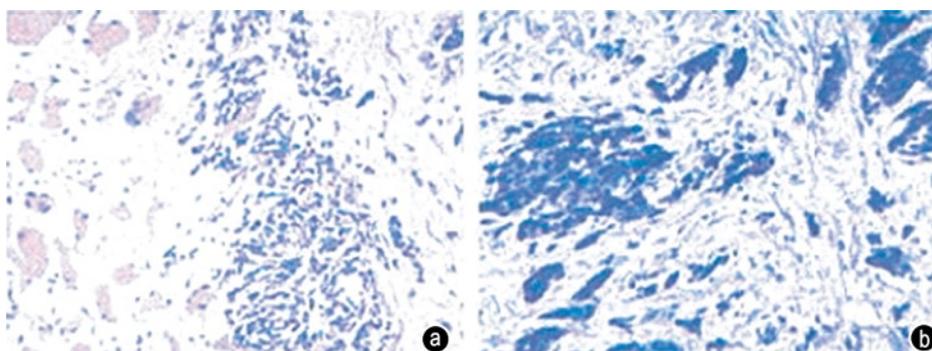


Fig. 3 Lumbar metastatic tumors (III) pathologic and immunohistochemical pictures. (a) HP staining ($\times 40$); (b) Gfap protein SP staining ($\times 100$)

cessful, and the waist pain began to ease after 2 weeks of radiation, obviously alleviate at the end of radiotherapy, but the feeling and muscle force of lower limbs were not improved. The patient was following-up further.

Discussion

Glioma is the most common type of primary intracranial malignant tumor, surgery is the first choice of treatment. The postoperative recurrence rate is high and intracranial metastasis is common, but extracranial metastasis is rare [1]. Wu [2] reported that only 10% of patients with astrocytoma in 79 cases of brain glioma had extracranial metastases. Intracranial glioma relies mainly on magnetic resonance imaging (MRI) and computed tomography (CT) to make a preliminary imaging diagnosis. The definite pathological diagnosis relies on biopsy or surgery for tumors eventually [3].

The diagnosis of extracranial metastasis of glioma is

made in according to the history, imaging, pathological examination data and reference putted forward by Weiss whose diagnostic criteria of metastasis of glioma outside the central nervous system: (1) Metastasis must have consistent with intracranial tumor histologic features; (2) Central nervous system must be the primary tumor in the clinical history; (3) The possibility of other primary tumor must be ruled out thorough a full autopsy; (4) Morphology character of primary tumors and metastasis must be consistent, but some different degrees of degradation are allowed [4].

The way of glioma extracranial metastasis is still not clear. There maybe have more ways, mainly by blood, lymphatic pathway, cerebrospinal fluid planting way and reduction of the close degree of brain epidural due to long-term radiation and chemotherapy. Therefore, we should inspect and prevent glioma extracranial metastasis in the process of surgery, radiation and chemotherapy like treatment of other malignant tumors in order to re-

duce the possibility of extracranial metastasis as early as possible.

Treatment of glioma is combined with surgery, radiotherapy and chemotherapy. But the therapy of glioma extracranial metastasis is usually more difficult because of its special metastasis position or finding lately and surgical excision is difficult, the prognosis is very poor. This patients was conducted 3D conformal radiation therapy to a total dose of 50 Gy instead of surgery due to tumor invading vertebra, job attachment bone and soft tissue, symptoms have been improved obviously. According to glioma diagnosis and treatment guidelines of central nervous system of China, glioma of low grade after operation is recommended with radiation and chemotherapy^[3], this patient was suggested with temozolomide (TMZ) orally for adjuvant therapy after radiation.

Conflicts of interest

The author indicated no potential conflicts of interest.

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