can be managed with radiotherapy alone. Stereotactic or endoscopic biopsy may be associated with significant morbidity largely due to adjacent vascular structures and may be subject to sampling error, particularly in a non-uniform tumour. However, in a tumor less than 2 cm diameter with the imaging appearance of germinoma and AFP and HCG levels in the normal range, a biopsy may be confirmatory. In other pineal region tumors, exploration with debulking, or total removal if possible, is the gold standard of treatment.3

Immature pineal region teratoma with malignant transformation has a poor prognosis even with complete surgical removal and postoperative craniospinal irradiation.3 Chemotherapy has been recommended for intracranial immature teratomas with high AFP levels.12

References


Dural plasmacytoma mimicking meningioma in a patient with multiple myeloma

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Abstract

Apart from calvarial infiltration, intracranial involvement in multiple myeloma is uncommon. Diffuse leptomeningeal invasion with or without parenchymal involvement is most common. Dural infiltration without involvement of the parenchyma, leptomeninges or skull is rare. The differential diagnosis of a dural plasmacytoma includes meningioma, which has a similar MRI appearance, metastasis, lymphoma and sarcoma of the dura mater. We present a patient with multiple myeloma presenting with an intracerebral mass mimicking a meningioma on MRI. Multiple myeloma had been diagnosed seven years previously. The patient presented with headache and speech disturbance 12 months after autologous peripheral stem cell transplantation for recurrence of multiple myeloma. MRI revealed a left temporal extra-axial mass with a dural tail mimicking meningioma. Histopathological examination of the mass after excision showed multiple myeloma immunopositive for IgG, kappa light chain and CD38. There was no recurrence after postoperative radiotherapy. Plasmacytoma should be considered in the differential diagnosis of a solitary dural mass, particularly in a patient with multiple myeloma.

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1. Introduction

Plasma cell tumors are characterised by a monoclonal proliferation of immunoglobulin-secreting plasma cells. Multiple myeloma (MM) represents the disseminated form of this disease. Isolated plasmacytomas are unusual benign lesions that are classified as either intramedullary or extramedullary on the basis of their association with bone marrow. Intracranial plasmacytomas can arise from the cranium, meninges or brain and are uncommon, with only scattered cases having been reported in the literature.1 Intracranial infiltration, other than calvarial involvement, in MM is rare and generally diffuse leptomeningeal and/or parenchymal invasion is seen. Dural infiltration without involvement of the parenchyma, leptomeninges or skull is extremely rare compared to calvarial infiltration and in such cases, differential diagnosis should be made with meningoima, which has a similar radiological appearance on MRI, metastasis of extracranial tumors, lymphoma and sarcoma of dura mater.

Meningioma is the most common primary non-glial neoplasm, representing 15–20% of all primary brain tumors. Meningiomas have typical radiological features: an extraaxial mass with broad attachment to the dura, hyperdense on CT, isointense with grey matter on T1-weighted MRI, more variable signal intensity on T2-weighted MRI, and strongly and homogeneously enhancing with contrast.2

2. Case report

A 57-year-old woman presented 7 years previously with weakness and pain in her right leg and pelvis. A mass lesion was detected in the right bony pelvis on MRI and core needle biopsy revealed plasmacytoma of the bone, which was IgG and kappa light chain positive. Bone marrow aspiration and biopsy showed 7% atypical plasma cells. After radiotherapy and chemotherapy, she was in remission and had no problems for 4 years. She was then readmitted with generalised bone pain. Lytic lesions in the left humerus and right femur were detected on X-ray and radiotherapy was given to these regions. Bone marrow biopsy at that time showed no infiltration at that time, but a routine biopsy performed 1 year later confirmed paratrabecular bone marrow infiltration by atypical plasma cells positive for IgG and kappa light chain on immunohistochemistry. Autologous peripheral stem cell transplantation was performed after high dose melphalan infusion and a standard chemotherapy protocol. Bone marrow biopsy performed after transplantation showed no abnormal cells. A cranial MRI was performed to investigate headache and dysphasia that commenced soon after the last bone marrow biopsy. This revealed an extraparenchymal mass in the left temporal region with a broad dural base strongly suggestive of a meningioma. The lesion measured 2.2 × 2.6 cm (Fig. 1). The mass was thought to be a meningioma based on the MRI appearance and the fact that it was a solitary lesion without associated lytic lesions in the skull. The lesion was excised. On histological examination, mature plasma cells with eccentric nuclei, a paranuclear clear area and coarse chromatin were intermingled with immature plasma cells. The immature plasma cells exhibited binucleation, nuclear pleomorphism and large nucleoli. CD38, a marker of plasma cells, was positive on immunohistochemistry and the cells expressed kappa light chain, but not lambda light chain, indicative of neoplastic plasma cells (Fig. 2). The patient received radiotherapy to the surgical site and there has been no recurrence.

3. Discussion

Intracranial MM is rare. Its manifestations include diffuse leptomeningeal disease, solitary dural tumor without invasion of brain parenchyma, intra-axial tumor without attachment to the dura mater or bone and, very rarely, an invasive tumor that may grow from the subcutaneous tissue into the brain parenchyma or from the dura mater to the brain.3–5

On CT an intracranial plasmacytoma is usually a dense tumor, which enhances after intravenous contrast administration. Focal calcification or bone erosion may be seen. Leptomeningeal involvement is best imaged with contrast-enhanced MRI.3,6 Calvarial plasmacytomas are usually highly vascular and pathological vessels and a tumor...
blush may be seen on angiography. However, the majority of dural or intraparenchymal plasmacytomas are less vascular and angiography may be normal. Therefore, angiography is not reliable for differential diagnosis, as 30–50% of meningiomas may also be associated with normal angiography.\(^6\) The radiological findings of intracranial MM or plasmacytoma are not specific. They may mimic lymphoma, metastasis, sarcoma of the dura mater, osteochondroma, infectious meningitis or meningioma.\(^6,7\)

The differential diagnosis in a case as that described should include meningioma and metastatic tumor. Meningiomas are typically benign and slow-growing, causing symptoms gradually after a prolonged subclinical phase. More aggressive meningiomas have also been reported, and their extracranial extension may be larger than their intracranial component. In addition, common features include hyperostosis of the skull and tumor calcification. Metastatic tumors (most commonly from thyroid, renal, or bronchial cancers) may cause similar findings, but are usually purely lytic. Sharp tumor borders, lack of bony sclerosis and paucity of periosteal reaction may suggest that the correct diagnosis is solitary plasmacytoma. However, reliable distinction may be impossible; solitary dural plasmacytoma has no pathognomonic clinical or radiological features, so definite diagnosis requires histopathological examination of the tumor.\(^8\)

The literature on intracranial plasmacytomas suggests that the optimal therapy is complete surgical resection followed by at least 5000 cGy of radiotherapy.\(^9,10\) Our patient was given radiotherapy as indicated in the literature and there was no tumor recurrence.

Although dural infiltration is very rare in the course of MM, it should be considered in the differential diagnosis, particularly if a solitary intracranial mass with the typical features of meningioma is detected on MRI.

References


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