INTRODUCTION

Meningeal involvement by malignant lymphomas most commonly represents secondary spread from advanced systemic disease. Usually manifesting as a diffuse leptomeningeal infiltrates, it is reportedly detected in 4–10% of patients with systemic lymphomas and, in the majority of cases, is of the aggressive histologic type (1, 2). Lymphoma rarely occurs in the central nervous system and is even more infrequent in the dura of the brain. We report a case of dural-based ALCL secondary to systemic disease in a 17-year-old male that mimicked meningioma on magnetic resonance imaging and angiography.

Index terms
Lymphoma
Meningioma
Magnetic Resonance Imaging

CASE REPORT

A 17-year-old immunocompetent male presented with a month-long history of persistent headache of increasing severity. He noted episodic nausea and vomiting in association with the headache that was exacerbated by exertion. Familial history was not remarkable. There were no specific findings on physical examination including neurologic evaluation, and routine laboratory tests were normal. Precontrast axial CT revealed a homogeneous broad dural-based semi-ovoid-shaped extra-axial mass in...
the left temporal lobe (Fig. 1A). T1-weighted and T2-weighted MRI (Fig. 1B, C, respectively) showed a slightly heterogeneous broad dural-based extra-axial mass in the left temporal lobe. The signal intensity of the lesion was similar to that of parenchymal gray matter. Gadolinium-enhanced coronal MRI (Fig. 1D) revealed intense and homogeneous enhancement with a dural-tail sign. Cerebral angiography was performed thereafter, and left external carotid artery angiogram revealed a sunburst appearance of vessels supplied by the middle meningeal artery in the arterial phase (Fig. 1E) and prolonged vascular stain in the late venous phase (Fig. 1F). On the basis of MRI and angiographic findings, left temporal convexity meningioma was diagnosed. The patient underwent left frontotemporoparietal craniotomy and the tumor was resected.

Histopathologic examination under high power revealed a population of large neoplastic cells (Fig. 2A). Immunohistochemical analysis demonstrated that the tumor cells were diffusely and strongly positive for a pan-T cell marker (CD3), negative for pan-B cell marker (CD20), and positive for CD30 (Fig. 2B) and anaplastic lymphoma kinase protein. These results supported a diagnosis of ALCL.

The patient had anemia postoperatively. Gastroscopy and abdominopelvic CT were performed to rule out gastrointestinal bleeding as the cause of anemia. On gastroscopy, a 2.5 cm mass with central deep ulceration was noted in the distal second portion of the duodenum. Two dot-like black spots were seen at the central portion of the ulcer (image not shown) and biopsy was performed. Pathologic examination showed that the tissue was histologically similar to the brain lesion. Abdominopelvic CT showed multiple enlarged and conglomerated mesenteric lymph...
Dural Anaplastic Large Cell Lymphoma Mimicking Meningioma

nodes, suggesting mesenteric lymphoma (Fig. 3A). Positron emission tomography imaging demonstrated multiple areas of hot uptake, such as the mesenteric and pelvic lymph nodes and bones of the upper and lower extremities, suggesting systemic ALCL (Fig. 3B).

The patient was transferred to another hospital for bone marrow transplantation.

DISCUSSION

Central nervous system (CNS) involvement of non-Hodgkin's lymphoma falls into one of three categories (3): primary CNS lymphomas, disseminated lymphomas with CNS involvement, and primary dural lymphomas.

Secondary CNS involvement is seen in 5–9% of all non-Hodgkin lymphomas, usually in the form of diffuse leptomeningeal infiltrates or intraparenchymal masses (4). Skull and dural involvement is much more frequent with this type of lymphoma than in primary CNS lymphomas. Invasion restricted to the intracranial dura is rare (5). The main histologic subtypes of lymphomas that commonly involve the CNS are all high-grade malignancies, including diffuse large B cell lymphoma, Burkitt’s lymphoma, lymphoblastic lymphoma, and, less commonly, peripheral T cell lymphoma not otherwise specified (6).

Primary lymphomas occurring in the meninges are rare. In the leptomeninges, these are typically high-grade B cell lymphomas, although occasional cases of primary T cell lymphomas have also been described (7). On the other hand, primary lymphomas in the dura are predominantly of a low-grade B cell type (6).

To the best of our knowledge, dural-based lymphomas in the literature that mimic meningioma due to their presentation as a solitary mass almost always occur with primary lymphoma rather than secondary lymphoma. MALT lymphomas represent the largest group of primary dural lymphomas, with around 30 cases having been described in the literature (6). MALT lymphoma is usually indolent and rarely becomes disseminated. Thus, dural MALT lymphoma is almost always localized without systemic involvement (3).
Clinically, tumors with dural-based metastasis that mimic meningioma are very rare and mostly described in case reports from diverse primary locations. Historically, the most common primary sites in surgically resected dural metastases have been breast, prostate, and kidney (8). Secondary dural lymphoma that mimics meningioma is an extremely rare phenomenon.

In conclusion, lymphoma should be considered in the differential diagnosis of meningioma, although it appears to be a considerably rare occurrence. In addition, dural-based lymphoma is possible and can be not only the primary low-grade B cell type, but a high grade type such as ALCL, which may arise from systemic disease.

REFERENCES