Subdural B Cell Lymphoma

Imaging Features, Histopathology. Literature Review

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Key words: dural lymphoma, MRI

SUMMARY – *Dural-based B cell lymphomas are rare and have a female preponderance. A 60-year-old Asian man with a history of trivial trauma presented with generalised tonic clonic seizures and headache. Imaging and clinical work-up was done. A temporoparietal subdural lesion with no evidence of systemic lymphoma was detected. Intraoperatively, a dural-based mass lesion was seen with thickened dura and biopsy-proven B cell lymphoma, and the patient was then kept on chemotherapy. A suspicion of this rare entity should be considered in imaging of dural-based lesions.*

Introduction

Primary CNS lymphoma is rare, accounting for 1-2% of primary brain neoplasms^{1,2}. Because of the absence of lymphatics in the central nervous system, the occurrence of B cell lymphomas in this site is considered paradoxical.

Primary dural lymphomas are extremely rare and are usually low-grade B cell lymphomas. We describe an unusual case of a 60-year-old man with generalised tonic clonic seizures and headache. A diagnosis of subdural haematoma was made on imaging and taken up for surgery. Intraoperatively, a dural-based mass lesion was seen and a biopsy was taken. Histopathology and Immunohistochemistry showed diffuse B cell infiltrate with positive B cell markers and a diagnosis of B cell non-Hodgkin lymphoma was made. There are very few reported cases of pathologically proven primary dural lymphoma in the literature.

Case Report

A 60-year-old man presented to the emergency room with tonic clonic seizures. He had a history of trivial trauma and increasing

headache for the past six months. Imaging work-up was done. CT brain scan (Figure 1A-C) showed subdural hyperdensity in the right temporoparietal region and a diagnosis of subdural hematoma was made. MR imaging was done with T1, T2, fluid attenuated inversion recovery sequence (FLAIR), diffusion-weighted and gradient echo sequences. A hypointense signal intensity lesion measuring 9.4 cm × 2.6 cm (anteroposterior and transverse) with surrounding oedema and mass effect causing midline shift of 1.1 cm to the left and compression of ipsilateral ventricles was seen on a venous bold sequence (gradient echo) (Figure 2A-C). Emergency craniotomy was done and intraoperatively a dural-based mass with no haematoma and thickened dura was seen and biopsy of the same was performed (Figure 3A). Histopathology showed diffuse small lymphoid cell infiltrate and sheets of round cells (Figure 3B). Immunohistochemistry showed diffuse cytoplasmic positivity with CD 19 and CD20 (B cell markers) (Figure 3C). There was positivity of lymphoid cells with a perivascular pattern on immunohistochemistry. The patient was then kept on a chemotherapy regimen of cyclophosphamide, methotrexate, vincristine and prednisone and a good response was seen with clinical improvement.

Figure 1 A,B) Brain computed tomography showing a hyperdense lesion in the right temporoparietal region with surrounding oedema and mass effect. C) Bone window shows no erosions with normal cranial vault.

Figure 2 A) MR imaging showing a hypointense subdural lesion in the right temporoparietal region on a T1-weighted sequence. B,C) A hypointense signal intense subdural lesion with surrounding oedema causing midline shift of 11 mm to the left on gradient echo venous bold sequence.

Figure 3 A) Intraoperative photograph showing the dural-based tumour. B) Histological examination photomicrograph showing diffuse lymphoid cell infiltrate. C) Immunohistochemistry showing cytoplasmic positivity with CD19 and CD20 markers.

Discussion

Primary CNS lymphoma (PCNSL) is a rare tumour representing <2% of intracranial neoplasms^{1,2}. It is defined as an extranodal lymphoma in the absence of systemic disease. Primary dural lymphomas (PDL) are very rare and are low-grade B cell lymphomas^{3,4}. PDL has a better prognosis than other PCNSLs. The incidence of PCNSL is higher in immunocompromised patients, whereas PDL is seen in immune competent patients. PDL is rare and very few cases are reported in the literature^{5,6}. A differential diagnosis of other dura-based lesions includes meningioma, hemangiopericytoma, meningiosarcoma and metastatic carcinoma. Diagnosis in our case was confirmed by

histopathology and immunohistochemistry.

PCNSL is a chemosensitive and radiosensitive tumour. PDL has a better prognosis than PCNSL. Chemotherapy is used as a first-line treatment in dural lymphomas^{7,8}; chemotherapy drugs reach the dural tumour without passing the blood-brain barrier.

To our knowledge there are very few cases of proven PDL in the literature. The present report describes the clinical presentation, clinical work-up, imaging features, intraoperative findings, histopathology, immunochemistry and treatment of PDL in a 60-year-old man. The present case adds another report of this rare entity to the literature. The diagnosis of PDL should be kept in mind in case of subdural lesions in patients with atypical clinical features.

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