Case 11669

Primary dural lymphoma: a case report
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Section: Neuroradiology
Area of Interest: Neuroradiology brain
Procedure: Diagnostic procedure
Imaging Technique: CT
Imaging Technique: MR
Special Focus: Lymphoma Case Type: Clinical Cases
Authors: Mohammed Noeman
Patient: 50 years, male

Clinical History:

A 50-year-old male patient presented with aphasia. He had intermittently occurring neurological impairments during the past 2 years. The initial suspicion was a recurrent Transient Ischemic Attack (TIA). Non-enhanced brain CT was performed, followed by MRI.

Imaging Findings:

* CT:
Non-enhanced CT shows a convex-shaped, extra-axial, hyperdense, space-occupying lesion in the right frontoparietal region. There is mass effect on the right hemisphere with compression of the right lateral ventricle but there is no significant shifting of the midline.

* MRI:
In the non-enhanced T1 and T2-weighted images, the mass is seen isointense or slightly hypointense compared to the grey matter. No other intra or extra-axial lesions were detected.

In the DWI no diffusion restriction was detected.

After administration of Gadolinium, the T1-weighted images showed a homogenous enhancement of the mass which is seen extending along both sides of the dura.

Discussion:

A. Introduction:
Lymphoma of the CNS consists of 2 major subtypes: secondary CNS involvement by systemic lymphoma (the most common) and Primary CNS Lymphoma (PCNSL), in which the lymphoma is restricted to the brain, leptomeninges, spinal cord, or eyes, without evidence of it outside the CNS at primary diagnosis [1, 2].

Primary dural lymphoma (PDL) is a rare subtype of PCNSL that arises from the dura mater and differs biologically from other CNS lymphomas.

B. Epidemiology:
PCNSL accounts for 1%–5% of all brain tumours [3, 4] and approximately 1% of all NHLs [3]. The incidence rates of PCNSL are increasing among immunocompetent patients [4, 5, 6].

C. Clinical Presentation:
Symptoms are usually dependent on the location of the tumour. The most common clinical presentations are
headaches, seizures, focal sensory or motor deficits, and visual disturbances [7].

D. Imaging Perspective: 
The imaging technique of choice to detect leptomeningeal metastasis is contrast-enhanced MR imaging [11, 12]. CT is less sensitive [12] especially in patients with haematologic malignancies [13].

MRI reveals single or multiple extraaxial masses that enhanced diffusely after administration of gadolinium. The cerebral convexities are the most common site, but the falx, tentorium, and sellar/parasellar regions can also be involved [8, 10].

E. Differential Diagnosis: 
The most important differential diagnosis is meningioma because they share many features, including higher incidence in women, similar age of onset, and frequent occurrence of more than one extra-axial lesion. Also they both have similar imaging findings; they present with extra-axial lesions that appear iso- or hypointense on T1-weighted images and diffusely enhance with administration of gadolinium. Moreover, a dural tail is a frequent finding in both of them [8].

F. Staging: 
Neurological staging includes MRI of brain and/or spine (depending on the symptoms and signs) with gadolinium. Involvement of the leptomeningeal space due to direct tumour contiguity is common, consequently, patients should undergo lumbar puncture. Patients with presumed PDL need to undergo an evaluation to exclude systemic involvement, a CT of the chest, abdomen, and pelvis, and a bone marrow biopsy sampling with aspirate are recommended staging procedures [9].

G. Prognosis: 
A PDL is more indolent and has a better prognosis than parenchymal PCNSL or systemic lymphoma with CNS metastasis [10].

H. Treatment: 
Complete resection can be difficult due to multiple tumours, infiltrative behaviour, or en plaque presentation. If complete resection is achieved, clinical and radiological follow-up is appropriate. However, for most cases, adjuvant treatment with either radio- or chemotherapy is necessary [8].

**Differential Diagnosis List:** Primary dural lymphoma, Meningioma, Dural metastases

**Final Diagnosis:** Primary dural lymphoma

**References:**


Description: An extra-axial hyperdense space-occupying lesion (red arrows) is seen in the right fronto-parietal region with faintly demarcated borders. Origin: Noeman M, Department of Radiology, Westpfalz Klinikum Kaiserslautern, Germany.
Figure 2

Description: Another more cranial level showing the faint borders of the lesion. Origin: Noeman M, Department of Radiology, Westpfalz Klinikum Kaiserslautern, Germany.
Description: After administration of intravenous Gadolinium, a diffuse and intense enhancement of the mass is seen. Origin: Noeman M, Department of Radiology, Westpfalz Klinikum Kaiserslautern, Germany.
**Description:** The mass is seen spreading along both sides of the dura (which is marked with blue asterisks), the inner side (red arrow) and the outer side (green arrow). **Origin:** Noeman M, Department of Radiology, Westpfalz Klinikum Kaiserslautern, Germany.
Description: Post-operative follow-up after complete excision of the tumor with postoperative pneumocephalus (red asterisk). Origin: Noeman M, Department of Radiology, Westpfalz Klinikum Kaiserslautern, Germany.
Description: Post-operative follow-up showing the trephination holes (red arrows) as well as surgical clips (blue arrows). **Origin:** Noeman M, Department of Radiology, Westpfalz Klinikum Kaiserslautern, Germany.
Description: The mass (blue asterisk) is seen isointense/slightly hypointense (compared to gray matter). Note also the faint demarcation of borders (red arrows). Origin: Noeman M, Department of Radiology, Westpfalz Klinikum Kaiserslautern, Germany.
Description: The mass (red asterisk) is also seen isointense/slightly hypointense here (compared to gray matter. Origin: Noeman M, Department of Radiology, Westpfalz Klinikum Kaiserslautern, Germany.
Description: There are marked susceptibility artefacts within the lesion in the SWI. Origin: Noeman M, Department of Radiology, Westpfalz Klinikum Kaiserslautern, Germany.
Description: Post-contrast sagittal reformatted T1w shows the extension of the dural lesion. Origin: Noeman M, Department of Radiology, Westpfalz Klinikum Kaiserslautern, Germany.
Description: In the DWI there were no areas of diffusion restriction. Origin: Noeman M, Department of Radiology, Westpfalz Klinikum Kaiserslautern, Germany.