Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Radiology

Corpus Callosum Lymphoma in an Immunocompetent Patient: A Case Report

K. Lemtouni[1*], R. Essofi[1], Y. Bouktib[1], A. El Hajjami[1], B. Boutakioute[1], M. Ouali[1], N. El Idrissi[1]

[1]Service De Radiologie, Hôpital Arrazi, Chu Mohamed VI, Marrakech, Marocco

DOI: 10.36347/sjmcr.2024.v12i05.065 | **Received:** 26.03.2024 | **Accepted:** 03.05.2024 | **Published:** 21.05.2024

***Corresponding author:** K. Lemtouni
Service De Radiologie, Hôpital Arrazi, Chu Mohamed VI, Marrakech, Marocco

Abstract **Case Report**

Primary central nervous system lymphoma (PCNSL) involving the corpus callosum is rare and diagnostically challenging. We report a 63-year-old female with cognitive impairment, and personality changes. MRI showed a hyperintense lesion in the corpus callosum, and biopsy confirmed diffuse large B-cell lymphoma (DLBCL). This case highlights the importance of considering PCNSL in differential diagnoses of corpus callosum lesions and underscores the necessity for prompt, aggressive treatment despite a guarded prognosis.

Keywords: Primary central nervous system lymphoma, corpus callosum, diffuse large B-cell lymphoma, MRI.

INTRODUCTION

In the realm of medical imaging, Magnetic Resonance Imaging (MRI) stands as a cornerstone diagnostic tool for elucidating intricate anatomical details and unveiling pathological processes within the human body. This article delves into a remarkable case wherein MRI served as the key in uncovering a rare manifestation of lymphoma within the corpus callosum, shedding light on the pivotal role of imaging in diagnosing such intricate conditions.

CASE PRESENTATION

A 63-year-old female patient presented to the neurology department with a six-month history of progressive cognitive decline, headaches, vomiting, and intermittent episodes of confusion. Neurological examination revealed subtle signs of cognitive impairment and mild ataxia. Initial investigations, including routine blood tests and cerebrospinal fluid analysis, showed no remarkable findings. However, due to the persistence and progression of symptoms, further diagnostic imaging was deemed necessary.

MRI Findings:

MRI of the brain was performed using a high-resolution protocol, revealing a striking abnormality within the corpus callosum. Imaging demonstrated a lesion process in the splenium of the corpus callosum, creating a butterfly-like appearance, hypointense on T1, and heterogeneous signal intensity on T2-weighted and FLAIR sequences. There was discreet enhancement post-contrast administration, indicative of underlying pathology. Perilesional edema has also been noted. Additionally, diffusion-weighted imaging (DWI) revealed restricted diffusion within the affected region. These findings raised suspicion for an infiltrative process, prompting additional investigations.

Given the atypical presentation and MRI findings, further diagnostic workup was initiated. A brain biopsy was performed to obtain tissue for histopathological examination. The biopsy revealed diffuse infiltration of large atypical lymphoid cells, consistent with a diagnosis of primary central nervous system lymphoma involving the corpus callosum. Immunohistochemical analysis further confirmed the lymphoid origin of the tumor cells.

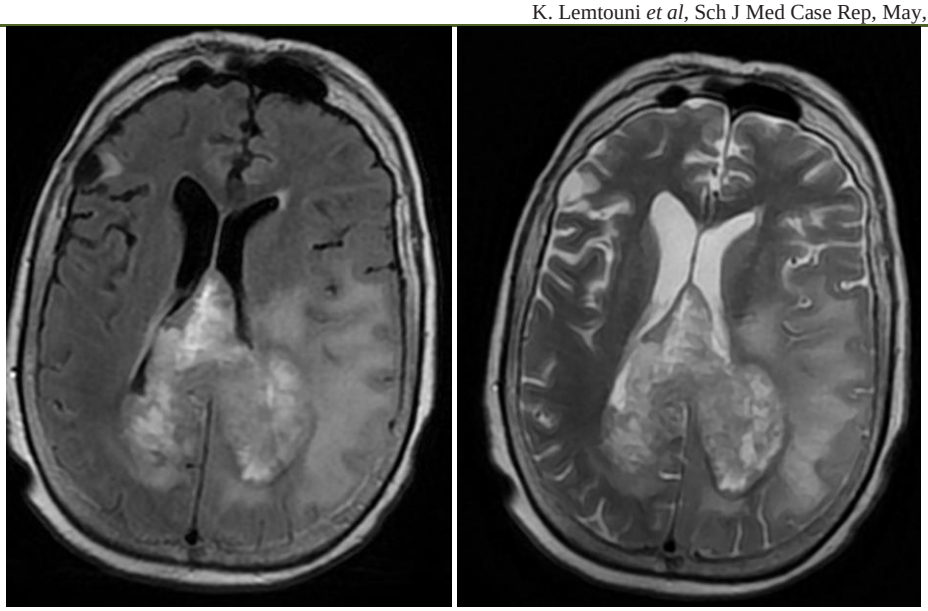

Fig 1: T2 and Flair hypersignal lesion of the splenium of the corpus callosum giving a butterfly wing appearance, associated with peri-lesional oedema

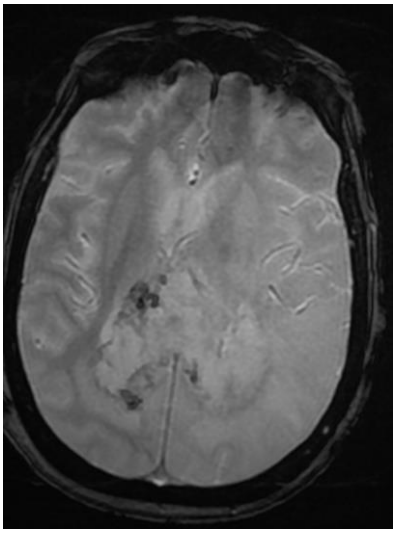

Fig 2: Lesion with T2* signal void showing hemorrhagic changes

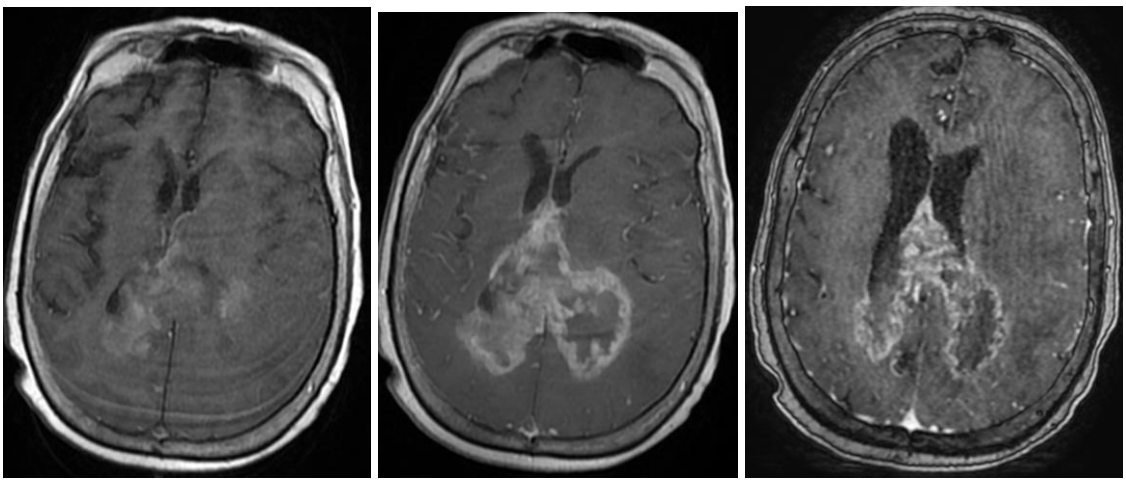

Fig 3: Lesion of the splenium of the corpus callosum in T1 isosignal, enhanced heterogeneously and peripherally by Gadolinium

DISCUSSION

Primary central nervous system lymphoma (PCNSL) represents a rare entity, particularly in immunocompetent individuals. It is a rare subtype of non-Hodgkin lymphoma that primarily affects the brain, spinal cord, leptomeninges, or eyes without evidence of systemic disease. Among the intricate tapestry of PCNSL presentations, involvement of the corpus callosum stands out as an exceptional diagnostic and therapeutic challenge [1].

The corpus callosum, a critical structure facilitating interhemispheric communication, rarely serves as a primary site for lymphomatous involvement. Typically associated with diverse etiologies ranging from inflammatory processes to neoplasms, the diagnosis of lymphoma within this region warrants meticulous evaluation. Immunocompetent individuals, who lack the predisposing factors commonly associated with PCNSL, pose an additional diagnostic conundrum due to the rarity of lymphomatous infiltration in this population [2].

Patients afflicted with corpus callosum lymphoma often present with nonspecific neurological symptoms, including cognitive impairment, motor deficits, and behavioral changes. These manifestations, albeit subtle, underscore the imperative for vigilant clinical assessment and comprehensive diagnostic workup. Given the indolent nature of the disease, delayed diagnosis can exacerbate neurological sequelae, emphasizing the urgency for early recognition and intervention [3].

The diagnosis of corpus callosum lymphoma necessitates a multidisciplinary approach encompassing neuroimaging, cerebrospinal fluid analysis, and histopathological examination. MRI remains the imaging modality of choice for detecting and characterizing these lesions due to its superior soft tissue contrast and multiplanar imaging capabilities [4].

It reveals characteristic findings such as homogenous enhancement, perilesional oedema, and diffusion restriction.

However, the absence of pathognomonic features underscores the importance of integrating imaging findings with ancillary investigations to delineate lymphomatous involvement definitively.

Treatment strategies for PCNSL typically involve a combination of chemotherapy, radiation therapy, and, in some cases, surgical resection.

Prognosis in corpus callosum lymphoma hinges on various factors, including patient age, tumor histology, and treatment response. While immunocompetent patients may exhibit a more favorable prognosis compared to their immunocompromised counterparts, disease recurrence and neurological deterioration remain formidable challenges. Long-term surveillance and multidisciplinary care are imperative to monitor treatment efficacy and address emerging clinical complexities [5].

CONCLUSION

In conclusion, this case underscores the invaluable role of MRI in diagnosing rare intracranial pathologies such as lymphoma involving the corpus callosum. Early recognition and accurate characterization of these lesions are paramount for guiding appropriate treatment interventions and improving patient outcomes. Continued advancements in imaging technology and diagnostic algorithms hold promise for further enhancing our understanding and management of such complex neurological conditions.

REFERENCES

1. Masuzawa, H., Suzuki, F., Amemiya, S., Orimo, K., Ishiura, H., Hara, R., ... & Abe, O. (2023). A case of intravascular lymphoma presenting with a lesion in the splenium of the corpus callosum. *Radiology Case Reports*, *18*(5), 1929-1932.
2. Tazi, I., Nafil, H., & Mahmal, L. (2013). Corpus callosum lymphoma. *Hematol Oncol Stem Cell Ther*, *6*, 120-121.
3. Nemitz, I., Migliorini, D., Dietrich, P. Y., & Plan, P. A. (2015). Lymphome cérébral : une présentation classique? *Rev Med Suisse*, 460, 371-373.
4. Nilles, C., Hoang-Xuan, K., Delgadillo, D., Duverneuil, N. M., Mokhtari, K., Mathon, B., & Houillier, C. (2021). Lymphome du corps calleux: présentation et pronostic neurocognitif. Étude d'une cohorte monocentrique de 27 patients. *Revue Neurologique*, *177*, S35.
5. Horger, M., Fenchel, M., Nägele, T., Moehle, R., Claussen, C. D., Beschorner, R., & Ernemann, U. (2009). Water diffusivity: comparison of primary CNS lymphoma and astrocytic tumor infiltrating the corpus callosum. *American Journal of Roentgenology*, *193*(5), 1384-1387.