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Balint Syndrome Revealing a Primary Diffuse Large B-Cell Lymphoma of the Central Nervous System

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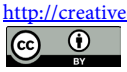

Abstract

Balint's syndrome is a rare neurological disorder, characterized by simultanagnosia, ocular apraxia and optic ataxia. The lesion is usually inside the parieto-occipital region bilaterally in most cases. We report a 51-year-old man presenting a primary diffuse large B-cell lymphoma revealed by Balint syndrome. The patient showed improvement in the first month after the start of chemotherapy.

Subject Areas

Neurology, Oncology, Radiology & Medical Imaging

Keywords

Balint's Syndrome, Simultanagnosia, Optic Ataxia, Oculomotor Apraxia, B-Cell Lymphoma

1. Introduction

The Balint syndrome is a rare neurologic situation. It was first described in 1909 by Rezsö Bálint [1]. It's characterized by: simultanagnosia (inability to perceive more than one object at time), optic ataxia (difficulty to focus visual targets) and ocular apraxia (psychic paralysis of gaze) [2]. It is due to posterior parietal and occipital lobes and is often bilateral [3]. Several causes of this syndrome were published in the literature.

Primary diffuse large B-cell lymphoma of the central nervous system represents

approximately 3% of all brain tumors [4]. We report through this work, the first case of a patient with primary diffuse large B-cell lymphoma revealed by Balint syndrome.

2. Case Report

A 51-year-old male patient, right-handed, without any past medical history (memory deficits, seizures or stroke, head trauma, and there was no relevant family history), who was asymptomatic until 1 month prior to his admission to our Neurology department. He reported headache, difficulties in writing, reading and walking with several falls, he was unable to perform simple tasks at home behaving like he was blind, without any other focal signs. On examination, he had difficulty reaching the objects held by the examiner (optic ataxia). He always asked for help from his son in order to locate his plate. He couldn't identify all the objects when presented simultaneously in a complex figure (simultagnosia). He had normal stereognosis and color vision. His visual field could not be assessed due to oculomotor apraxia. He was unable to copy complex figure drawings (Constructional apraxia). The clinical finding refers to Balint syndrome.

Cerebral Magnetic Resonance Imaging (MRI) was performed which revealed bilateral parieto occipital expansive lesions with signal hyperintensities on T2-weighted and FLAIR images, without central necrosis or mass effect, MR spectroscopy showed large choline peak, decreased NAA with a lactate peak (**Figure 1**). CSF study was normal (Cell count < 3 cells protein at 0.37 g/l). JC-virus, HIV antibodies and inflammatory markers were negative. Whole-body Computed tomography showed no masses or lymphadenopathy. A stereotactic brain biopsy revealed a CD20 positive diffuse large B-cell lymphoma. Clinical and paraclinical investigations were consistent with primary diffuse large B-cell lymphoma revealed by Balint syndrome.

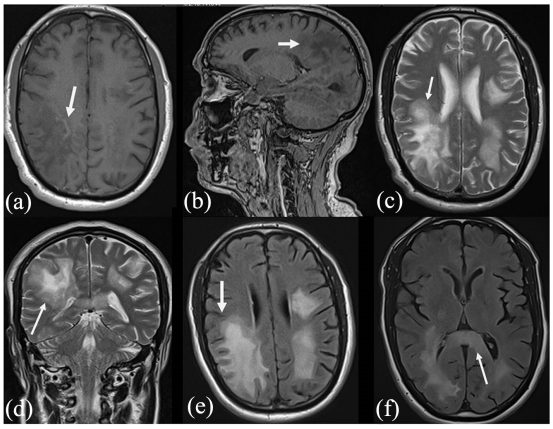

Figure 1. Axial (a)/sagittal (b) T1 sequences: showed hypointense images with irregular gadolinium enhancement. Axial (c)/sagittal (d) T2 sequences: revealed bilateral hyperintense images in parieto-occipital lobe. Axial (e)/(f) T2 FLAIR sequences: illustrated bilateral hyperintense images in the parieto-occipital lobe with the involvement of the splenium of the corpus callosum.

3. Discussion

Balint syndrome is a rare neurologic situation, characterized by simultagnosia, optic ataxia and ocular apraxia [1]. This syndromic entity is due to the loss of connection between cortical regions of vision and motor prerolandic areas [2]. It is often due to bilateral lesions of the parietal-occipital lobes, caused by several etiologies such as stroke, trauma, preeclampsia, and cerebral infections [3]. Many causes of this syndrome were published in the literature but few papers describe the neoplastic origin especially primary central nervous system lymphoma (PCNSL).

Primary diffuse large B-cell lymphoma of the central nervous system (CNS) represents 3% of all CNS tumors [4]. At diagnosis, the median age of PCNSL is about 56 years [4]. Clinical presentation usually reflects the position of lesion(s) in the brain. More than 60% of PCNSL patients present neurological deficits while visual symptoms and seizures are less frequent [5]. MRI represents the main support for showing the parietal-occipital lobes' structural damages and suspecting a diagnosis of PCNSL throw the analysis of the different MRI sequences (T1 C+ Gd/T2/FLAIR/ Spectroscopy). The lesions could be solitary in 65% or multifocal in 35% of PCNSL patients. Involvement of the brain hemispheres is the most common localization (38%) [6]. The standard diagnostic approach for PCNSL is stereotactic brain biopsy [7]. The differential diagnoses of PCNSL are multiples like progressive multifocal leukoencephalopathy (PML), and reversible encephalopathy syndrome [8]. The main treatment is chemotherapy with consolidation radiotherapy but the challenge remains in the management of neurological toxicity and improving patient survival [9].

4. Conclusion

Balint Syndrome revealing a primary diffuse large B-cell lymphoma of the central nervous system is a complex condition that poses significant challenges for practitioners. A multidisciplinary approach involving neurologists, neurosurgeons and hematologists is essential to develop an optimal treatment plan tailored to the individual patient. While advancements in medical knowledge and therapeutic strategies have improved, the prognosis is still unpredictable and depends on rapid diagnosis and management.

Conflicts of Interest

The authors declare no conflicts of interest.

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