

Inherent diagnostic and treatment challenges in germinoma of the basal ganglia: a case report and review of the literature

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Abstract Among intracranial germinomas, basal ganglia germinomas represent a specific clinical and anatomical entity. Based on an unusual case of a basal ganglia germinoma in a 13-year-old Caucasian male, we highlight the diagnostic challenges and discuss treatment considerations in this disease.

Keywords Basal ganglia · Intracranial germinoma · Irradiation · Thalamus

Introduction

Primary intracranial germ cell tumors represent 3–8% of all intracranial tumors in children. They show a higher

prevalence in Japan and the Far East and the peak incidence is in the second decade of life [1, 2]. Germinomas account for approximately 2/3 of intracranial germ cell tumors, most of which develop in the midline structures, namely the suprasellar and pineal regions [3, 4]. Only 4–10% of germinomas originate in the basal ganglia and thalamus with a male dominance being reported [5]. The clinical and radiological characteristics of basal ganglia germinoma have been described; however, very few reports have focused on specific aspects of the management of these lesions.

Based on an unusual case of basal ganglia germinoma in a Caucasian male, we review diagnostic and management challenges inherent in the treatment of this entity.

Case report

A previously healthy Caucasian Canadian thirteen year old boy presented with a history of difficulties with his left foot during sport activities and progressed over a 6 week period to a left-sided weakness. Initial workup with an unenhanced brain computed tomography (CT) study at the onset of symptoms disclosed a hyperdense lesion in the posterior limb of the right internal capsule and the adjacent putamen. A subsequent unenhanced magnetic resonance imaging (MRI) of the brain confirmed the presence of a poorly-defined, irregularly-shaped lesion in this area with low signal intensity on T1-weighted images and high signal intensity on T2-weighted images without evidence of mass effect.

Due to the location of the lesion and its atypical radiological characteristics, the possibility of a degenerative or vascular process was considered. Subsequent extensive investigation in this regard yielded normal results, and a

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