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# Suprasellar intracranial mature teratoma in an adolescent: A case report

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**ABSTRACT**

Teratomas are the most common type of Germ Cell Tumors (GCTs). GCTs are classified as extragonadal, if there is no evidence of a primary tumor in neither the testicles, nor in the ovaries. Intracranial Mature Teratomas are tumors with a very low incidence, and clear male predominance. We present the case of a 21-year-old female patient, with a history of two seizures 15 days prior to admission, without any abnormalities upon physical examination. The Magnetic Resonance Imaging (MRI) performed at the admission evidenced an expansive, heterogeneous lesion in the frontal lobe, hypointense on T1-weighted images, hyperintense on T2-weighted images, and restriction on the diffusion imaging and ADC-mapping. The patient underwent microsurgical resection, and it was possible to achieve a near-total resection. During surgery, a welldefined capsule was identified, which was removed after adequate debulking. Tissues resembling hair were taken from inside the lesion. The patient recovered well, without any neurological deficits, and no further intervention was necessary. The authors aim to describe this rare pathology and their option for a surgical approach. Os teratomas são o tipo mais comum de Tumores de Células Germinativas (TCG). TGC são classificados como extragonadais, quando não há evidências de um tumor primário em nos testículos, ou nos ovários. Os Teratomas Maduros Intracranianas são tumores com uma incidência muito baixa, e com uma predileção pelo sexo masculino. Nós apresentamos o caso de uma paciente, feminina, 21 anos de idade, com história de dois episódios de convulsões tônico-clônicas generalizadas, 15 dias antes da admissão, sem nenhum déficit focal ao exame físico. A Ressonância Magnética realizada na chegada mostrou uma lesão sólida, expansiva, grande e heterogênea, hipointensa em T1, e hiperintensa em T2, com restrição a difusão e ADC-mapping. Foi realizado uma cirurgia, e foi possível obter uma ressecção quase total. Havia uma cápsula bem definida, a qual foi removida após adequada redução do volume tumoral. Dentro da lesão foi encontrado tecido semelhante a cabelo. A paciente se recuperou bem, e foi dado alta sem novos déficits neurológicos, não foi realizado mais nenhuma intervenção, e ela está sendo acompanhada regularmente. Os autores visam descrever essa patologia rara e sua opção por uma abordagem cirúrgica.

## 1. Introduction

Teratomas are the most common type of Germ Cell Tumors (GCTs). [1] GCTs are classified as extragonadal, if there is no evidence of a primary tumor in neither the testicles, nor the ovaries. The term "Teratoma" refers to a neoplasm that differentiates into somatic-type cell population (typically including cell populations that would normally derive from ectoderm, endoderm, and mesoderm) that can be typical of either adult or embryonic development. The component tissues in a teratoma range from immature to well differentiated, and are foreign to the anatomic site in which they are found. Most, but not all, teratomas are benign. (1) Primary intracranial GCTs are a unique class of rare tumors that frequently affect children and young adults. (2) We report the case of a young female patient who presented with a large intracranial teratoma, and review the literature about this singular pathology.

## 2. Discussion

In the World Health Organization classification system, intracranial GCTs are divided into germinomas and non-germinomatous GCTs (NGGCTs) [2]. NGGCTs include embryonal carcinomas, endodermal sinus tumors (also known as yolk-sac tumors), choriocarcinomas, teratomas (immature and mature), and mixed tumors (with more than one element present). Germinomas comprise 60 to 65% of all pediatric intracranial GCTs. Approximately 25% of NGGCTs are mixed and contain more than one histologic component [3], [4]. The reported incidences of intracranial GCTs among children with a brain tumor are higher in the Far East than in the West, and there is a wide difference among countries: Canada (3.3%), [5] France (3.5%), [6] United States of America (4.1%),7 Japan (10.3%), [7] Korea (11.2%), [8] and Taiwan (14%), [9] suggesting that genetic and/or environmental factors are responsible for the tumorigenesis of GCTs. Even though the incidence of these tumors is still low, their relative proportions among brain tumors appear to be increasing year-onyear worldwide [8], [10]. In North America and Europe, intracranial GCTs represent 0.5–3% of pediatric central nervous system (CNS) tumors [11]. Intracranial teratomas are the most prevalent congenital tumors, comprising 28–50% of CNS tumors and ~0.5% of all intracranial tumors [12], [13]. The incidence of intracranial GCT reaches a peak during the second decade of life, with a median age at diagnosis of 10 to 12 years. There is a male preponderance of 2:1 to 3:1, especially with tumors in the pineal region [3], [4].

## 3. Conclusion

Teratomas are unusual intracranial tumors, with a wide variance in terms of age at presentation, location, and histological subtypes, and should be differentiated from other GCTs. It is important to consider obtaining tissue to establish a histologic diagnosis for patients with a suspected intracranial GCT, unless the morbidity of the procedure outweighs the benefit. Although these tumors may present similar clinical manifestations and radiological features, their treatment responses and prognosis differ greatly, justifying histological analysis to tailor the therapy.

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