Epileptic Disord. 2024 Jun 18. doi: 10.1002/epd2.20240. Online ahead of print.

Characteristics of malignant brain tumor-associated epileptic spasms

Naoki Yamada [1], Ichiro Kuki [1], Masataka Fukuoka [1], Megumi Nukui [1 2], Takeshi Inoue [1], Ryoko Umaba [3], Noritsugu Kunihiro [3], Kai Yamasaki [4], Takehiro Uda [3 5], Hiroyuki Fujisaki [4], Shin Okazaki [1 2]

Affiliations

PMID: 38888438 DOI: 10.1002/epd2.20240

Abstract

Although epilepsy is the most common comorbidity of brain tumors, epileptic spasms rarely occur. Brain tumors associated with epileptic spasms are mostly low-grade gliomas. To date, few studies in the literature have reported on malignant (Grades 3-4) brain tumors associated with epileptic spasms. Thus, we aimed to investigate the characteristics of malignant brain tumor-associated epileptic spasms. We retrospectively reviewed patients with malignant brain tumors and epileptic spasms in our institution. Data on demographics, tumor histology, magnetic resonance imaging, epileptic spasm characteristics, electroencephalography, and treatment responsiveness were also collected. Six patients were included. In all cases, the brain tumors occurred in infancy in the supratentorial region and epileptic spasm onset occurred after the completion of brain tumor treatment. Anti-seizure medication did not control epileptic spasms; two patients were seizure-free after epileptic surgery. Although all patients had developmental delays caused by malignant brain tumors and their treatment, developmental regression proceeded after epileptic spasm onset. Two patients who achieved seizure-free status showed improved developmental outcomes after cessation of epileptic spasms. This is the first report of the characteristics of malignant brain tumor-associated epileptic spasms. Our report highlights a difficulties of seizure control and possibillity of efficacy of epileptic surgery in this condition. In malignant brain tumor-associated epileptic spasms, it is important to proceed with presurgical evaluation from an early stage, bearing in mind that epileptic spasms may become drug-resistant.

Keywords: epileptic spasms; epileptic surgery; malignant brain tumor; pediatric.