

Herpes Simplex Virus Encephalitis relapse in a child after epilepsy surgery: case report and review of the literature

Alexander Gregory Weil MD FRCSC; Anna Lo Presti; John Ragheb MD, FACS, FAAP; Toba Niazi MD; Sanjiv Bhatia MD Department of Pediatric Neurosurgery, Miami Children's Hospital



Introduction

Herpes simplex virus encephalitis (HSVE) is the most morbid clinical syndrome associated with the human herpes virus. Mortality rates of this condition approach 19% in treated patients and rise to 70 % in untreated patients.

Despite treatment with appropriate dosages of acyclovir, neurologic relapse of HSVE has been reported frequently, especially in children, in whom relapse rate may approach 26%. The mechanisms of these relapses remain unclear.

Common hypotheses include reactivation of a latent herpesvirus and postinfectious immunoinflammatory response. Postinfectious inflammatory response without demonstrable HSV reactivation may very rarely recur following cranial surgery in patients with a history of HSVE.

Case Presentation

We report a rare case of a 17 year-old girl with a history of HSVE at the age of 7 years old who developped pharmacoresistant epilepsy (Fig. 1).

Figure 1. Preoperative MRI

Figure 2. Unremarkable intitial posteroperative MRI



Surgery

She underwent a tailored right temporal lobectomy, amygdalohippocampectomy and right frontal lobe disconnection (Fig. 2AB) after having undergone a detailed presurgical workup localizing her seizure onset zone to those structures.

Postoperative outcome

Although she initially did well postoperatively, on the sixth postoperative day, she presented with new-onset seizures, fever, and facial weakness. Although initial brain imaging was unremarkable (Fig. 2AB), over several days her condition worsened.

Seizures persisted despite multiple antiepileptic drugs and corticosteroids. Although a CSF study was normal, serial follow-up brain MRI showed progressive extensive cerebritis (Fig. 3), raising suspicion of HSVE relapse. On CSF analysis, HSV, CMV, EBV, HV 6-7-8 polymerasa chain reaction (PCR) were negative and the viral and fungal CSF culture remained negative as well.

Figure 3. Postoperative MRI showing encephalitis



Treatment

Acyclovir treatment was started at 40mg/kg/day. Her condition continued to worsen for several days before stabilizing and eventually improving.

Pathology

The final pathology of the surgical specimen suggested chronic encephalitis, which was compatible with psotinfectious inflammatory response without active HSVE replication (Fig. 4).

Figure 4. Pathology showing chronic encephalitis



Outcome

At follow-up 1 year after surgery, the patient is seizure-free. However, she has left hemiparesis, severe difficulty in swallowing requiring jejunostomy tube, dysphasia and flat affect

Learning Objectives

 HSVE reactivation may occur following cranial surgery in patients with a history of HSVE
HSVE reactivation is extremely morbid
Prompt recognition and treatment of postoperative HSVE reactivation may improve outcome
HSVE reactivation following cranial surgery may be prevented with prophylactic per-operative acyclovir

Conclusion

therapy

HSVE in neurosurgical patients is a rare but potentially life-threatening complication that must be particularly suspected in patients with previous history of HSVE and unexplained postoperative fever associated with an altered state of consciousness and/or seizures. Whether or not prophylactic acyclovir therapy can avoid relapses or at least minimize the expression of the disease remains unclear. Based on this review and considering the high mortality and morbidity rates associated with HSVE, an adequate prophylactic administration of acyclovir should be considered for patients with previous history of HSVE.