Severe Reversible Toxic Encephalopathy Induced by Cisplatin in a Patient with Cervical Carcinoma Receiving Combined Radiochemotherapy

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Case Report: A 45-year-old patient with cervix carcinoma received combined radiochemotherapy including cisplatin. After a cumulative dose of 240 mg/m² the patient suddenly became somnolent and developed a severe tetraparesis and generalized seizures. After ruling out intracranial bleeding, cerebral metastases as well as infectious and metabolic causes of this condition, a severe toxic encephalopathy was diagnosed based on the clinical findings and MRI scans. After symptomatic treatment on the intensive care unit all symptoms were completely reversible.

Conclusion: Toxic encephalopathy is a rare but dramatic complication of various cytostatic drugs. With the widespread use of cisplatin this rare disorder should be kept in mind.

Key Words: Toxic encephalopathy · Leukoencephalopathy · Cisplatin · Cervix carcinoma
this condition turned out to be negative. C-reactive protein and leukocytes were normal, all tests on viral antibodies were negative, and no bacteria could be found in cerebrospinal fluid. The seizures were treated with valproate and never reoccurred thereafter.

MRI showed several white matter lesions periventricularly and in the right occipital lobe. No intracranial metastases, no bleeding, and no meningeal enhancement were seen (Figure 1). Contrast-enhanced sequences and MRI angiography could rule out a vascular cause for this condition.

During the following days the condition of our patient improved continuously with supportive care, anticonvulsives, and substitution of magnesia. After 1 week all neurologic symptoms including vision trouble, headache, and weakness had resolved completely. The analysis of the clinical presentation, the fast reversibility of the symptoms, the MRI pictures (Figure 2), and the absence of abnormalities in the blood and CSF tests led to the diagnosis of a cisplatin-induced toxic leukencephalopathy.

**Discussion**

Toxic leukencephalopathy is a structural alteration of cerebral white matter [2], that can be caused by a variety of substances. Its pathophysiology is only poorly understood. Alterations in cerebrovascular autoregulatory control and blood-brain barrier integrity seem to play a critical role in this process. Hypomagnesemia is the only abnormal finding that is frequently seen in these cases. The patients show a variety of neurologic symptoms. In mild cases headache, hyperreflexia, inattention, confusion, memory loss, or emotional dysfunction can be seen. Language is usually preserved in contrast to Alzheimer’s disease, which can sometimes be quite masking for the first symptoms. In severe cases patients present with seizures, cortical blindness, sensory deficits, hemiparesis, dementia, stupor, coma, and death. With the exception of death these signs are usually transient and reversible.