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Communicating hydrocephalus following surgery and adjuvant radiochemotherapy for glioblastoma.

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Abstract

Object Communicating hydrocephalus is an uncommon complication in patients treated for glioblastoma multiforme (GBM). Its pathogenesis remains unclear. The authors evaluated the clinical and radiological factors associated with the onset of communicating hydrocephalus and the impact of ventriculoperitoneal (VP) shunt surgery on the outcome of these patients. **Methods** One hundred twenty-four patients harboring GBM, who had undergone craniotomy for tumor resection and adjuvant radiochemotherapy, were retrospectively assessed. Seven of them developed communicating hydrocephalus and were treated with VP shunt surgery. Clinical and radiological estimates included Karnofsky Performance Scale (KPS) score, previous surgery, overall survival (OS), CSF pressure and components, tumor location, and leptomeningeal dissemination. **Results** All 7 patients who developed communicating hydrocephalus had undergone at least 2 craniotomies for tumor resection before the onset of hydrocephalus ($p = 0.0006$; Fisher exact test). Six cases showed high levels of CSF proteins. There was a highly significant relationship between ventricular opening at surgery for tumor recurrence and onset of hydrocephalus ($p = 0.0002$; Fisher exact test). In these patients, VP shunt surgery was followed by a significant improvement of KPS score ($p = 0.0180$; Wilcoxon signed-rank test). The median OS after VP shunt insertion was 5 ± 2.9 months. **Conclusions** Ventricular opening after radiochemotherapy and high CSF protein levels are significant predictors of communicating hydrocephalus in patients with GBM. The VP shunt surgery improves quality of life in these patients.

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