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The natural history of extracranial metastasis from glioblastoma multiforme.

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Abstract

Extracranial metastasis is a unique but rare manifestation of glioblastoma multiforme. It is thought to arise from glioblastoma cells disseminated into the blood stream. We undertook a comprehensive analysis of 88 cases of extracranial glioblastoma (5 were gliosarcomas) published between 1928 and 2009. Cases included in the analysis were primary or secondary glioblastomas that subsequently invaded organs outside the brain or spinal cord. The median age was 38 years and the median overall survival time was 10.5 months (range 0.0-60.0 months). The median time from symptom onset to diagnosis of primary glioblastoma was 2.5 months, from diagnosis to detection of extracranial metastasis was 8.5 months, and from metastasis to death was 1.5 months. From 1940 to 2009, there has been progressive lengthening of the interval from detection of extracranial metastasis to death, at a rate of 0.7 months per decade (95% confidence interval 0.5-1.0 month). Use of magnetic resonance imaging correlates with an increase in overall survival but not age, gender, or site of primary glioblastoma. Patients treated with surgery + radiation + chemotherapy + cerebrospinal fluid shunting had the longest average survival interval from metastasis to death when compared to those treated with surgery alone, radiation alone, surgery + radiation, and surgery + radiation + chemotherapy. Lung metastasis is a prognostic factor of extremely poor outcomes. We conclude that patients with glioblastoma extracranial metastasis have poor prognosis, but there has been a progressive lengthening of survival in each successive decade from 1940 to 2000.

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