Pros and Cons Factors of Microsurgery in the Management of Reccurent Glioblastomas

MIRCEA R. GORGAN MD, PhD; Felix Mircea Brehar MD, PhD
[Institution]
"Carol Davila" University of Medicine and Pharmacy, Bucharest
Neurosurgery Clinic - "Bagdasar-Arseni", Clinical Hospital, Bucharest

Introduction

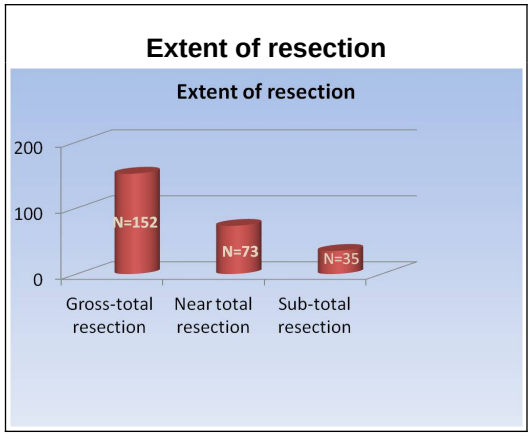
Glioblastoma is the most common malignancy of the central nervous system and it has a poor outcome because of its tendency for recurrences. There are divergent opinions regarding the management of glioblastoma recurrence. Therefore, the authors retrospectively analyze the results of 202 patients with glioblastoma recurrences re-operated in our clinic and identify the clinical and neuroimaging criteria associated with a better postoperative outcome.

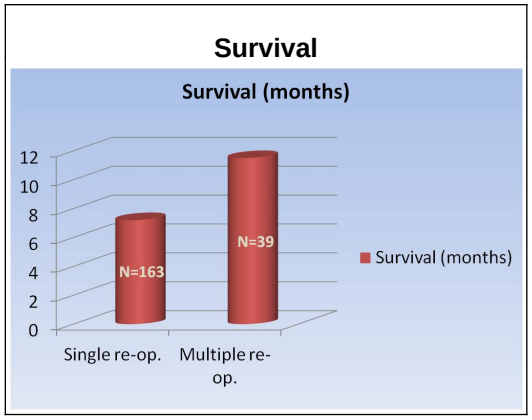
Methods

The authors of this study present a retrospective cohort study of 260 surgical procedures performed for glioblastoma recurrences in 202 patients admitted in our clinic between 1998 and 2014. All patients followed radiotherapy and chemotherapy after the initial surgical procedure. The majority of patients, 163 cases (80,8%) underwent one re-operation for recurrences, 24 patients (11,9%) have been re-operated for two times, 11 patients (5,4%) for three times and 4 patients (1,9%) for four times. We divided the patients in two groups: one group with one re-operation for recurrent glioblastoma (N= 163) and the other group of patients with multiple re-operations for recurrent glioblastoma (N= 39). We compare the survival between these groups and statistically analyze the significance, in term of survival, of the following preoperative criteria: age, gender, KPS score and tumor location (lobar vs. deep location).

Results

The extent of resection was as follows: gross-total resection in 152 procedures (58,4%), near total resection in 73 procedurs (28,1%) and sub-total resection in 35 procedures (13,5%). The surgical mortality in this series was 1,5% and morbidity (new neurological deficits postoperatively) was 9,6%. The medium survival time from re-operation to death for patients with recurrent glioblastoma and one re-operation (N= 163) was 7,2 months. The medium survival time from the first re-operation to death for patients with recurrent glioblastoma and multiple re-operations (re-operated for two, three and four times, N= 39) was significantly longer, 11,5 months ($p<0.05$). Several preoperative criteria were found to be predictive for a better outcome in patients operated for glioblastoma recurrences: age<70 years, KPS score>80 and lobar location.



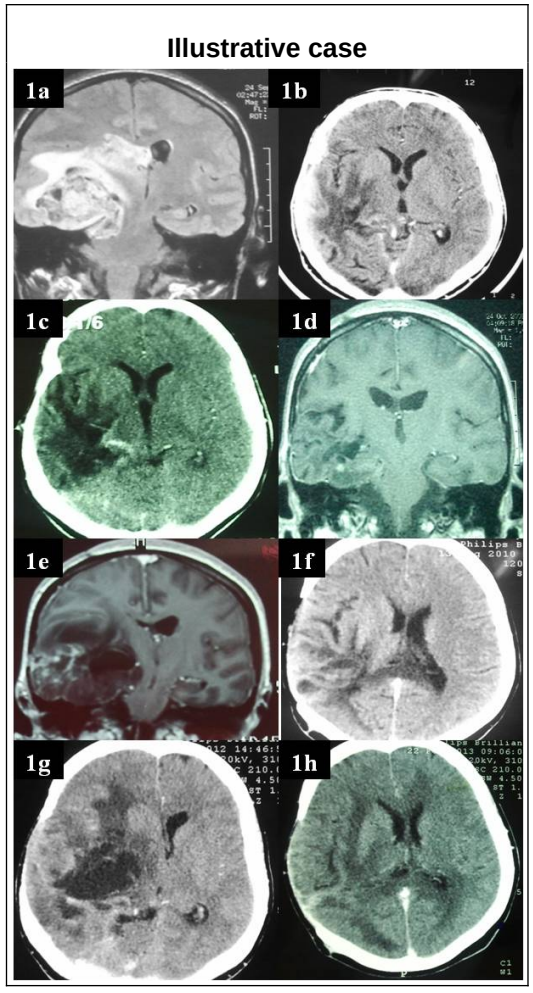


Conclusions

Tumor resection should be considered for the following cases of glioblastoma recurrences: age<70 years, KPS score>80, lobar location and symptoms related to tumor mass-effect. The cost-benefit analyze was in favor of surgery compared with second and third line chemotherapy. Moreover, we found that in selected patients multiple re-operations for recurrences increase statistically significant the total survival period. However, the final decision depends on the patient's choice. Therefore, careful selection of the patients, based on analysis of specific preoperative criteria, is important in order to obtain a better outcome and a good quality of life postoperatively.

Learning Objectives

Finding new preoperative criteria which predict a better postoperative outcome and survival for re-operation in patients with glioblastoma reccurence.



Illustrative case

A 32-year-old female with deep right temporal tumor (Fig.1a) - **surgery 1** ***(09.2004)***. Small tumor recurrence (09.2005) (Fig.1b) - **surgery 2**. Disease-free period 2005-2010 (Fig.1c,d). Giant tumor recurrence 09.2010 (Fig.1e)- **surgery 3** (Fig.1f). Cystic tumor recurrence (12.2012) (Fig.1g)- **surgery 4**. No tumor recurrence ***(02.2013)*** (Fig.1h).