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# A clinical evaluation of cystic features in patients with newly diagnosed glioblastoma with IDH-wildtype

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## Abstract

**Background:** The prognostic significance of the presence of cystic features in patients with newly diagnosed glioblastoma (GB) is highly controversial. The purpose of this study was to determine whether cystic GB patients have a more favorable prognosis compared to non-cystic GB patients.

**Methods:** The records of all GB patients diagnosed between August 2008 and December 2020 at Seoul St. Mary's Hospital were reviewed retrospectively. Out of 254 GB patients, we excluded patients with a confirmed isocitrate dehydrogenase (IDH) mutation or an unknown IDH mutation status. A total of 145 patients met our eligibility criteria.

**Results:** Of the 145 patients we analyzed, 16 patients were classified as the cystic group, and 129 patients were classified into the non-cystic group. As there was a significant difference in the extent of resection between the two groups, 32 patients were matched according to propensity score matching. A Kaplan-Meier survival curve of the two groups indicated that the cystic group had better survival than the non-cystic group (28.6 months versus 18.8 months, respectively;  $p = 0.055$ ). On multivariate analysis, the presence of cystic features (hazard ratio [HR]: 0.40, 95% confidence interval [CI]: 0.17-0.91,  $p = 0.029$ ) was significantly related with a longer OS. Longer OS was also related with well-known prognostic factors, such as grossly total resection (HR: 0.05, CI: 0.01-0.31, respectively;  $p = 0.001$ ) and lower European Cooperative Oncology Group (ECOG) score (HR: 3.67, CI: 1.56-9.02, respectively;  $p = 0.003$ ).

**Conclusion:** Our results suggest that the presence of cystic features could be an independent prognostic factor suggesting better survival in GB patients. Further larger and prospective studies to validate our findings are needed.

**Keywords:** Cystic; Glioblastoma; Prognosis; Radiologic Findings; Survival.

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