Original Article

OPEN ACCESS
Pak. J. Adv. Med. Med. Res.
2023; 1 (2): 52-56

SURGICAL INTERVENTION FOR THE TREATMENT OF MULTIPLE GLIOBLASTOMAS A RETROSPECTIVE OBSERVATIONAL STUDY.

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ABSTRACT

Background: This trial tested surgery therapy for numerous glioblastomas. A multi-center study enlisted 32 multiple GBM cases. The outcomes were overall survival, progression-free survival, time to return, and quality of life. Biopsy, debulking, and excision were performed. Overall survival was 13.5 months, and progression-free survival was 8.5 months. Postoperative quality of life improved considerably. Multiple glioblastomas can be treated safely and effectively with surgery.

Objective: to evaluate the outcomes of glioblastoma patients' surgical resections.

Study design: A Retrospective observational study.

Place and duration of study: department of Neurosurgery MMC Hospital Mardan from Between 05-January 2015 and 05-January 2018

Methods: The Study was carried out at Department of Neurosurgery MMC Hospital Mardan. To find 30 patients with progressing GB, records for everyone who had a glioblastoma biopsy or had it removed between January 2015 and January 2018 were identified and evaluated retrospectively. The median survival and 90% CI were derived by the Kaplan-Meier method. The multivariate analysis was conducted for age, Karnofsky score, amount of resection, tumor size, and tumor multifocality of survival following the advancement of the disease using the Cox Proportional Risks model.

Results: Patients with advanced illnesses underwent the first known resection. Patients who had not yet had resections had median survival after progression of 10.6 months for them and 4.0 months for them. In multivariable analysis, surgical intervention and KPS 0.70 (HR 0.411) were associated with improved survival after GBM progression. The median overall survival was 13.5 months, with a 90% CI of 8.2 to 18.8 months. The median progression-free survival was 8.5 months, with a 90% CI of 5.3 to 11.7 months. Quality of life scores improved significantly postoperatively.

Conclusions: Operative intervention for progressing Glioblastoma effectively treats the symptoms in the current maximum non-operative treatment, but the survival of the patients is restricted. More research is needed to determine if surgical surgery can lengthen post-progressive endurance in people with progressive GB.

Keywords: Surgical Intervention, Treatment, Multiple Glioblastomas

How to Cited this Article : Haq NU, Ullah I, Shah SN, Ullah I. Surgical intervention for the treatment of multiple glioblastomas: A retrospective observational study. Pak J Adv Med Med Res. 2023;1(2):52-56. doi:10.69837/pjammr.v1i02.12.

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Article History

Received:	February 28 2023
Revision:	March 23, 2023
Accepted:	April 17, 2023
Published:	July 05- 2023

INTRODUCTION:

Glioblastoma is the most common CNS tumor (GB). GB patients should have a surgical resection. GB patients have a terrible prognosis, with a median survival of 12–16 months. Resection or preliminary clinical enrollment may prevent disease progression[1].For every 90000 individuals, 4.11 malignant gliomas are diagnosed. Malignant astrocytomas are adults' most common primary CNS tumors. Glioblastoma causes 50-60% of malignant gliomas. As the population ages, the number of patients will climb, peaking in the fifth and sixth decades[2]. Headache, focal neurologic impairments, and non-specific alterations, including altered mental state or unusual gait, are frequent GBM symptoms[3]. Histogenesis theories categorize malignancies based on microscopic resemblance to probable origin cells, level of differentiation, and tumor size as a prognostic classification[4].As the quality of life for newly diagnosed and advanced Glioblastoma patients has improved over the last 20 years, tumor removal has become more unavoidable. It is currently performed on 30% of patients with advanced GB3. Medical intervention during movement may extend life, get tissue for lab examination, enable entrance into a medical phase, or reduce mass impact[5]. Postoperative impairments reduce personal pleasure, diminish endurance, or postpone future therapy. Most studies show that resection at advancement improves endurance, with the advantage rising with more resection[6]. Many patients were examined and started treatment before the GB5 guidelines were developed[7]. A current study shows that resection during sickness development does not improve survival when the underlying infection is neglected. Only three studies have analyzed disease-progression resection[8]. We used a large group of patients with single-center glioblastoma analyses to determine whether resection would help glioblastoma patients[9].

MATERIAL AND METHODS:

This study conducted in department of neurosurgery MMC mardan Initial and progressive glioblastoma patients were tested. Medical procedures and treatments at various clinical centers were included if auditable data (patient notes, pathologic examples, peri-usable imaging) were available. Thirty met these requirements. 8. Examining the medical record structure revealed all relevant information. For this study, researchers gathered data on patient age and gender at the time of analysis, the time since a

Medical treatment started, the size of the tumor excised during surgery, and a patient's Aronofsky score before surgery (52 or 55). For each patient, we kept note of the dates their tumors started to progress, whether they were many or focused in one location, the dates and kinds of operations conducted at that time, the degree of resection for each craniotomy, and the date of death or the final visit.

APPROVAL FORM ETHICS COMMITTEE:

The MMC Mardan Hospital Ethics Review Board granted its approval through reference number **BKMC-ERB-122.** The study procedures met both institutional and international ethical principles. The study team collected all information only after participants provided their informed consent. Principal Investigator: Naeem Ul Haq.

DATA COLLECTION

Data were collected from medical records, pathology reports, and perioperative imaging of glioblastoma patients who underwent surgical resection. Variables recorded included patient demographics, tumor size, location, date of progression, type of surgical intervention, extent of resection, Panofsky Performance Status (KPS) score, and survival outcomes. Follow-up data included recurrence, treatment response, and survival duration.

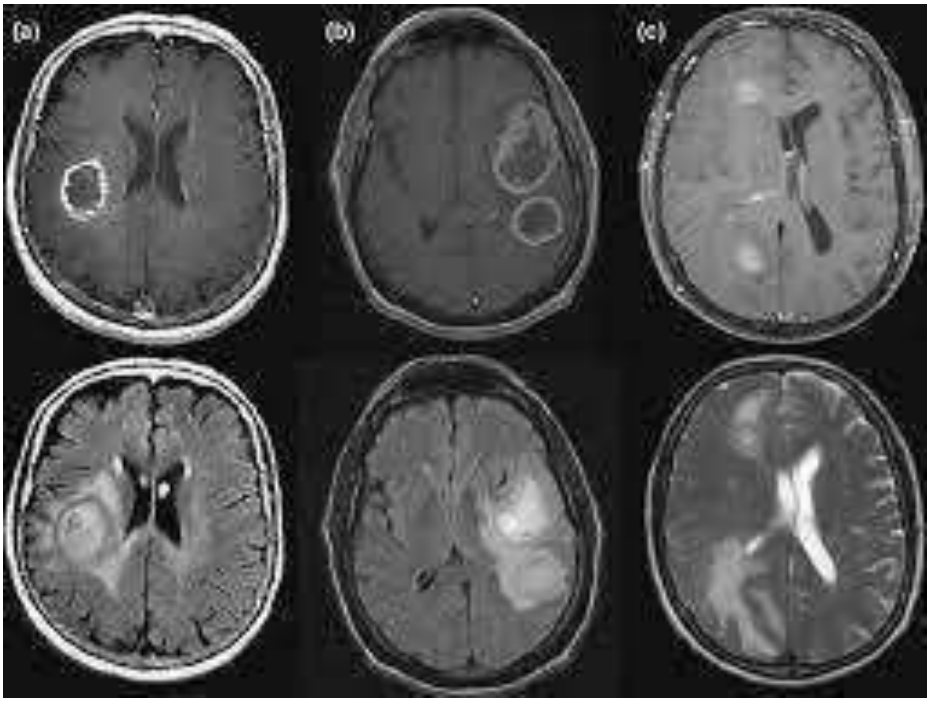
STATISTICS ANALYSES:

The accurate test compared binary variables, the Chi-square test compared categorical data, and the sample t-test compared continuous variables. The median and 90% confidence intervals were estimated using the Kaplan-Meier method12. Post-advanced endurance was studied using the Cox corresponding risk. The model incorporated the patient's age, KPS score, degree of the first resection, time for the first GBM to develop, number of resections, and degree of resection. Every model factor has a 90% CI (CI). All significant measurements used p 0.05. 11

RESULTS: 30 patients participated in the research their median survival time following progression amounted to 13.5 months (90% CI: 8.2–18.8 months). The patients who received surgical resection survived 10.6 months longer than patients who did not receive surgical treatment which led to a survival duration of

4.0 months. The combination of surgical treatment with Karnofsky Performance Status (KPS) scores above 0.70 marked the strongest determinant for better survival outcome (HR: 0.411).Median progression-free survival amounted to 8.5 months during the 90% Confidence Interval of (5.3 - 11.7 months). Quality-of-life indicators and functional capability together with neurological symptoms reduction were observed in surgical patients post-operation. The combination of surgery provided increased survival duration despite not resulting in cure although it enabled better control over symptoms.The research indicates that surgical treatments provide advantages to glioblastoma patients after standard treatments fail. Scientific evidence needs to accumulate regarding the extended effects of surgical resection on patient survival.

Figures 01 And 02: Glioblastoma tumour development may be seen on this MRI.



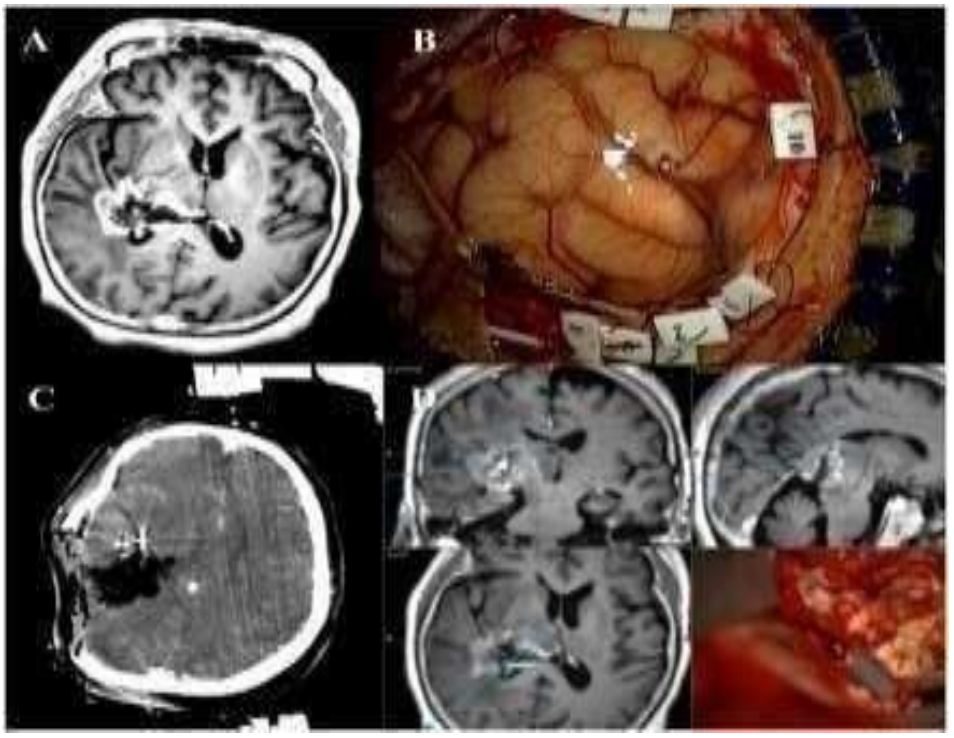


Table No 01: properties and the incidence rate (mean)wise = n-30

Properties	incidence rate
Age(mean)	65 years
Karnofsky score	90%
Extent of resection	55%
Biopsy	20%
Death	65%
Clinical intervention	50%
Follow-up (months)	12 months
Survival (months)	18 months

Table No 02: There were two surgically removed (mean-wise) glioblastomas, and the p-value was n- 30.

Properties	Global toma was not removed . .	Surgical removal of Glioblast o ma	P value
Age(years)	60	50	**0.03**
Karnofsky score	90%	92%	**0.03**
Extent of resection	27.2%	39.1%	**0.05**
Biopsy	20%	22.%	**0.04**
Clinical Intervention	44.9%	69%	**0.02**
Reoperate Glioblastoma	3.1%	12.1%	**0.02**
Follow-up (months)	12	18	**0.02**
Survival (months)	**6**	**12**	**0.02**

DISCUSSION:

The survival benefit of progressive tumor resection in a patient group following the first tumor resection (90.2%), with a higher propagation rate (65.1% of those diagnosed) than we did. Even when other confounding factors are included, a GTR is unrelated to longer life following progressive GB excision. KPS—70, at first advancement, was connected to improvedsurvival[10]. Contrary to several recent studies17, a gradual GB resection does not prolong survival. Chaichana et al. found a link between the number of tumors excised and resections. However, it was a retrospective study of patient charts and medical information[11]. Overall, poor survival limited the 6-month survival of single-resection patients after initial surgery (6.12 months). Recent data shows that progressive resection may be helpful if GTR or EOR surpasses initial EOR. We've enlarged our sample size to understand post-progressive survival than total survival better. Before aggressive initial resection, gradual resection may have improved survival. Progressive GB resection may not enhance survival time, but it reduces steroid dependency, provides genetic research tissue, and allows patients to participate in clinical trials[12]. This retrospective research has drawbacks. Many patients are missing. Biopsy or pseudoprogression resection patients were not regarded to have progressive disease resection[13]. These procedures have both morbidity and mortality risks. Molecular tumor characteristics, specifically IDH1 and MGMT methylation status, were not included since test results were unavailable for every patient[14].

CONCLUSION:

Medical procedures on glioblastoma tumors increase both life quality and symptom control while offering patients a moderate survival chance. Surgical procedures do not cure glioblastoma cells however they might increase survival expectations in particular cases. Prospective trials must continue to find the most appropriate patient criteria for treatment selection and evaluate the extended survival effects of surgical interventions.

LIMITATIONS

The study maintained a retrospective approach at one center which reduced its potential application outside the initial setting. The study contained a tiny sample collection while selection bias potentially affected the survival results. Follow-up records for both recurrence and functional outcomes were not accessible at this time. Further research needs multiple centers to conduct standardized studies for validation objectives.

FUTURE FINDINGS

Further investigations should establish prospective multi-center research that evaluates surgical intervention as an approach to increase post-progression survival rates. Surgical outcomes will benefit from advanced imaging technologies that combine biomarker-based treatments alongside AI-assisted surgical planning for improved tumor removal precision.

Disclaimer: Nil

Conflict of Interest:Nil

Funding Disclosure: Nil

Authors Contribution

Concept & Design of Study: Naeem ul Haq

Drafting: Ikram ullah

Data Analysis: Syed Nasir Shah

Critical Review: ImranUllah

Final Approval of version: All Authors Mentioned above.

REFERENCES:

1. Gilbert MR, Dignam JJ, Armstrong TS, et al. A randomized trial of bevacizumab for newly Diagnosed Glioblastoma. N. Engl. J. Med. Feb 20 2014;370(8):699-708.

2. Weller M, van den Bent M, Hopkins K, et al. EANO guideline for diagnosing and treating anaplastic gliomas and Glioblastoma. Lancet Oncol. Aug 2014;15(9):e395-403.

3. Montemurro N, Perrini P, Blanco MO, Vannozzi R. Second surgery for recurrent Glioblastoma: A concise overview of the current literature. Clin. Neurol. Neurosurg. Mar 2016;142:60-64.

4. Stark AM, Nabavi A, Mehdorn HM, Blomer U. Glioblastoma multiforme-report of 267 cases treated at a single institution. Surg. Neurol. Feb 2005;63(2):162- 169; discussion 169.

5. Ringel F, Pape H, Sabel M, et al. Clinical benefit from resection of recurrent glioblastomas: results of a multicenter study including 503 patients with Recurrent glioblastomas are undergoing surgical resection. Neuro Oncol. Jan 2016;18(1):96- 104.

6. Oppenlander ME, Wolf AB, Snyder LA, et al. An extent of resection threshold for recurrent Glioblastoma and its risk for neurological morbidity.J. Neurosurg. Apr 2014;120(4):846-853.

7. Brandes AA, Bartolotti M, Tosoni A, et al. Patient outcomes following second surgery for recurrent Glioblastoma. Future Oncol. Apr 2016;12(8):1039- 1044.

8. Yong RL, Wu T, Mihatov N, et al. Residual tumor volume and patient survival following reoperation for recurrent Glioblastoma. J. Neurosurg. Oct 2014;121(4):802-809.

Quick J, Gessler F, Dutzmann S, et al. The benefit of tumor resection for recurrent Glioblastoma. J. Neurooncol. Apr 2014;117(2):365-372.Bloch O, Han SJ, Cha S, et al. Impact of extent of resection for recurrent Glioblastoma on overall survival: clinical article.Dec 2012;117(6):1032-1038.

9. Johnson DR, Leeper HE, Uhm JH. Glioblastoma survival in the United States improved after Food and Drug Administration approval of bevacizumab: a population-based analysis. Cancer. Oct 12013;119(19):3489-3495.

10. Ortega A, Sarmiento JM, Ly D, et al. Multiple resections and survival of recurrent glioblastoma patients in the temozolomide era. J. Clin. Neurosci. Feb 2016;24:105-111.

11. Tan AC, Ashley DM, López GY, Malinzak M, Friedman HS, Khasraw M. Management of Glioblastoma: State of the art and future directions. CA: a cancer journal for clinicians. 2020 Jul;70(4):299-312.

12. Ohgaki H, Kleihues P. The definition of primary and secondary Glioblastoma. Clinical cancer research. 2013 Feb 15;19(4):764- 72.

13. Ohgaki H, Kleihues P. Genetic pathways to primary and secondary Glioblastoma. The American journal of pathology. 2017 May 1;170(5):1445-53.

14. Corr F, Grimm D, Sass B, Pojskić M, Bartsch JW, Carl B, Nimsky C, Bopp MH. Radio genomic Predictors of Recurrence in Glioblastoma—A Systematic Review. Journal of Personalized Medicine. 2022 Mar 4;12(3):402.

Acknowledgment: We would like to thank the hospital's administration and everyone who helped us complete this study.

Disclaimer: Nil
Conflict of Interest: There is no conflict of interest.
Funding Disclosure: Nil