

# Long-term Functional Recovery and Quality of Life after Surgical Treatment of Putaminal Hemorrhages

Jasmin Last,\* Moritz Perrech,\* Cemile Denizci,\* Franziska Dorn,† Josef Kessler,‡  
Matthias Seibl-Leven,\* Michael Reiner,\* Maximilian I. Ruge,§  
Roland H. Goldbrunner,\* and Stefan Grau\*

---

*Background:* To evaluate the long-term functional recovery and health-related quality of life (HRQOL) in patients after surgically treated putaminal hemorrhages. Surgery for putaminal hemorrhages remains a controversial issue. Although numerous reports describe conflictive results regarding short-term outcome of surgically treated patients, very little is known about their long-term recovery and their HRQOL. *Methods:* In this monocentric, retrospective study we analyzed mortality, long-term functional outcome, activity of daily life status, and HRQOL undergoing craniotomy for hematoma evacuation between December 2004 and January 2011. *Results:* Forty-nine consecutive patients were identified with 8 (16.3%) patients dying during acute care. Forty-one patients surviving acute phase were transferred to neurologic rehabilitation hospitals. One patient was lost to follow-up. Median follow-up was 52.9 (17-101) months. At follow-up, 24 of 40 (60%) patients still were alive with 16 of 40 (40%) patients living with major disability (modified Rankin Scale [mRS], 4 or 5). Seven patients (17.5%) showed a mRS lesser than or equal to 3 with only 3 (7.5%) of those living functionally independent (mRS, 0-2). HRQOL in survivors was reduced with a median DEMQOL/DEMQOL (a patient/caregiver reported outcome measure designed to assess health-related quality of life of people with dementia) proxy score of 92 and 93, respectively. All patients showed severe impairment in activities of daily life. *Conclusions:* This is the first long-term follow-up analysis for patients with surgically treated putaminal hemorrhages. Survivors show only marginal recovery despite intensive neurologic rehabilitation; most remain dependent with a reduced HRQOL and significantly impaired activities of daily life status. **Key Words:** Putaminal hemorrhage—clot removal—surgery—QOL—long-term follow-up—outcome.

© 2015 by National Stroke Association

---

## Introduction

A benefit of craniotomy and open clot removal for putaminal hematomas is unclear, even the indication for surgery is inconsistent in published studies. Although most

reports do not show superiority of an open hematoma evacuation,<sup>1-4</sup> it still is performed frequently as a life-saving procedure. As the scope of most publications is short- and medium-term morbidity and mortality there is only scarce information about the long-term recovery

---

From the \*Department of Neurosurgery, University of Cologne; †Department of Neuroradiology, University of Cologne; ‡Division Neuropsychology, Department of Neurology, University of Cologne; and §Department of Stereotaxy and Functional Neurosurgery, University of Cologne, Cologne, Germany.

Received October 1, 2014; revision received November 25, 2014; accepted December 1, 2014.

J.L., C.D., M.P., and M.S.-L. performed the data collection; F.D. carried out the radiologic analysis; J.K. performed the neuropsychologi-

cal testing; M.R. and R.G. carried out the critical review of the article. S.G. helped in the study design and M.P. and J.L. wrote the final article.

Address correspondence to Stefan Grau, MD, Department of Neurosurgery, University Hospital Cologne, Kerpener Str. 62, Cologne 50937, Germany. E-mail: [Stefan.grau@uk-koeln.de](mailto:Stefan.grau@uk-koeln.de).

1052-3057/\$ - see front matter

© 2015 by National Stroke Association

<http://dx.doi.org/10.1016/j.jstrokecerebrovasdis.2014.12.001>

and health-related quality of life in these patients. In clinical practice, neurologists and neurosurgeons rarely see these patients for follow-up.

In this analysis, we evaluated mortality, long-term functional outcome, health-related quality of life, and prognostic factors for poor outcome in patients with surgically treated putaminal hemorrhages.

## Patients and Methods

### *Patient Identification*

All patients with hypertensive putaminal hemorrhage undergoing osteoplastic craniotomy and hematoma evacuation in our institution between December 2003 and January 2011 were included. Patients were identified from a computerized database.

### *Indication for Surgery and Surgical Procedure*

Surgery was indicated in patients with radiologic evidence of acute space-occupying putaminal hemorrhage (medial and/or lateral putamen with possible extension to the internal capsule of the white matter) and based on their clinical status: Glasgow Coma scale (GCS) less than 9, initial GCS of 9 or more, and clinical deterioration and/or signs of (imminent) herniation (loss of papillary reaction, papillary asymmetry, and uncal displacement toward tentorial rim). In case of clinical signs of manifest herniation (1-sided mydriasis) for more than 1 hour, surgery was not performed.

The surgical protocol aimed at removal of the clot. A frontal or frontotemporal craniotomy was performed followed by a frontal or temporal corticotomy. An additional external ventricle drain was inserted in case of obstructive hydrocephalus.

### *Data Retrieval from Patient Charts*

The following data were retrieved from medical charts: age, gender, comorbidity conditions, GCS, hematoma volume, time to surgery, procedural complications, and short-term outcome including Glasgow Outcome Score, in-house mortality, and modified Rankin Scale (mRS) at discharge. Comorbidity was quantified by the Charlson index.<sup>5</sup> A modified intracerebral hemorrhage score was calculated based on clinical documentation.<sup>6</sup>

The total volume of hemorrhage was estimated as described previously using an ellipsoid calculation ( $4/3 \times \pi \times r1 \times r2 \times r3$ ) on native computed tomography scans.<sup>7</sup>

### *Long-term Follow-up*

Long-term outcome was assessed in 2012 by contacting patients via telephone or mail. Their clinical status was documented using a structured interview and the mRS. Patients, when able to answer, and their caregivers were in-

terviewed. Patients and their caregivers were asked to answer a mailed DEMQOL and DEMQOL proxy questionnaires, which assess 29 and 32 domains, respectively, on physical, emotional, and mental functioning.<sup>8</sup> This particular questionnaire was chosen because of the implication of the putaminal region in higher executive functions, and lesions are subsequently associated with cognitive deficits.<sup>9</sup> Further, a Lawton Instrumental Activity of Daily Living scale (IADL) questionnaire was used.<sup>10</sup>

### *Prognostic Factors for Poor Outcome*

Poor outcome was defined by persisting major disability or death at the time of follow-up (mRS  $\geq 4$ ). Calculation was performed for a mRS score of 4 or greater and for mRS score of 4-5 separately. The following parameters were selected as possible variables for poor outcome: aged 60 years or older, hemorrhage volume, Charlson index, GCS before surgery less than or equal to 8, modified intracerebral haemorrhage score, time to surgery, midline shift, clinical signs of herniation, ventricular clot, and hydrocephalus.

### *Statistical Analysis*

Categorical variables were analyzed using chi-square test. Continuous variables were analyzed using Mann-Whitney *U* test. Multivariate analysis was not done because of the small number of events. A *P* value of .05 was chosen for statistical significance.

## Results

### *Patient Characteristics and Outcome at Discharge*

A total of 49 consecutive patients with surgical clot evacuation were identified. Eight patients (16.3%) died within acute care period and 1 patient was lost to follow-up, leaving 40 patients in analysis. Patients' characteristics are shown in [Table 1](#). At the time of transfer to a rehab hospital, the mRS ranged from 3 to 5 and the Glasgow Outcome Score from 2 to 4 ([Table 1](#)). Surgical complications are shown in [Table 2](#).

### *Long-term Outcome*

At the time of follow-up, 24 of 40 (60%) patients were still alive whereas 14 of 40 (40%) had died. Good outcome (mRS, 0-3) was found in 7 (17.5%) patients ([Table 3](#) and [Fig 1](#)).

Among patients showing a mRS 5 at discharge, 3 recovered to mRS 3, 1 patient improved to mRS 2.

IADL score ranged from 0 to 5 in both the genders, there were no independent patients with only 2 patients reaching the highest score of 5, still indicating dependency in daily life ([Table 3](#)). DEMQOL and DEMQOL proxy scores were 92 and 93, respectively, comparable

Download English Version:

<https://daneshyari.com/en/article/2703891>

Download Persian Version:

<https://daneshyari.com/article/2703891>

[Daneshyari.com](https://daneshyari.com)