Reviewer's report

Title: Retrospective analysis of 104 histologically proven adult brainstem gliomas: clinical symptoms, therapeutic approaches and prognostic factors

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Reviewer: Maximilian Ruge

Reviewer's report:

The authors present their experience with adult brainstem gliomas in a larger series of 104 patients, considering clinical symptoms, therapeutic approaches and prognostic factors.

The authors provide interesting data. However, the following points need clarification:

Major:

1.) The authors state that 104 patients with brainstem gliomas were included. How many suspected brainstem gliomas on preoperative imaging showed a different histology on stereotactic biopsy (e.g. metastasis, lymphoma, inflammatory diseases etc.). This information would be important.

2.) In the Method section the authors state that "the tumor was defined as a brainstem glioma when more than 50% of the tumor involved the brainstem and a histological diagnosis of a glioma was available". This inclusion criteria is odd and deserves clarification. Brainstem involvement of >50% is usually applied for "diffuse brainstem gliomas", whereas tumors involving <50% of the brainstem are usually defined as "focal brainstem gliomas" [1,2].


3.) Although the authors mention a meta-analysis on 293 brainstem biopsies by Samadani et al. they essentially missed to discuss a very recently published meta-analysis on 1480 brainstem biopsies by Kickingereder et al. [1].


4.) The authors refer to a study by Kesari et al reporting complications 29% following stereotactic biopsy. This was a limited series of 14 patients, furthermore
Kesari et al. did not report whether these were transient or permanent complications. Mentioning the complication rate from such a small series, which were probably transient in most cases is not beneficial. The authors should instead mention the complication rate derived from 1480 patients in the meta-analysis by Kickingeder et al. (7.8% overall morbidity, 1.7% permanent morbidity). Please revise.

5.) The authors state that "A higher rate of complication in operative procedures of brainstem gliomas compared to supratentorial gliomas is established, e.g., Kesari and colleagues reported a complication rate of 40% after resection and of 29% after stereotactic biopsy of brain stem gliomas".

However, a crude difference in the morbidity mortality following stereotactic biopsy of supratentorial vs. infratentorial lesions is yet not fully established. Overall morbidity and mortality rates for stereotactic brain biopsy in general are reported as approximately 4.9% and 0.7% (mean value from published series with at least 100 patients) [1]. These rates are fairly comparable to those reported for brainstem lesions reported by Kickingeder et al. in their meta-analysis (7.8% overall morbidity, 0.9% mortality) [2]. Please revise.


6.) The authors state that 104 patients were included over a period of 10 years. Were the patients recruited from a single center or derive these data from a multi-center-approach? If so, please state which centers were involved and how many patients were recruited from an individual center.

7.) The authors mention stereotactic brachytherapy (SBT) as an alternative treatment approach and refer to a study by Mundinger et al. They state that 89 patients received SBT, however this is not correct. Although all 89 patients underwent stereotactic biopsy, only 55 patients received SBT (29 with iodine-125, 26 with iridium-192 in Mundingers series. Please revise.

Furthermore, the authors missed to discuss a recently published study by Ruge et al on SBT for focal brainstem gliomas [1]


8.) Surgical complications: please provide information whether these were transient or permanent complications.
9.) The authors state that "the risk of postoperative hemorrhage is likely to be higher in malgnignant gliomas and may explain the differences in morbidity". However postop. hemorrhage infrequently causes permanent neurological deficits according to the meta-analysis by Kickingereder et al. Please discuss.

Minor:

1.) Please provide information regarding follow-up period for each WHO-grade.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests