

Intracranial Meningioma Surgery Indications in Elderly

Since the number of [elderly](#) people with [intracranial meningiomas](#) (IM) continues to rise, surgical treatment has increasingly become a considerable treatment option, even in very old (≥ 80 years old) meningioma patients. Since little is known about whether [intracranial meningioma surgery](#) in this age group is safe and justified, Rautalin et al. conducted a [systematic review](#) to summarize the results of surgical outcomes in very old meningioma patients. They performed a [systematic literature search](#) in [Pubmed](#), [Cochrane Library](#), and [Scopus](#) databases. Primarily, they extracted 1-month and 1-year survival rates, and 1-year [morbidity](#) rates, as well as information about preoperative morbidity, operative [complications](#), meningioma size, location, histology, and [peritumoral edema](#). [Quality](#) of the included studies was evaluated by [Cochrane Handbook for Systematic Reviews of Interventions](#) and Critical Appraisal Skills Program. From the 1039 reviewed [articles](#), seven retrospective studies fulfilled the [eligibility criteria](#). Motor deficits (27-65%) and mental changes (51-59%) were the most common indications for surgery. One-month and 1-year [mortality](#) rates varied between 0-23.5% and 9.4-27.3%, respectively. Most of the operated IM patients (41.2-86.5%) improved their performance during postoperative follow-up. Impaired preoperative performance and comorbidities were most commonly related to higher postoperative mortality. None of the studies fulfilled the criteria of high quality. Based on the evidence currently available, surgical treatment of very old IM patients seems to improve the performance of highly selected individuals. Given the rapid increase of the aging population, more detailed retrospective studies, as well as [prospective](#) studies, are needed to prove the outcome benefits of surgery in this patient group ¹⁾.

The Japanese population features the highest rate of elderly individuals worldwide. Moreover, Japan has the highest number of computed tomography/magnetic resonance imaging devices in the world, which has led to an increase in the incidental detection of meningioma in healthy elderly patients. Many previous papers have discussed the risks and indications for surgery in this patient population, but available information remains insufficient, and the definition of “elderly” has not been standardized. This review tried to clarify the published evidence and challenges associated with elderly meningioma based on a search of the PubMed database using the terms “meningioma,” “elderly,” and “surgery” for English-language clinical studies and collected related papers published from 2000 to 2016. Twenty-four papers were reviewed and classified by definition of elderly age: over 60, 65, 70, and 80 years old. Six of seven papers that defined the elderly cutoff as over 65 years old were published after 2010, which suggested the consensus definition. Four preoperative grading scoring systems were described and associated with mortality. The 1-year and 5-year mortality rates ranged from 0% to 16.7% and from 7% to 27%, which were comparable with unselected cohorts. Review of risk factor analysis emphasized the importance of considering the preoperative status, presence of comorbidities, and optimum surgical timing during patient selection. Careful choice of patients can also lead to better quality of life. A prospective randomized study considering patient frailty should address the causes and prevention of complications ²⁾.

The results of a study suggested that age should not be a limitation in surgical indications in patients older than 70 years old with intracranial meningioma. No statistical differences were found in functional status compared with conservative management or in surgical complications between

younger and elderly patients ³⁾.

A grading system, called the Clinical-Radiological Grading System (CRGS), was developed to standardize surgical indications in elderly patients harboring intracranial meningiomas. Patients with a score lower than 10 had a bad prognosis regardless of surgical treatment, those with a score between 10 and 12 had a prognosis positively influenced by surgery, and those with a score higher than 12 had a good prognosis regardless of surgical treatment. The authors performed a prospective cross-sectional study to validate further the use of the CRGS as a clinical tool to orientate surgical decision making in elderly patients and to explore prognostic factors of survival.

From 1990 to 2000 the authors consecutively recruited and surgically treated 90 patients 70 years of age or older with neuroimaging findings of intracranial meningiomas and a preoperative evaluation based on the CRGS. The surgical mortality rate, which covers deaths within 3 months after surgical intervention, was 7.8%, and the 1-year mortality rate was 15.6%. Female sex and a higher CRGS score were associated with a higher probability of survival. Among the different subset items of the CRGS score, no peritumoral edema for surgical survival and no concomitant diseases for 1-year survival provide the strongest predictive contribution, even if not at a statistically significant level.

The CRGS score is a useful and practical tool for the selection of elderly patients affected by intracranial meningiomas as surgical candidates. A CRGS score higher than 10 and female sex are good prognostic factors of survival. whereas age is not a contraindication to surgery ⁴⁾.

For Buhl et al. age, in general, was not a contraindication for operation. In cases of incidental findings of small meningiomas, we recommend observation and MRI follow-up. Symptomatic meningiomas should be removed whenever there is an acceptable risk from an internal or anesthesiological point of view ⁵⁾.

Few authors have reported on patients who have undergone surgery for intracranial meningiomas in their 9th decade of life, without providing indications regarding the surgical criteria and the prognostic factors. We report on a series of 17 patients who have received surgery for intracranial meningiomas in their 9th decade of life, with the goal of determining some surgical criteria for general physicians and neurosurgeons. Patients with severe systemic disease and definite functional limitations (American Society of Anesthesiology Class III) had major postoperative morbidity ($P = 0.020$) and mortality ($P = 0.005$), especially if they scored low (< 70) on the preoperative Karnofsky Rating Scale ($P = 0.010$). The risk of postoperative morbidity was higher when the maximum diameter of the tumor was > 5 cm ($P = 0.031$) ⁶⁾.

Arienta et al. studied 46 cases of intracranial meningioma in patients over 70 years of age, 34 patients were operated on while 12 patients were not, although both groups were subjected to long term follow-up. The operative mortality rate was 12%, a rate which increased to 20% at 3 months follow-up. Various unfavourable prognostic factors were taken into consideration, the most significant of which were: poor overall clinical condition, peritumoral oedema, the presence of diabetes mellitus

and the duration of surgery. A scored grading system was created to standardize surgical indications in elderly patients with cerebral meningioma. An analysis of the grading system, when applied to patients submitted to surgery, showed that the deceased patients within 3 months of surgery had a score which varied from 7 to 12, with a mean score of 10. The surviving patients had a score averaging from 10 to 16 with a mean of 13. The patients with the lowest scores (7-9) had a 100% mortality rate while those in the upper ranges (13-16) demonstrated a mortality rate of 0%. Among the conservatively treated patients the worst outcome was seen in patients with a grading equal to or less than 12 ⁷⁾.

Papo in 1983 stated that after 65, postoperative complications and mortality increased steeply: of the patients over 65 in whom the growth was excised 55% died. The radical surgery of intracranial meningiomas in geriatric patients over 65 still remains a tremendous challenge despite all the advances in operative technique, neuro anesthesia, and intensive care. On these grounds, in such patients surgical indications should be carefully evaluated ⁸⁾.

References

1)

Rautalin I, Niemelä M, Korja M. Is surgery justified for 80-year-old or older intracranial meningioma patients? A systematic review. *Neurosurg Rev.* 2020 Apr 4. doi: 10.1007/s10143-020-01282-7. [Epub ahead of print] PubMed PMID: 32248508.

2)

Ikawa F, Kinoshita Y, Takeda M, Saito T, Yamaguchi S, Yamasaki F, Iida K, Sugiyama K, Arita K, Kurisu K. Review of Current Evidence Regarding Surgery in Elderly Patients with Meningioma. *Neurol Med Chir (Tokyo).* 2017 Oct 15;57(10):521-533. doi: 10.2176/nmc.ra.2017-0011. Epub 2017 Aug 15. Review. PubMed PMID: 28819091; PubMed Central PMCID: PMC5638779.

3)

Troya Castilla M, Chocrón Gonzalez Y, Márquez Rivas FJ. [Complications and outcomes in the elderly with intracranial meningioma]. *Rev Esp Geriatr Gerontol.* 2016 Mar-Apr;51(2):82-7. doi: 10.1016/j.regg.2015.06.004. Epub 2015 Jul 17. Spanish. PubMed PMID: 26195279.

4)

Caroli M, Locatelli M, Prada F, Beretta F, Martinelli-Boneschi F, Campanella R, Arienta C. Surgery for intracranial meningiomas in the elderly: a clinical-radiological grading system as a predictor of outcome. *J Neurosurg.* 2005 Feb;102(2):290-4. PubMed PMID: 15739557.

5)

Buhl R, Hasan A, Behnke A, Mehdorn HM. Results in the operative treatment of elderly patients with intracranial meningioma. *Neurosurg Rev.* 2000 Mar;23(1):25-9. PubMed PMID: 10809483.

6)

Mastronardi L, Ferrante L, Qasho R, Ferrari V, Tatarelli R, Fortuna A. Intracranial meningiomas in the 9th decade of life: a retrospective study of 17 surgical cases. *Neurosurgery.* 1995 Feb;36(2):270-4. PubMed PMID: 7731506.

7)

Arienta C, Caroli M, Crotti F, Villani R. Treatment of intracranial meningiomas in patients over 70 years old. *Acta Neurochir (Wien).* 1990;107(1-2):47-55. PubMed PMID: 2096608.

8)

Papo I. Intracranial meningiomas in the elderly in the CT scan era. *Acta Neurochir (Wien).* 1983;67(3-4):195-204. PubMed PMID: 6846076.

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