

EANO guideline on the diagnosis and management of meningiomas.

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Neuro Oncol Neuro Oncol 310 neuroncol 100887420 neuonc Neuro-Oncology 1522-8517 1523-5866 Oxford University Press PMC8563316 PMC8563316.1 8563316 8563316 34181733 10.1093/neuonc/noab150 noab150 1 Guidelines Editor's Choice AcademicSubjects/MED00300 AcademicSubjects/MED00310 EANO guideline on the diagnosis and management of meningiomas Goldbrunner Roland 1 Stavrinou Pantelis 2 Jenkinson Michael D 3 Sahm Felix 4 Mawrin Christian 5 Weber Damien C 6 Preusser Matthias 7 Minniti Giuseppe 8 Lund-Johansen Morten 9 10 Lefranc Florence 11 Houdart Emanuel 12 Sallabanda Kita 13 14 15 Le Rhun Emilie 16 Nieuwenhuizen David 17 Tabatabai Ghazaleh 18 Soffietti Riccardo 19 <https://orcid.org/0000-0002-1748-174X> Weller Michael 20 1 Center of Neurosurgery, Department of General Neurosurgery, University of Cologne , Cologne , Germany 2 Neurosurgical Department, Metropolitan Hospital, Athens, Greece and Center of Neurosurgery, Department of General Neurosurgery, University of Cologne , Cologne , Germany 3 Department of Neurosurgery, The Walton Centre NHS Foundation Trust , Liverpool , UK 4 Department of Neuropathology, University Hospital Heidelberg , Heidelberg , Germany 5 Department of Neuropathology, University of Magdeburg , Magdeburg , Germany 6 Center for Proton Therapy, Paul Scherrer Institute , Villigen , Switzerland 7 Department of Medicine I, Comprehensive Cancer Center Vienna, Medical University of Vienna , Vienna , Austria 8 Radiation Oncology Unit, Sant'Andrea Hospital, Sapienza University , Rome , Italy 9 Department of Neurosurgery, Bergen University Hospital , Bergen , Norway 10 Department of Clinical Medicine, Faculty of Medicine and Dentistry, University of Bergen , Bergen , Norway 11 Department of Neurosurgery, Hôpital Erasme, Université Libre de Bruxelles , Brussels , Belgium 12 Service de Neuroradiologie, Hopital Lariboisiere , Paris , France 13 Department of Neurosurgery, University Hospital San Carlos, Universidad Complutense de Madrid , Madrid , Spain 14 Hospital Clinico Universitario San Carlos , Madrid , Spain 15 CyberKnife Centre, Genesiscare Madrid , Madrid , Spain 16 Department of Neurology and Neurosurgery, Clinical Neuroscience Center, University Hospital Zurich , Zurich , Switzerland 17 Department of Neurology, Amphibia Hospital , Breda , the Netherlands 18 Center for Neurooncology, Comprehensive Cancer Center, University Hospital Tübingen , Tübingen , Germany 19 Department of Neuro-Oncology, City of Health and Science University Hospital , Turin , Italy 20 Department of Neurology, Clinical Neuroscience Center, University Hospital and University of Zurich , Zurich , Switzerland Corresponding Author: Roland Goldbrunner, MD, Center of Neurosurgery, Department of General Neurosurgery, University Hospital of Cologne, Kerpener Str. 62, 50937 Cologne, Germany (roland.goldbrunner@uk-koeln.de). 11 2021 28 6 2021 23 11 393056 1821 1834 11 8 2021 28 06 2022 28 06 2022 04 11 2021 21 02 2026 © The Author(s) 2021. Published by Oxford University Press on behalf of the Society for Neuro-Oncology. All rights reserved. For permissions, please e-mail: journals.permissions@oup.com 2021 https://academic.oup.com/journals/pages/open_access/funder_policies/chorus/standard_publication_model This article is published and distributed under the terms of the Oxford University Press, Standard Journals Publication Model (https://academic.oup.com/journals/pages/open_access/funder_policies/chorus/standard_publication_model) Abstract Meningiomas are the most common intracranial tumors. Yet, only few controlled clinical trials have

been conducted to guide clinical decision making, resulting in variations of management approaches across countries and centers. However, recent advances in molecular genetics and clinical trial results help to refine the diagnostic and therapeutic approach to meningioma. Accordingly, the European Association of Neuro-Oncology (EANO) updated its recommendations for the diagnosis and treatment of meningiomas. A provisional diagnosis of meningioma is typically made by neuroimaging, mostly magnetic resonance imaging. Such provisional diagnoses may be made incidentally. Accordingly, a significant proportion of meningiomas, notably in patients that are asymptomatic or elderly or both, may be managed by a watch-and-scan strategy. A surgical intervention with tissue, commonly with the goal of gross total resection, is required for the definitive diagnosis according to the WHO classification. A role for molecular profiling including gene panel sequencing and genomic methylation profiling is emerging. A gross total surgical resection including the involved dura is often curative. Inoperable or recurrent tumors requiring treatment can be treated with radiosurgery, if the size or the vicinity of critical structures allows that, or with fractionated radiotherapy (RT). Treatment concepts combining surgery and radiosurgery or fractionated RT are increasingly used, although there remain controversies regard timing, type, and dosing of the various RT approaches. Radionuclide therapy targeting somatostatin receptors is an experimental approach, as are all approaches of systemic pharmacotherapy. The best albeit modest results with pharmacotherapy have been obtained with bevacizumab or multikinase inhibitors targeting vascular endothelial growth factor receptor, but no standard of care systemic treatment has been yet defined.