UNIVERSITAS
GADJAH MADA
Korelasi Morfometri Aneurisma Intrakranial dengan Derajat Keparahan Perdarahan Subaraknoid Berdasarkan Modified Fisher Scale
Debora Meyna Munua, Prof. Dr. dr. Lina Choridah, Sp. Rad., Subsp. PRP (K).; dr. Anita Ekowati, Sp. Rad., Subsp.Tr
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Ajiboye, N., Chalouhi, N., Starke, R. M., Zanaty, M., & Bell, R. (2015). Unruptured Cerebral Aneurysms: Evaluation and Management. *Scientific World Journal*. https://doi.org/10.1155/2015/954954

Barami, K. (2024). Confounding factors impacting the Glasgow coma score: a literature review. *Neurological Research*. https://doi.org/10.1080/01616412.2024.2329860

Barletta, E. A., Gaspar, R. H. M. L., Araújo, J. F. M., Neves, M. W. F., De Aquino, J. L. B., & Belsuzarri, T. A. B. (2019). Nonsaccular aneurysms: A wide comparison between the four main types. *Surgical Neurology International*. https://doi.org/10.4103/sni.sni_138_18

Bergersen, A. (2023). *On software tools and variability in medical image-based computational fluid dynamics*. https://doi.org/10.13140/RG.2.2.30575.41128

Bouthillier, A., Van Loveren, H. R., & Keller, J. T. (1996). Segments of the internal carotid artery: A new classification. *Neurosurgery*, *38*(3). https://doi.org/10.1097/00006123-199603000-00001

Caplan, L. R. (2018). Dissections of brain-supplying arteries. *Nature Clinical Practice Neurology*. https://doi.org/10.1038/ncpneuro0683

Chalouhi, N., Ali, M. S., Jabbour, P. M., Tjoumakaris, S. I., Gonzalez, L. F., Rosenwasser, R. H., … Dumont, A. S. (2012). Biology of intracranial aneurysms: Role of inflammation. *Journal of Cerebral Blood Flow and Metabolism*. https://doi.org/10.1038/jcbfm.2012.84

Chalouhi, N., Hoh, B. L., & Hasan, D. (2013). Review of cerebral aneurysm formation, growth, and rupture. *Stroke*. https://doi.org/10.1161/STROKEAHA.113.002390

Chen, C., Qiao, H., Cui, Z., Wang, C., Zhang, C., & Feng, Y. (2023). Clipping and coiling of intracranial aneurysms in the elderly patients: clinical features and treatment outcomes. *Frontiers in Neurology*, *14*. https://doi.org/10.3389/fneur.2023.1282683

Claassen, J., Bernardini, G. L., Kreiter, K., Bates, J., Du, Y. E., Copeland, D., … Mayer, S. A. (2021). Effect of cisternal and ventricular blood on risk of delayed cerebral ischemia after *subarachnoid* hemorrhage: The fisher scale revisited. *Stroke*, *32*(9). https://doi.org/10.1161/hs0901.095677

Cordonnier, C., Al-Shahi Salman, R., Bhattacharya, J. J., Counsell, C. E., Papanastassiou, V., Ritchie, V., … Warlow, C. (2018). Differences between intracranial vascular malformation types in the characteristics of their presenting haemorrhages: Prospective, population-based study. *Journal of Neurology, Neurosurgery and Psychiatry*, *79*(1). https://doi.org/10.1136/jnnp.2006.113753

UNIVERSITAS
GADJAH MADA
Korelasi Morfometri Aneurisma Intrakranial dengan Derajat Keparahan Perdarahan Subaraknoid Berdasarkan Modified Fisher Scale
Debora Meyna Munua, Prof. Dr. dr. Lina Choridah, Sp. Rad., Subsp. PRP (K).; dr. Anita Ekowati, Sp. Rad., Subsp.Tr
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Dahlan, M. (2016). *Besar Sampel dalam Penelitian Kedokteran dan Kesehatan*. *Sagung Seto*.

De Rooij, N. K., Linn, F. H. H., Van Der Plas, J. A., Algra, A., & Rinkel, G. J. E. (2007). Incidence of *subarachnoid* haemorrhage: A systematic review with emphasis on region, age, gender and time trends. *Journal of Neurology, Neurosurgery and Psychiatry*, *78*(12). https://doi.org/10.1136/jnnp.2007.117655

Dhar, S., Tremmel, M., Mocco, J., Kim, M., Yamamoto, J., Siddiqui, A. H., … Meng, H. (2008). Morphology parameters for intracranial aneurysm rupture risk assessment. *Neurosurgery*, *63*(2). https://doi.org/10.1227/01.NEU.0000316847.64140.81

Diagbouga, M. R., Morel, S., Bijlenga, P., & Kwak, B. R. (2018). Role of hemodynamics in initiation/growth of intracranial aneurysms. *European Journal of Clinical Investigation*. https://doi.org/10.1111/eci.12992

Edlow, J. A. (2018). Managing Patients With Nontraumatic, Severe, Rapid-Onset Headache. *Annals of Emergency Medicine*. https://doi.org/10.1016/j.annemergmed.2017.04.044

Etminan, N., Chang, H. S., Hackenberg, K., De Rooij, N. K., Vergouwen, M. D. I., Rinkel, G. J. E., & Algra, A. (2019). Worldwide Incidence of Aneurysmal *Subarachnoid* Hemorrhage According to Region, Time Period, Blood Pressure, and Smoking Prevalence in the Population: A Systematic Review and Meta-analysis. *JAMA Neurology*, *76*(5). https://doi.org/10.1001/jamaneurol.2019.0006

Fiehler, J., Ortega-Gutierrez, S., Anagnostakou, V., Cortese, J., Cekirge, H. S., Fiorella, D., … Gounis, M. J. (2025). Evaluation of flow diverters for cerebral aneurysm therapy: Recommendations for imaging analyses in clinical studies, endorsed by ESMINT, ESNR, OCIN, SILAN, SNIS, and WFITN. *Journal of NeuroInterventional Surgery*, *17*(6), 632–639. https://doi.org/10.1136/jnis-2023-021404

Goertz, L., Kabbasch, C., Styczen, H., Timmer, M., Laukamp, K., Pennig, L., … Krischek, B. (2021). Impact of aneurysm morphology on aneurysmal *subarachnoid* hemorrhage severity, cerebral infarction and functional outcome. *Journal of Clinical Neuroscience*, *89*. https://doi.org/10.1016/j.jocn.2021.04.029

Green, D. M., Burns, J. D., & Defusco, C. M. (2013). ICU management of aneurysmal *subarachnoid* hemorrhage. *Journal of Intensive Care Medicine*, *28*(6). https://doi.org/10.1177/0885066611434100

Gudino, A., Sagues, E., Dier, C., Sanchez, S., Cabarique, M., Shenoy, N., … Samaniego, E. A. (2025). Impact of Clinical Variables and Aneurysm Morphology on Hemorrhage Volume and Clinical Outcomes. *Neurosurgery*, *i*. https://doi.org/10.1227/neu.0000000000003567

UNIVERSITAS
GADJAH MADA
Korelasi Morfometri Aneurisma Intrakranial dengan Derajat Keparahan Perdarahan Subaraknoid Berdasarkan Modified Fisher Scale
Debora Meyna Munua, Prof. Dr. dr. Lina Choridah, Sp. Rad., Subsp. PRP (K).; dr. Anita Ekowati, Sp. Rad., Subsp.Tr
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Howard, B. M., Hu, R., Barrow, J. W., & Barrow, D. L. (2019). Comprehensive review of imaging of intracranial aneurysms and angiographically negative *subarachnoid* hemorrhage. *Neurosurgical Focus*, *47*(6). https://doi.org/10.3171/2019.9.FOCUS19653

Huang, G., Sun, Y., Li, J., Xie, Z., & Tong, X. (2021). Therapeutic Effects of Microsurgical Clipping at Different Time Points on Intracranial Aneurysm and Prognostic Factors. *Artery Research*, *27*(4). https://doi.org/10.1007/s44200-021-00001-x

Huang, Z. Q., Meng, Z. H., Hou, Z. J., Huang, S. Q., Chen, J. N., Yu, H., … Wen, Z. B. (2016). Geometric parameter analysis of ruptured and Unruptured aneurysms in patients with symmetric bilateral intracranial aneurysms: A Multicenter CT angiography study. *American Journal of Neuroradiology*, *37*(8). https://doi.org/10.3174/ajnr.A4764

Hunt, W. E., & Hess, R. M. (1968). Surgical risk as related to time of intervention in the repair of intracranial aneurysms. *Journal of neurosurgery*, *28*(1). https://doi.org/10.3171/jns.1968.28.1.0014

Jung, J. Y., Kim, Y. B., Lee, J. W., Huh, S. K., & Lee, K. C. (2021). Spontaneous *subarachnoid* haemorrhage with negative initial angiography: A review of 143 cases. *Journal of Clinical Neuroscience*, *13*(10). https://doi.org/10.1016/j.jocn.2005.09.007

Karabatsou, K., Lecky, B. R. F., Rainov, N. G., Broome, J. C., & White, R. P. (2017). Cerebral amyloid angiopathy with symptomatic or occult *subarachnoid* haemorrhage. *European Neurology*. https://doi.org/10.1159/000098060

Kumar, A., Niknam, K., Lumba-Brown, A., Woodruff, M., Bledsoe, J. R., Kohn, M. A., … Govindarajan, P. (2019). Practice Variation in the Diagnosis of Aneurysmal *Subarachnoid* Hemorrhage: A Survey of US and Canadian Emergency Medicine Physicians. *Neurocritical Care*, *31*(2). https://doi.org/10.1007/s12028-019-00679-7

Kuroda, H., Mochizuki, T., Shimizu, S., & Kumabe, T. (2019). Rupture of Thrombosed Cerebral Aneurysm During Antithrombotic Therapy for Ischemic Stroke: Case Report and Literature Review. *World Neurosurgery*, *126*. https://doi.org/10.1016/j.wneu.2019.02.238

Lee, K. S., Shim, J. J., Shim, J. H., Oh, J. S., & Yoon, S. M. (2018). Cerebral aneurysms in judicial precedents. *Journal of Korean Neurosurgical Society*, *61*(4). https://doi.org/10.3340/jkns.2017.0404.012

Lielkoks, A., Behrmann, L., & Loewenstein, L. B. (2024). Management of Aneurysmal *Subarachnoid* Hemorrhages. *U.S. Pharmacist*, *49*(1). https://doi.org/10.1007/978-3-642-70309-6_38

Lindgren, A., Vergouwen, M. Di, van der Schaaf, I., Algra, A., Wermer, M., Clarke,

UNIVERSITAS
GADJAH MADA
Korelasi Morfometri Aneurisma Intrakranial dengan Derajat Keparahan Perdarahan Subaraknoid Berdasarkan Modified Fisher Scale
Debora Meyna Munua, Prof. Dr. dr. Lina Choridah, Sp. Rad., Subsp. PRP (K).; dr. Anita Ekowati, Sp. Rad., Subsp.Tr
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

M. J., & Rinkel, G. J. (2018). Endovascular coiling versus neurosurgical clipping for people with aneurysmal *subarachnoid* haemorrhage. *Cochrane Database of Systematic Reviews*. https://doi.org/10.1002/14651858.CD003085.pub3

Malhotra, A., Wu, X., Gandhi, D., & Sanelli, P. (2018). The Patient with Thunderclap Headache. *Neuroimaging Clinics of North America*. https://doi.org/10.1016/j.nic.2018.03.002

Maupu, C., Lebas, H., & Boulaftali, Y. (2022). Imaging Modalities for Intracranial Aneurysm: More Than Meets the Eye. *Frontiers in Cardiovascular Medicine*. https://doi.org/10.3389/fcvm.2022.793072

Meyers, P. M., Schumacher, H. C., Higashida, R. T., Derdeyn, C. P., Nesbit, G. M., Sacks, D., … Rasmussen, P. (2009). Reporting Standards for Endovascular Repair of Saccular Intracranial Cerebral Aneurysms. *Journal of Vascular and Interventional Radiology*, *20*(7 SUPPL.). https://doi.org/10.1016/j.jvir.2009.03.004

Mocco, J., Brown, R. D., Torner, J. C., Capuano, A. W., Fargen, K. M., Raghavan, M. L., … Huston, J. (2018). Aneurysm morphology and prediction of rupture: An international study of unruptured intracranial aneurysms analysis. *Clinical Neurosurgery*, *82*(4). https://doi.org/10.1093/neuros/nyx226

Munarriz, P. M., Navarro-Main, B., Alén, J. F., Jiménez-Roldán, L., Castaño-Leon, A. M., Moreno-Gómez, L. M., … Lagares, A. (2022). The influence of aneurysm morphology on the volume of hemorrhage after rupture. *Journal of Neurosurgery*, *136*(4). https://doi.org/10.3171/2021.3.JNS21293

Nariai, Y., Takigawa, T., Kawamura, Y., Hyodo, A., & Suzuki, K. (2023). Inflow Angle and Height-Width Ratio are Predictors of Incomplete Occlusion at One and Two Years After Flow Diverter Treatment for Small- and Medium-Sized Internal Carotid Artery Aneurysms. *World Neurosurgery*, *180*. https://doi.org/10.1016/j.wneu.2023.10.014

Osborn, A. G., Hedlund, G. L., & Salzman, K. L. (2018). *Osborn's brain: Imaging, pathology, and anatomy* (2nd ed.). Elsevier.

Páez-Granda, D., Parrilla, G., Díaz-Pérez, J., Espinosa de Rueda, M., García-Villalba, B., & Zamarro, J. (2021). Are modified Fisher Scale and bleeding pattern helpful predictors of neurological complications in non-aneurysmal *subarachnoid* hemorrhage? *Neuroradiology*, *63*(2). https://doi.org/10.1007/s00234-020-02524-7

Park, H. S., Kwon, S. C., Park, E. S., Park, J. B., & Kim, M. S. (2019). A new definition for wide-necked cerebral aneurysms. *Journal of Cerebrovascular and Endovascular Neurosurgery*, *21*(4). https://doi.org/10.7461/jcen.2019.21.4.193

Park, S. H., Yim, M. Bin, Lee, C. Y., Kim, E., & Son, E. I. (2008). Intracranial

UNIVERSITAS
GADJAH MADA
Korelasi Morfometri Aneurisma Intrakranial dengan Derajat Keparahan Perdarahan Subaraknoid Berdasarkan Modified Fisher Scale
Debora Meyna Munua, Prof. Dr. dr. Lina Choridah, Sp. Rad., Subsp. PRP (K).; dr. Anita Ekowati, Sp. Rad., Subsp.Tr
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

fusiform aneurysms: It's pathogenesis, clinical characteristics and managements. *Journal of Korean Neurosurgical Society*, *44*(3). https://doi.org/10.3340/jkns.2008.44.3.116

Revilla-Pacheco, F., Escalante-Seyffert, M. C., Herrada-Pineda, T., Manrique-Guzman, S., Perez-Zuniga, I., Rangel-Suarez, S., … Loyo-Varela, M. (2018). Prevalence of Incidental Clinoid Segment Saccular Aneurysms. *World Neurosurgery*, *115*. https://doi.org/10.1016/j.wneu.2018.04.027

Rinkel, G. J.E., Wijdicks, E. F. M., Vermeulen, M., Ramos, L. M. P., Tanghe, H. L. J., Hasan, D., … Van Gijn, J. (2021). Nonaneurysmal perimesencephalic *subarachnoid* hemorrhage: CT and MR patterns that differ from aneurysmal rupture. *American Journal of Roentgenology*, *157*(6).

Rinkel, Gabriel J.E., Djibuti, M., Algra, A., & Van Gijn, J. (2018). Prevalence and risk of rupture of intracranial aneurysms: A systematic review. *Stroke*. https://doi.org/10.1161/01.STR.29.1.251

Samaniego, E. A. (2022). Brain Aneurysm Biology: What Can We Learn From Imaging? *Stroke: Vascular and Interventional Neurology*, *2*(6). https://doi.org/10.1161/svin.122.000629

Skodvin, T. O., Johnsen, L. H., Gjertsen, Ø., Isaksen, J. G., & Sorteberg, A. (2017). Cerebral Aneurysm Morphology before and after Rupture: Nationwide Case Series of 29 Aneurysms. *Stroke*, *48*(4). https://doi.org/10.1161/STROKEAHA.116.015288

Teasdale, G. M., Drake, C. G., Hunt, W., Kassell, N., Sano, K., Perat, B., & De Villeers, J. C. (1988). A universal *subarachnoid* haemorrhage scale: report of a committee of the world federation of Neurosurgical societies. *Journal of Neurology, Neurosurgery and Psychiatry*. https://doi.org/10.1136/jnnp.51.11.1457

Toth, G., & Cerejo, R. (2018). Intracranial aneurysms: Review of current science and management. *Vascular Medicine (United Kingdom)*. https://doi.org/10.1177/1358863X18754693

Tykocki, T., & Kostkiewicz, B. (2014). Correlation between the aneurysm morphometry and severity of *subarachnoid* hemorrhage in the posterior cerebral circulation. *World Neurosurgery*. https://doi.org/10.1016/j.wneu.2014.07.007

Vlak, M. H. M., Rinkel, G. J. E., Greebe, P., Johanna, J. G., & Algra, A. (2022). Trigger factors for rupture of intracranial aneurysms in relation to patient and aneurysm characteristics. *Journal of Neurology*, *259*(7). https://doi.org/10.1007/s00415-011-6341-1

Wiebers, D. O., Whisnant, J. P., Huston, J., Meissner, I., Brown, R. D., Piepgras, D. G., Forbes, G. S., Thielen, K., Nichols, D., O'Fallon, W. M., Peacock, J., Jaeger, L., Kassell, N. F., Kongable-Beckman, G. L., & Torner, J. C. (2003).

UNIVERSITAS
GADJAH MADA
Korelasi Morfometri Aneurisma Intrakranial dengan Derajat Keparahan Perdarahan Subaraknoid Berdasarkan Modified Fisher Scale
Debora Meyna Munua, Prof. Dr. dr. Lina Choridah, Sp. Rad., Subsp. PRP (K).; dr. Anita Ekowati, Sp. Rad., Subsp.Tr
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Unruptured intracranial aneurysms: Natural history, clinical outcome, and risks of surgical and endovascular treatment. *The Lancet, 362*(9378), 103–110. https://doi.org/10.1016/S0140-6736(03)13860-3

Zanaty, M., Chalouhi, N., Tjoumakaris, S. I., Fernando Gonzalez, L., Rosenwasser, R. H., & Jabbour, P. M. (2014). Aneurysm geometry in predicting the risk of rupture. A review of the literature. *Neurological Research*, *36*(4). https://doi.org/10.1179/1743132814Y.0000000327

Zhu, C., Liu, R., Ye, Y., Li, Z., Li, W., Zhang, X., … Zhang, S. (2024). Review Article Imaging Evaluation for the Size of Saccular Intracranial Aneurysm. *World Neurosurgery*. https://doi.org/10.1016/j.wneu.2023.12.059

Vlak, M. H. M., Algra, A., Brandenburg, R., & Rinkel, G. J. E. (2011). Prevalence of unruptured intracranial aneurysms, with emphasis on sex, age, comorbidity, country, and time period: A systematic review and meta-analysis. *The Lancet Neurology, 10*(7), 626–636. https://doi.org/10.1016/S1474-4422(11)70109-0

Acevedo, H., Gomez, V., & Valencia, R., 2026. Cerebral aneurysm rupture associated with its morphology and pulse wave parameters: An observational, systematic review study. *Brain Circ.* doi:10.4103/bc.bc

Goertz, L., Kabbasch, C., Styczen, H., Timmer, M., Laukamp, K., Pennig, L., et al., 2021. Impact of aneurysm morphology on aneurysmal subarachnoid hemorrhage severity, cerebral infarction and functional outcome. *J. Clin. Neurosci.* 89. doi:10.1016/j.jocn.2021.04.029

Munarriz, P.M., Navarro-Main, B., Alén, J.F., Jiménez-Roldán, L., Castaño-Leon, A.M., Moreno-Gómez, L.M., et al., 2022. The influence of aneurysm morphology on the volume of hemorrhage after rupture. *J. Neurosurg.* 136. doi:10.3171/2021.3.JNS21293

Skodvin, T.O., Johnsen, L.H., Gjertsen, Ø., Isaksen, J.G., & Sorteberg, A., 2017. Cerebral Aneurysm Morphology before and after Rupture: Nationwide Case Series of 29 Aneurysms. *Stroke* 48: 880–886. doi:10.1161/STROKEAHA.116.015288

Wang, Y., Jin, J., Chen, J., Chen, P., & Abdollahi, S.A., 2023. Impacts of morphology parameters on the risk of rupture in intracranial aneurysms: statistical and computational analyses. *Sci. Rep.* 13: 1–17. doi:10.1038/s41598-023-46211-y

Ya, X., Zhang, C., Liu, J., Zhang, S., Zhang, Q., Wang, S., et al., 2020. Risk Factors for Higher Volume of Hemorrhage in Ruptured Anterior Circulation Intracranial Aneurysms. *Front. Surg.* 7: 1–7. doi:10.3389/fsurg.2020.587790