

• 手术视频 •
系列视频4局部麻醉下使用Pipeline血流导向装置治疗
未破裂颈内动脉眼动脉段动脉瘤1例董灵根^{1,2}, 吕明^{1,2}

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【摘要】 随着神经外科医生和团队经验的积累, 术者开始尝试局部麻醉下放置Pipeline血流导向装置。局部麻醉的最大优势在于能够在术中对患者直接进行神经学评估, 从而早期识别和处理与手术相关的并发症, 此外, 局部麻醉能够避免气管插管, 降低心脏和肺部并发症的发生率, 特别适用于本身患有内科合并症的高危人群。本文报道 1 例局部麻醉下使用Pipeline血流导向装置治疗的未破裂颈内动脉眼动脉段动脉瘤患者, 希望为神经介入医生提供一种新的思路。

【关键词】 颅内动脉瘤, Pipeline 血流导向装置, 局部麻醉

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Treatment of an unruptured ophthalmic segment internal carotid artery aneurysm with a pipeline embolization device under local anesthesia: a case reportDong Linggen^{1,2}, Lv Ming^{1,2}

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【Abstract】 With the accumulation of experience among neurosurgeons and their teams, the use of Pipeline embolization devices (PEDs) under local anesthesia has been increasingly explored. The primary advantage of local anesthesia lies in the ability to perform real-time neurological assessments during the procedure, facilitating the early detection and management of surgery-related complications. Additionally, it avoids the need for endotracheal intubation, thereby reducing the risk of cardiac and pulmonary complications, which is particularly beneficial for high-risk patients with medical comorbidities. Here, we report a case of an unruptured ophthalmic segment internal carotid artery aneurysm treated with a PED under local anesthesia, aiming to provide a new perspective for neurointerventional practice.

【Keywords】 Intracranial aneurysm; Pipeline embolization device; Local anesthesia

自血流导向装置(flow diverter, FD)推广以来, 大多数中心的FD置入术治疗未破裂颅内动脉瘤(unruptured intracranial aneurysm, UIA)都是在全身麻醉(general anesthesia, GA)下进行的^[1-2]。GA

便于控制患者的血流动力学状态和呼吸特征, 确保患者在术中保持不动, 减少运动伪影的干扰从而获得更加清晰的图像质量, 特别适用于精细操作和长时间手术^[3-5]。然而, GA的缺点包括在诱导期间存在呼吸

和血流动力学不稳定的风险,患者由于机械通气可能会导致额外的呼吸道并发症,并且GA的手术时间更长,总成本更高,更重要的是,GA无法在术中对患者进行神经学评估,与FD放置相关的潜在并发症包括载瘤动脉夹层或狭窄、动脉血栓形成、血管痉挛以及穿支闭塞^[6-8]。这些并发症可以通过神经系统变化来预测,而在接受GA治疗的患者中,可能在手术结束之前都不会发现这些并发症,从而错过最佳干预时机。随着神经外科医生和团队经验的积累,术者开始尝试局部麻醉(local anesthesia, LA)下放置Pipeline血流导向装置(pipeline embolization device, PED)。LA的最大优势在于能够在术中对患者直接进行神经学评估,从而早期识别和处理与手术相关的并发症,此外,LA能够避免气管插管,降低心脏和肺部并发症的发生率,特别适用于本身患有内科合并症的高危人群。然而,也有学者认为LA下放置FD,患者可能因不适而产生的体动行为增加了血管破裂的风险,使手术更具挑战性^[9-10]。一些研究已经观察到在LA下放置PED的可行性,并证明了高技术成功率,低围手术期并发症发生率和死亡率^[3,11-12]。本文报道1例LA下使用PED治疗的左侧颈内动脉眼动脉段动脉瘤患者,希望为神经介入医生提供一种新的思路。

利益冲突 所有作者均声明不存在利益冲突

参考文献

- [1] Pierot L, Spelle L, Berge J, et al. SAFE study (Safety and efficacy Analysis of FRED Embolic device in aneurysm treatment): 1-year clinical and anatomical results[J]. J Neurointerv Surg, 2019, 11(2): 184-189.
- [2] Hanel RA, Kallmes DF, Lopes DK, et al. Prospective study on embolization of intracranial aneurysms with the pipeline device: the PREMIER study 1 year results[J]. J Neurointerv Surg, 2020, 12(1): 62-66.
- [3] Rajbhandari S, Matsukawa H, Uchida K, et al. Clinical results of flow diverter treatments for cerebral aneurysms under local anesthesia[J]. Brain Sci, 2022, 12(8).
- [4] McDonald JS, Brinjikji W, Rabinstein AA, et al. Conscious sedation versus general anaesthesia during mechanical thrombectomy for stroke: a propensity score analysis[J]. J Neurointerv Surg, 2015, 7(11): 789-794.
- [5] Abou-Chebl A, Lin R, Hussain MS, et al. Conscious sedation versus general anesthesia during endovascular therapy for acute anterior circulation stroke: preliminary results from a retrospective, multicenter study[J]. Stroke, 2010, 41(6): 1175-1179.
- [6] Chalouhi N, Chitale R, Starke RM, et al. Treatment of recurrent intracranial aneurysms with the Pipeline Embolization Device[J]. J Neurointerv Surg, 2014, 6(1): 19-23.
- [7] Park MS, Albuquerque FC, Nanaszko M, et al. Critical assessment of complications associated with use of the Pipeline Embolization Device[J]. J Neurointerv Surg, 2015, 7(9): 652-659.
- [8] Siddiqui AH, Kan P, Abila AA, et al. Complications after treatment with pipeline embolization for giant distal intracranial aneurysms with or without coil embolization[J]. Neurosurgery, 2012, 71(2).
- [9] Kılıç Y, Baş SŞ, Aykaç Ö, et al. Nonoperating room anesthesia for interventional neuroangiographic procedures: outcomes of 105 patients[J]. J Stroke Cerebrovasc Dis, 2020, 29(2): 104495.
- [10] Simonsen CZ, Sørensen LH, Juul N, et al. Anesthetic strategy during endovascular therapy: general anesthesia or conscious sedation? (GOLIATH – General or Local Anesthesia in Intra Arterial Therapy) A single-center randomized trial[J]. Int J Stroke, 2016, 11(9): 1045-1052.
- [11] Griessenauer CJ, Shallwani H, Adeeb N, et al. Conscious sedation versus general anesthesia for the treatment of cerebral aneurysms with flow diversion: a matched cohort study[J]. World Neurosurg, 2017, 102: 1-5.
- [12] Rangel-Castilla L, Cress MC, Munich SA, et al. feasibility, safety, and periprocedural complications of pipeline embolization for intracranial aneurysm treatment under conscious sedation: university at buffalo neurosurgery experience[J]. Neurosurgery, 2015, 11 Suppl 3: 426-430.