LVIS Jr case reports

Posterior inferior cerebellar artery dissecting aneurysms (PICA) are challenging because of its nature and anatomic relationship to medulla and lower cranial nerve.

Shin et al. introduced a case of ruptured dissecting aneurysm located at the proximal PICA treated with telescoping stents for flow diversion and dissection healing. A 49 years old female visited to the emergency room for ruptured dissecting aneurysm at right proximal PICA. Telescoping stent was deployed along the right vertebral artery to PICA covering the dissecting aneurysm bleb using two Low-profile Visualized Intraluminal Support Jr (LVIS Jr) stents. Three months follow up angiography revealed a disappearance of aneurysm bleb and healing of dissection by parent artery remodeling. Telescoping stent with LVIS Jr may be an effective treatment for dissecting aneurysm with small diameter (<2 mm) parent artery. Convenient navigation and targeted telescoping stent for minimizing metal coverage at perforating arteries are an advantage for this method [1)].

Intracranial pseudoaneurysm is a rare complication of endoscopic endonasal surgery. Herein, Morinaga et al., describe two-staged stent assisted coil embolization for posterior communicating artery pseudoaneurysm after endoscopic endonasal surgery for pituitary neuroendocrine tumor.

A 68-year-old man had a history of severe adult growth hormone secretion deficiency, requiring growth hormone replacement therapy; secondary adrenal hypofunction; hyperthyroidism; hypertension; constipation; glaucoma; and hyperuricemia. Five years ago, after initial endoscopic transsphenoidal surgery for pituitary neuroendocrine tumor, he was hospitalized for reoperation. Posterior communicating artery injury was observed during second endoscopic trans-sphenoidal surgery and pressure hemostasis was performed using a hemostatic preparation. Immediately post-surgery, a localized subarachnoid hemorrhage was observed. Sudden-onset impaired consciousness and respiratory disturbances ensued on postoperative day 7, and computed tomography of the head was performed. Recurrent subarachnoid hemorrhage was confirmed, and acute hydrocephalus secondary to third ventricular blockage was identified. Cerebral angiography was performed after urgent bilateral cerebral ventricular drainage under general anesthesia. A pseudoaneurysm was identified in the left posterior communicating artery, and coil embolization was performed. Six weeks post-surgery, LVIS® Jr. stent was placed in the posterior communicating artery. Recurrence of the aneurysm was not detected 6 months post-surgery. He underwent lumboperitoneal shunting for secondary normal pressure hydrocephalus after dual antiplatelet therapy discontinuation and is being followed-up as an outpatient with a modified Rankin Scale of 2 10 months post-surgery.

Two-staged stent-assisted coil embolization using LVIS® stent was effective for a posterior communicating artery pseudoaneurysm occurring after posterior communicating artery injury following endoscopic trans-sphenoidal surgery for follicle-stimulating hormone-producing pituitary neuroendocrine tumor [2)].

2014

Conrad et al., report the results of the first two cases of wide necked basilar tip aneurysms treated with Y stent assisted coil embolization using a new low profile visible intraluminal stent (LVIS Jr; MicroVention, Tustin, California, USA) delivered through a 0.017 inch microcatheter. They also

reviewed the literature comparing other endovascular techniques (coiling alone, Stent-assisted coiling, and Y Stent-assisted coiling) for wide necked aneurysms. The LVIS Jr device offers a new option for the treatment of these challenging lesions, with clear advantages over currently available intracranial stents. Larger series and long term results are needed to confirm the applicability and durability of this technique/technology [3)]

2013

A 51-year-old patient with an unruptured right middle cerebral artery bifurcation aneurysm was treated with balloon remodeling employing a 4 × 10 mm Scepter C balloon catheter. Following coil embolization, a low-profile visualized intraluminal stent (LVIS) Jr 2.5 mm × 16 mm was delivered via the coaxial balloon catheter and deployed across the aneurysm neck.

Follow-up angiograms demonstrated that the coil mass was well-seated within the aneurysm sac and the parent vessel was widely patent with satisfactory vessel wall apposition by the stent.

Spiotta et al., describe a technique for balloon remodeling followed by stenting for aneurysm coil embolization that incorporates the use of a coaxial dual-lumen balloon catheter system through which a novel self-expanding stent can be deployed. In the case described, we found this technique to be safe and feasible, reducing both the number of steps involved in this technique and the opportunities for mechanical coil-related complications [4)].

1)
Shin HK, Koo HW, Sohn MJ, Park YK. Flow diversion via telescoping stent with Low-profile Visualized Intraluminal Support Junior for treatment of ruptured dissecting aneurysm located at proximal posterior inferior cerebellar artery. J Cerebrovasc Endovasc Neurosurg. 2021 Jun 10. doi: 10.7461/jcen.2021.E2020.08.003. Epub ahead of print. PMID: 34107595.
2)
Morinaga Y, Nii K, Sakamoto K, Inoue R, Mitsutake T, Hanada H. Stent-assisted Coil Embolization for a Ruptured Posterior Communicating Artery Pseudoaneurysm after Endoscopic Trans-sphenoidal Surgery for pituitary neuroendocrine tumor. World Neurosurg. 2018 Dec 21. pii: S1878-8750(18)32870-5. doi: 10.1016/j.wneu.2018.12.047. [Epub ahead of print] PubMed PMID: 30583130.
3)
Conrad MD, Brasiliense LB, Richie AN, Hanel RA. Y stenting assisted coiling using a new low profile visible intraluminal support device for wide necked basilar tip aneurysms: a technical report. J Neurointerv Surg. 2014 May;6(4):296-300. doi: 10.1136/neurintsurg-2013-010818. Epub 2013 Jun 22. PubMed PMID: 23794675.
4)
Spiotta AM, Miranpuri A, Chaudry MI, Turner RD 4th, Turk AS. Combined balloon stent technique with the Scepter C balloon and low-profile visualized intraluminal stent for the treatment of intracranial aneurysms. J Neurointerv Surg. 2013 Nov;5 Suppl 3:iii79-iii82. doi: 10.1136/neurintsurg-2012-010553. Epub 2012 Nov 20. PubMed PMID: 23172541.