LVIS stent case reports

Tan et al. reported the therapy strategy using the LVIS stent-assisted coiling for treatment of traumatic intracranial internal carotid artery pseudoaneurysms. Patients with traumatic intracranial ICA pseudoaneurysms treated by the LVIS stent-assisted coiling between January 2015 and June 2021 were reviewed. The complications, radiographic, and clinical outcomes of these patients were analyzed. A total of 12 patients with 12 pseudoaneurysms were included. The mean maximum aneurysm diameter was 6.2 ± 3.1 mm. Nine patients had a subarachnoid hemorrhage; five patients with Hunt-Hess grade III and four patients with grade IV. All procedures were successfully performed without intraoperative complications. Immediate postoperative angiogram showed that six (50%) aneurysms were Raymond grade 1, four (33.3%) were grade 2, and two (16.7%) were grade 3. Postoperative multiple cerebral infarctions occurred in two patients because of vasospasm. Of the ten patients with angiographic follow-up (mean, 29.9 months), two received additional coiling because of recanalization of the pseudoaneurysm, and all aneurysms were completely obliterated at the last examination of the patients. During the clinical follow-up period (mean, 26.8 months), the overall mortality and morbidity were 25% (3/12) and 8.3% (1/12), respectively. LVIS stent-assisted coiling was a feasible approach for the treatment of traumatic intracranial internal carotid artery pseudoaneurysms [1].

A 68-year-old man had a history of severe adult growth hormone secretion deficiency, requiring growth hormone replacement therapy; secondary adrenocortical 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 transsphenoidal 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, a low-profile visualized intraluminal stent called an 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 score of 2 ten months post surgery.

Two-staged stent-assisted coil embolization using a low-profile visualized intraluminal stent was effective for a posterior communicating artery pseudoaneurysm occurring after posterior communicating artery injury following endoscopic transsphenoidal surgery for follicle-stimulating hormone-producing pituitary neuroendocrine tumor [2].

A 58-year-old man who sustained a severe head injury diagnosed as traumatic CCF treated with an intradural pAN procedure and transarterial coil embolization combined with a Low-profile Visualized Intraluminal Support(LVIS)stent. While slow arteriovenous shunt flow persisted at the end of the

surgery, the fistula was completely occluded on the digital subtraction angiography obtained 2 weeks after the procedure. It was suspected that the flow-diversion effect of the LVIS stent might have caused the curable progression of the fistula occlusion [3].

Conrad et al., reported 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. We 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 [4].

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.

The authors 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 [5].

1)
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