Endoleak

Endoleak is defined as a persistent blood flow outside the lumen of an endoluminal graft but within the aneurysm sac or adjacent vascular segment being treated by the device used for endovascular aneurysm repair (EVAR). Endoleaks are caused by incomplete sealing or exclusion of the aneurysm sac.

Case series

Ten out of a total of 31 direct carotid cavernous fistulas (DCCFs) were treated with Willis covered stents (WCSs) (Microport, Shanghai China) at West China Hospital from January 2015 to December 2016. The indications for treatment, perioperative findings, and postoperative and follow-up results were collected and analyzed.

All ten patients had successful deployment of WCSs. Complete exclusion of the fistula was achieved in 6 patients immediately after deploying one stent. Endoleak was observed in 4 patients (cases 2, 4, 5 and 9); thus, redilation of the stent with higher pressure was performed, which resolved the endoleak in 2 patients (cases 2 and 9). The other two patients' endoleak persisted after redilation of the balloon; hence, a second stent was deployed in these 2 patients (cases 4 and 5), which eliminated the endoleak in one patient (case 4), and the other patient (case 5) continued to have minimal endoleak. Nine patients had fistulas that were successfully occluded by WCSs during follow-up. One patient had recurrence of a DCCF at the 10-day follow-up; we chose coil embolization to address this DCCF. No stenosis of the internal carotid artery (ICA) or DCCF recurrence, except that in the abovementioned patient, was observed.

WCS was proven to be an alternative treatment method for complex DCCFs through reconstruction and preservation of the ICA. The study also confirmed the safety, efficacy, and midterm durability of WCSs for complex DCCFs without any serious delayed complications [1)].

Case reports

A case of late type IIIb endoleak with Willis covered stent (WCS) developed 14 months after endovascular paraclinoid aneurysm repair (EVAR).

A 52-year-old woman presented with episodic headache, caused by a giant paraclinoid aneurysm. She underwent a successful 3.5x16mm WCS positioning to treat the aneurysm. Fourteen months later, the patient was admitted with same symptoms. Digital subtraction angiography (DSA) examination discovered recurrence of the aneurysm, which was similar with the preoperative one. Dyna-CT indicated the intact of the metal structure of the stent without migration. Type IIIb endoleak (defect in the graft fabric) was confirmed with a whole aneurysm neck located in the middle part of the stent. The type IIIb endoleak was treated with another Willis covered stent (4.0x16mm). The immediate DSA imaging indicated that the endoleak disappeared and the aneurysm was completely occluded. Re-examination done one year after the second treatment showed a complete exclusion of the aneurysm sac.

Type IIIb endoleaks can be safely treated by the endovascular positioning of another WCS. Continuous

surveillance after EVAR for intracranial aneurysms is warranted to make sure the safety of WCS.

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Liu LX, Lim J, Zhang CW, Lin S, Wu C, Wang T, Xie XD, Zhou LX, Wang CH. The application of the Willis covered stent in the treatment of carotid-cavernous fistula: a single center experience. World Neurosurg. 2018 Oct 20. pii: S1878-8750(18)32357-X. doi: 10.1016/j.wneu.2018.10.060. [Epub ahead of print] PubMed PMID: 30352308.