Cerebral revascularization

- Moyamoya disease in a 10-year-old male patient in the Middle East with the outcome of the surgery: A case report and literature review
- Cognitive impairment and quality of life in patients with carotid artery stenosis pre-revascularization: a scoping review
- Pial collateral shift after unilateral bypass in bilateral moyamoya disease: illustrative cases
- Analysis of risk factors for the occurrence of rebleeding following surgery for haemorrhagic moyamoya disease
- From "time is brain" to "time is collaterals": updates on the role of cerebral collateral circulation in stroke
- A Systematic Review and Meta-Analysis of Outcome After Repeat Revascularization for Primary Carotid Artery Restenosis
- Revascularization surgical options after carotid trauma: Case report from a cerebrovascular blood flow preservation overview
- The Differences of Cerebral Hyperperfusion in Patients With Moyamoya Disease and Atherosclerotic Occlusive Cerebrovascular Disease Evaluated by 99mTc-ECD SPECT One Day After Revascularization Surgery

Revascularization is the restoration of perfusion to a body part or organ that has suffered ischemia. It is typically accomplished by surgical means.

Identification of acute ischemic stroke with large vessel occlusion (AIS-LVO) etiology is crucial for effective revascularization therapy.

A vascular bypass (or vascular graft) is a surgical procedure performed to redirect blood flow in a region of the body. It is commonly performed due to inadequate blood flow (ischemia) and as a part of organ transplantation. In general, someone's own vein is the preferred graft material (or conduit) for a vascular bypass, but other materials such as ePTFE, dacron or a different person's vein (allograft) are also commonly used. Arteries can also be redirected and serve as vascular grafts. A surgeon sews the graft to the target vessel by hand using surgical suture, creating a surgical anastomosis.

see Direct Revascularization

see Indirect Revascularization

see Intracranial revascularization

see Intravenous thrombolysis

see Mechanical thrombectomy

History

Cerebral Revascularization History.

Indications

Although first described in the setting of cervical neoplasms, cerebral revascularization was primarily developed for the prevention of stroke in chronic cerebral ischemia due to carotid artery stenosis. This practice flourished through the Superficial temporal artery to middle cerebral artery bypass (STA-MCA) bypass until it peaked in 1985, when the EC/IC Bypass Study Group [1)]

The revascularization technique has remained to be indispensable for complex intracranial aneurysms. However, risk factors for low-flow related ischemic complications (LRICs) and neurological worsening (NW) have been less well documented.

A study demonstrated the clinical significance of revascularization surgery in childhood associated with a low incidence of asymptomatic microbleeds in adult patients with moyamoya disease. This indicates that a newly established bypass can reduce hemodynamic overstress [2)].

Revascularization for Chronic Cerebral Ischemia Treatment

Revascularization for Chronic Cerebral Ischemia Treatment

Cerebrovascular bypass for skull base meningioma

Cerebrovascular bypass for skull base meningioma.

Intra intracranial bypass surgery

see Intra intracranial bypass surgery.

Extra-intracranial bypass surgery

see Extracranial-intracranial bypass.

Carotid artery stenting

see Carotid artery stenting

Intracranial revascularization surgeries are an effective treatment for moyamoya disease and other intracranial vascular obliterative diseases.

The revascularization technique, including bypass created using the external carotid artery (ECA), radial artery (RA), and M2 portion of middle cerebral artery (MCA), has remained indispensable for treatment of complex aneurysms.

It remains unknown whether diameters of the RA, superficial temporal artery (STA), and C2 portion of the internal carotid artery (ICA) and intraoperative MCA blood pressure have influences on the outcome and the symptomatic watershed infarction (WI).

see Extra intracranial bypass surgery

Workshops

Workshop on Basic Techniques of Microsurgery

Workshop on Cerebral Revascularization

Taking place at the General Hospital Vienna, Medical University of Vienna. Directors: A. Gruber, MD and G. Bavinzski, MD. Secretary: W.-T. Wang, MD; M. Millesi, MD

The Workshop on Basic Techniques will give you the necessary skills to handle OP-microscope and microsurgical instruments. You will also learn to perform different kinds of microsurgical anastomosis and nerve coaptations.

The program including hands-on sessions and video instructions will provide you with the best conditions to develop microsurgical skills. Short presentations on related topics will support your practical work.

The Workshop on Cerebral Revascularization is designed to increase the skills of already trained microsurgeons. Permanent development of microvascular surgery and endovascular technologies has increased the need for revascularization procedures.

After this workshop you will be able to perform microsurgical arterial anastomoses (in vitro and in alive animals) and experimental microvascular models. You will have knowledge about cerebral ischemia and learn different techniques of extraintracranial arterial bypass (including ELANA). Surgical cerebral revascularization and aneurysm management is also part of this workshop.

Special Features of the 2016 workshops: • Honoured guests:- Albert van der Zwan, ELANA-Alexandros Andreou, Hygeia Medical Center• Live Bypass Surgery and Animal Lab Training • Hands-on ELANA Training• Symposium “Cerebral Revascularization”

1)
EC/IC Bypass Study Group. Failure of extracranial-intracranial arterial bypass to reduce the risk of ischemic stroke. Results of an international randomized trial. N Engl J Med. 1985 Nov 7;313(19):1191-200. doi: 10.1056/NEJM198511073131904. PMID: 2865674.
2)
Yamao Y, Takahashi JC, Funaki T, Mineharu Y, Kikuchi T, Okada T, Togashi K, Miyamoto S. Revascularization surgery in childhood associated with a low incidence of microbleeds in adult moyamoya patients. World Neurosurg. 2019 Oct 4. pii: S1878-8750(19)32588-4. doi: 10.1016/j.wneu.2019.09.144. [Epub ahead of print] PubMed PMID: 31589987.