In 1961 Pool and Potts tried to perform cerebral revascularization through an anastomosis between the superficial temporal artery (STA) and the anterior cerebral artery (ACA) with a synthetic graft. The patient recovered well but the graft occluded. In 1963 Woringer e Kunlin, from Strassbourg, France reported for the first time a “high-flow” anastomosis surgery between the common carotid and the intracranial carotid or the sylvian artery with saphenous vein graft. In 1967 an extra-intracranial anastomosis (EC/IC) between the superficial temporal artery (STA) and the middle cerebral artery (MCA) was first performed by Yasargil & Donaghy. In 1972 Yasargil used this procedure to treat a 4-year-old boy with moyamoya disease connecting the STA with the left insular branch of the MCA. This procedure, known as “low-flow” bypass surgery, was initially considered to be an important option for revascularization of ischemic brain areas and also to prevent ischemia in some cerebroocclusive diseases. Between 1977 and 1985 an International multicenter, prospective, randomized Cooperative Study on Extracranial/Intracranial anastomosis (EC/IC bypass study) was conducted (The EC/IC Bypass Study group. Stroke 16:397–406, 1985). Objectives of the study were to formalize the indications and outcomes of this surgery. The results suggested that EC/IC anastomosis was not better when compared with the best medical therapy, at preventing stroke in patients with atherosclerotic arterial disease of the ICA and/or MCA. These results were published and the number of performed EC/IC bypasses fell precipitously. As consequences of the rapid decline in performing this procedure surgical experience diminished and overall mortality rates increased from 2.8% (1992-1996) to 5.7% (1997-2001). The main critic to this Trial was the inability to identify particular groups of patients who could potentially benefit from this surgery. Patients, in whom hemodynamic factors play a primary role causing deficits, would benefit from surgical revascularization. In 1987 an article in the New England Journal of Medicine concluded that EC/IC Bypass Study population may not have been representative for the population at risk of suffering a stroke. The recent advances in diagnosis, surgical techniques and specially in identifying patients with hemodynamic susceptibility made it possible to better indicate EC/IC bypass surgery. Currently, bypass surgery is most frequently performed in complex aneurysm surgery or in skull base tumor surgery associated with vessel sacrifice or injury. In this presentation we would like to show our experience with 41 low-flow and 18 high-flow bypass surgeries for cerebral ischemia, aneurysms and skull base tumors. Indications for surgery, surgical techniques and results will be presented.

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