



# COMPUTER TOMOGRAPHIC ANGIOGRAPHY BEFORE AND AFTER EXTRA-INTRACRANIAL MICROANASTOMOSIS

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Article history:	Abstract:
<b>Received:</b> June 28 <sup>th</sup> 2025 <b>Accepted:</b> July 26 <sup>th</sup> 2025	This article describes computed tomographic angiography of the brachiocephalic arteries of the brain before and after extra-intra-intracranial microanastomosis.

**Keywords:** computed tomography angiography, brachiocephalic arteries, extra-intracranial microanastomosis

## INTRODUCTION.

Ex-tra-intracranial microanasthmosis (EICMA) is an operation aimed at revascularization (improvement of blood flow by means of bringing the full drinking vessel to the brain). A microanasthmosis (connection) is created between the superficial temporal artery (PVA) and cortical branches of the middle or anterior cerebral arteries (SMA, PMA) in case of occlusion (complete occlusion of the vessel) of the internal carotid artery (ICA).

Extra-intracranial microvascular anastomosis (EICMA) has been included in the arsenal of vascular neurosurgeons since 1968, but its role in the treatment of patients with chronic cerebral ischemia caused by occlusion of the carotid basin arteries is still the subject of active discussions.

There is ambiguity in this problem: difficulty in predicting the results of surgical revascularization of the brain and, as a consequence, the lack of clear indications for this operation.

Changes in cerebral hemodynamics are one of the most significant factors determining the prognosis of symptomatic occlusion of the arteries of the Ca-rotid basin.

After the work of Michael De-Bakey and Eastscott, carotid endarterectomy became the main method of restoring cerebral blood flow and remains one of the most frequent operations today.

However, for a significant cohort of patients with occlusive lesions of the internal carotid artery, this operation is not indicated.

In 1969, Yasargil and Donaghy proposed a bypass anastomosis between the superficial temporal artery and one of the branches of the middle cerebral artery using a microsurgical technique.

This method is performed in patients with progressive cerebral ischemia against the background of occlusion or pronounced stenosis - EICMA with therapeutic and prophylactic purpose.

Patients with VCA occlusions most often suffer from hypoperfusion of brain tissue. By applying extra-intracranial microanastomosis (EICMA), collateral blood flow is improved and, consequently, regional blood flow is improved.

It is supposed that the collateral blood flow pathway created by EICMA during VCA occlusion may serve as one of the mechanisms of compensation for the reduced cerebral blood flow volume, the increase of which leads to a decrease in FEC, and thus the balance between FEC and volume blood flow is restored again.

The state of cerebral perfusion is assessed by various methods, such as perfusion CT, perfusion MRI, PET and single-photon emission tomography (SPECT).

Of these, perfusion CT is the most accessible and quite informative method.

**AIM OF THE STUDY:** to investigate the possibilities of computerized topographic angiography in the results of extra-intracranial microanastomosis.

## MATERIALS AND METHODS.

Multispiral angiographic computed tomography of intra and extracranial cerebral arteries was performed on the MSCT Revolution (GE 128). We examined 10 patients with extended occlusion of the internal carotid artery from different sides. Among 10 patients six patients were men, 4 patients were women. The mean age of men was 54±0.2 years, women 56±0.2 years. Among

the ten patients, five patients had diabetes mellitus (Figure 1).

All patients underwent native computed tomography of the brain before angiographic study.

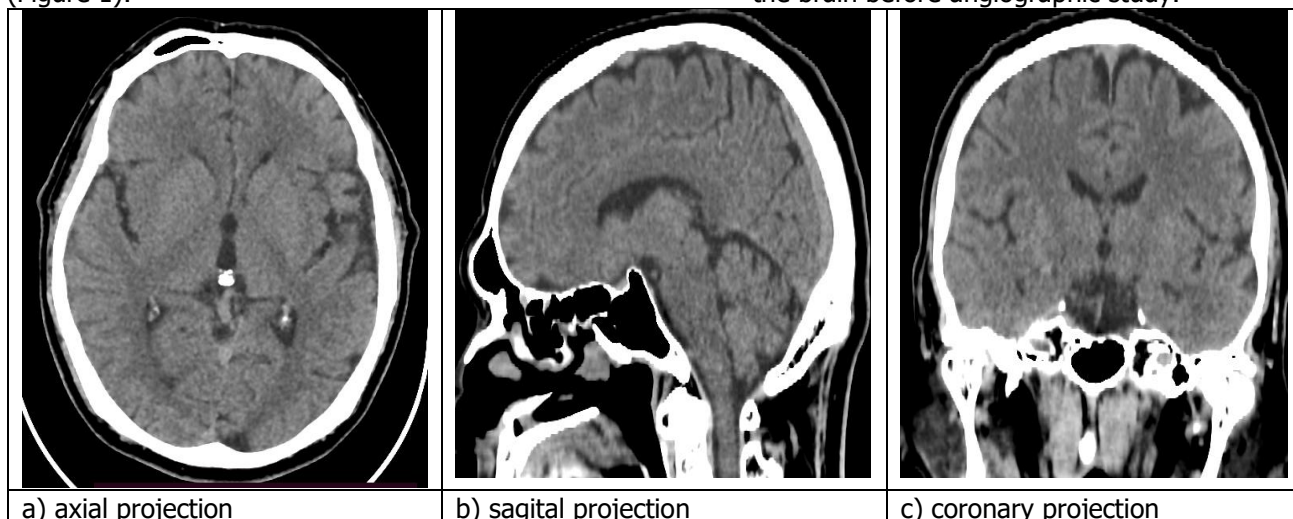


Fig. 1. No areas with pathologic density were detected on native CT scan

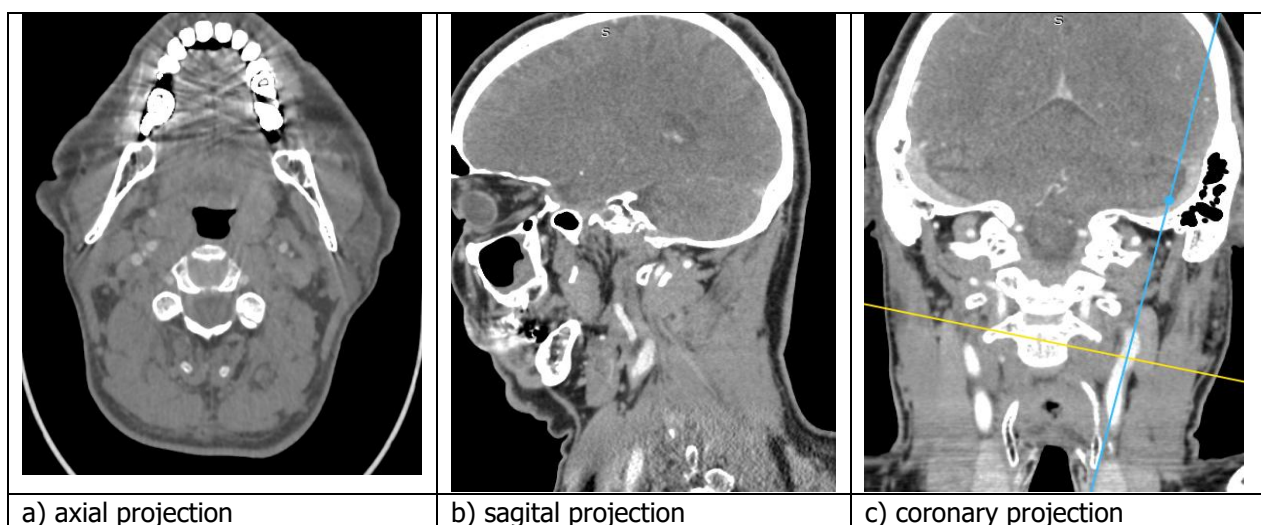


Рис.2. МСКТ – ангиография брахиоцефальных сосудов головного мозга. Пациент с окклюзией внутренней сонной артерии слева. Пациент длительно страдает сахарным диабетом. Протяжённая окклюзия ВСА слева на расстоянии 1,7 см от бифуркации общей сонной артерии.

All patients underwent CT angiography after surgery. One of the patients had diabetes mellitus, so the artery from the external carotid artery system (external temporal artery) was connected to the frontal artery from the internal carotid artery system. Fig.3 shows the angiography of brachiocephalic vessels, the connection of the external temporal artery from the external carotid artery system (ECA) with the frontal artery from the internal carotid artery system can be seen.

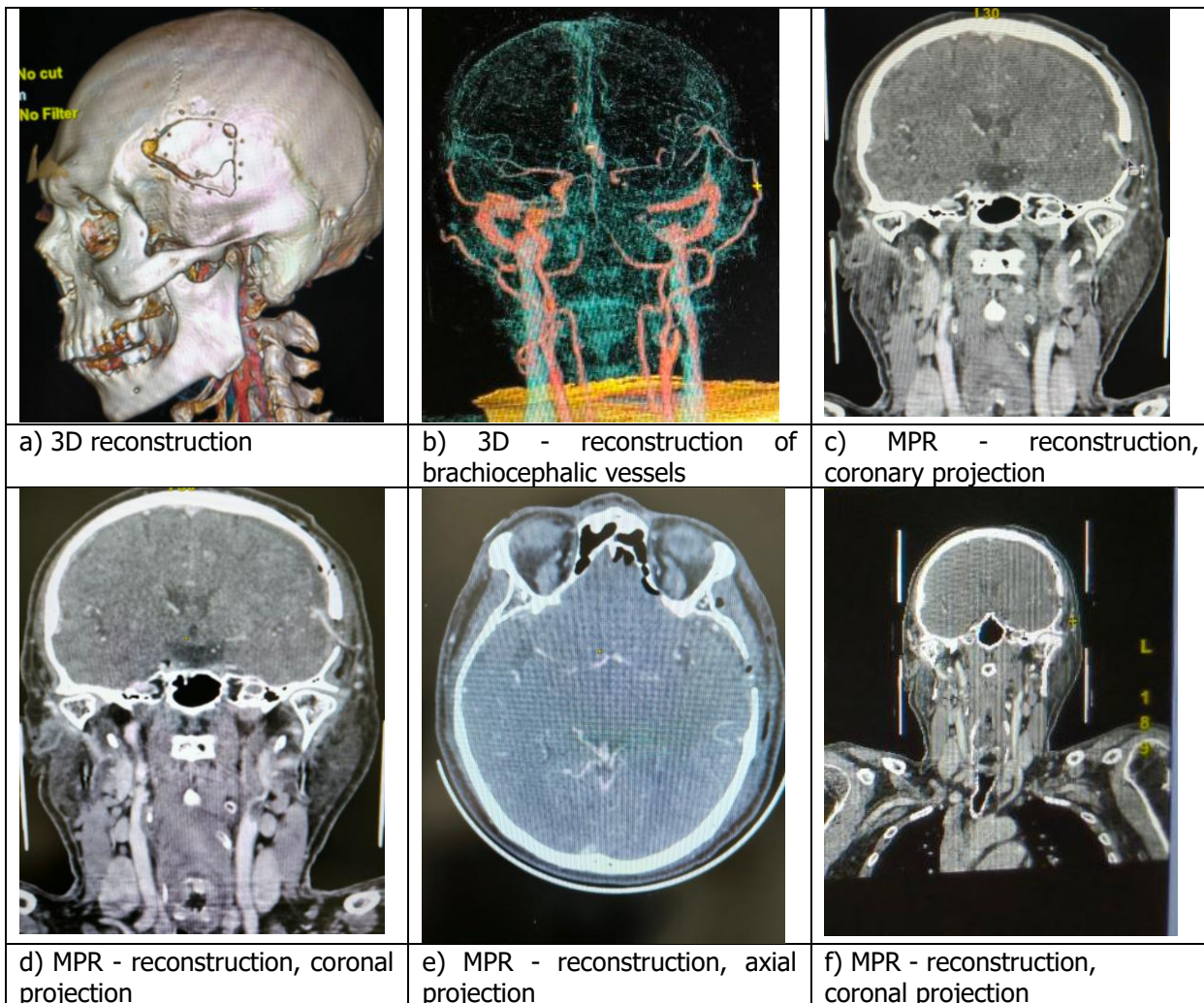


Fig. 3. Patient after EICMA surgery with diabetes mellitus. CT angiography

### CONCLUSIONS:

1. MSCT - angiography allows to reveal the extent of brachiocephalic artery occlusion, which will allow to choose the tactics of management of such patients.
2. MSCT-angiography allows to objectively evaluate the patency of extra-intracranial microanastomosis.

### REFERENCES

1. Amelin M. E., Dubovoy A. V., Ovsyannikov K. S., Ivanov B. G., Rzaev D. A. Changes in cerebral perfusion at extra-intracranial anastomosis for chronic occlusion of the internal carotid artery. Federal Center of Neurosurgery, Novosibirsk,

- Russia // LUNCH DIAGNOSTICS ITERAPY; No. 2(7) - 2016 - 67-71.
2. Grigorieva EV, Lukyanchinkov VA, Tokarev AS, Krylov VV. CT perfusion in patients after superimposition of extra intracranial microsurgical anastomosis in the remote postoperative period. Research Institute of Ambulance named after N.V. Sklifosov. N.V. Sklifosovsky Research Institute of Emergency Medicine, Moscow; LLC "Medical Club Consilium" // JOURNAL OF NEUROLOGY AND PSYCHIATRY - 9- 2014 - 38-42.
3. Pronin I. N., Fadeeva L. M., Kornienko V. N. et al. Perfusion CT: study of cerebral hemodynamics in norm // Med. imaging.- 2007.- No. 3.- P. 8-12.



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