



Computed tomography perfusion ischemic core underestimation: a perfusion scotoma case

Giorgio Busto¹ · Elisa Scola¹ · Enrico Fainardi²

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An 82 yo man with aphasia and right-side weakness performed NCCT and single-phase CTA from 2.5 h from symptoms onset in spoke center that showed a large parenchymal hypodensity referring to acute ischemic stroke with ASPECT score of 6 (Insula, M2, M3, M6 segments) due to distal M1 cerebral artery occlusion. 3.5 h later, neuroimaging study protocol with NCCT, multi-phase CT-Angiography and CT-Perfusion in hub center was repeated. CT-Perfusion was realized with OLEA Perfusion Software that

define total hypoperfused tissue with $T_{max} > 6$ s and infarct core with $rCBF < 40\%$. A spontaneous partial vascular recanalization with leptomeningeal vasodilatation occurred and CTP showed a little ischemic core (3,8 ml) and large penumbra (108,5 ml). 3 days after, NCCT uphold the ischemic core size. This case shows a typical Perfusion Scotoma with underestimation of ischemic core volume > 6 h from symptom onset due to early reperfusion from partial recanalization as well as luxury perfusion [1, 2] (Fig. 1).

✉ Giorgio Busto
giorgiobusto87@gmail.com

¹ Department of Neuroradiology, Careggi University Hospital, Largo Piero Palagi 1, Florence, Italy

² Department of Experimental and Clinical Biomedical Sciences “Mario Serio”, Neuroradiology Unit, University of Florence, Florence, Italy

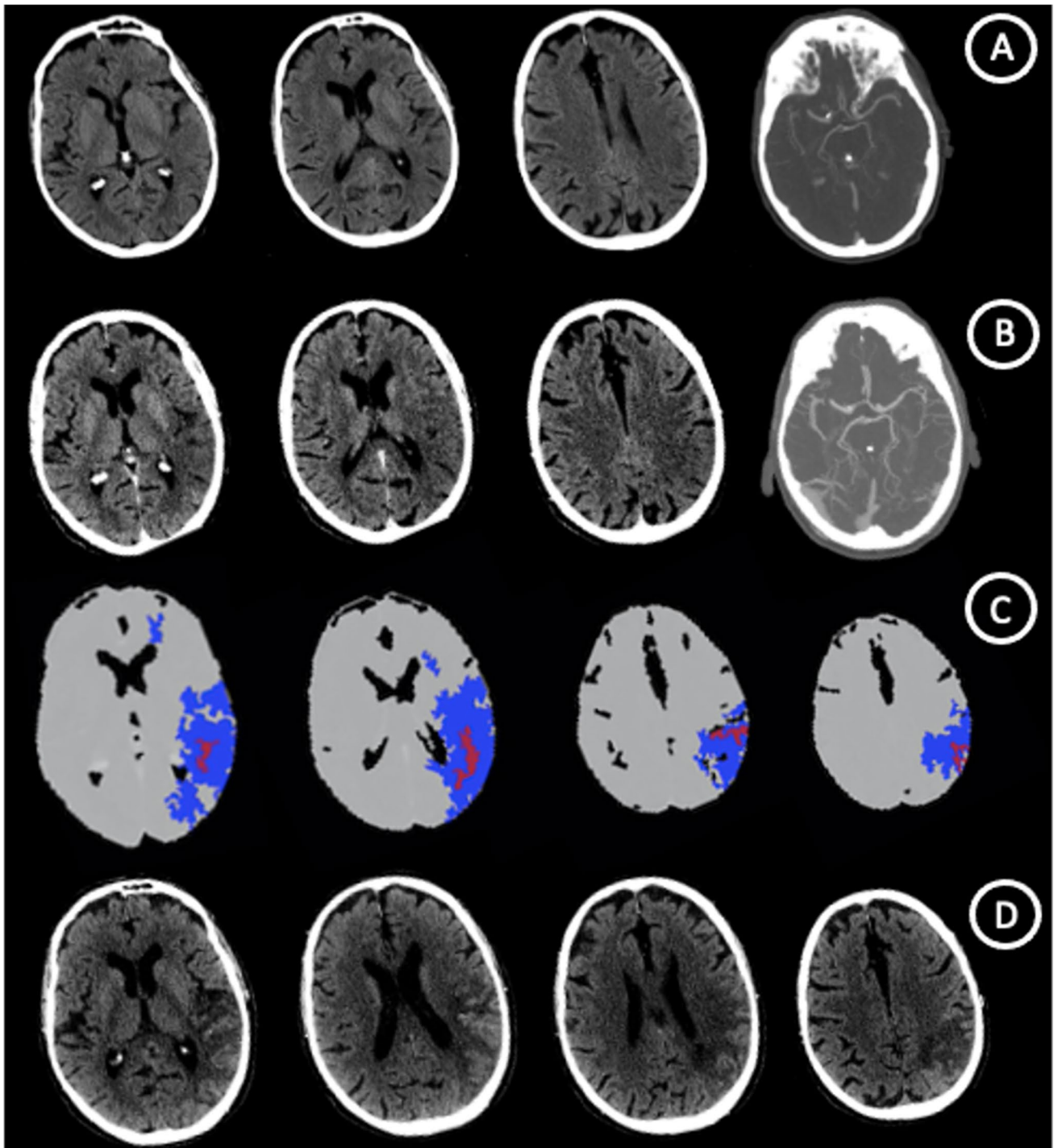


Fig. 1 Neuroimaging study protocol in spoke and hub center: NCCT with ASPECT score of 6 and distal M1 cerebral artery occlusion. (A) NCCT, mCTA and CTP > 6 h from symptom onset with spontaneous

recanalization and ischemic core underestimation due to luxury perfusion (B,C). NCCT at 3 days uphold a large ischemic core size (D)

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Declarations

Ethical approval and Informed consent statement Full consent was obtained from the patient's parents for the case report and the study was approved by the authors' institutional ethics committee.

Conflict of interest None.

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