New arrows in the quiver? The role of ColorDoppler/ultrasound/ sonography and pupillometry in suspected case of visual loss.

Aspide R, Sasso T, Bertolini G

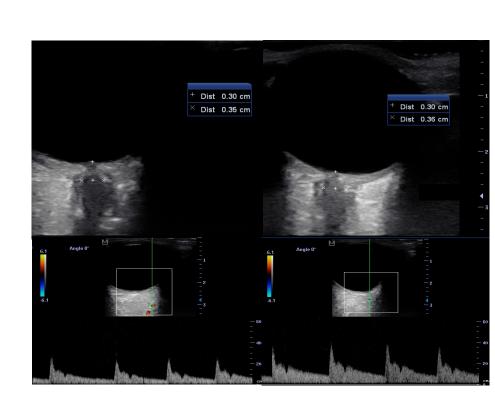
# INTRO

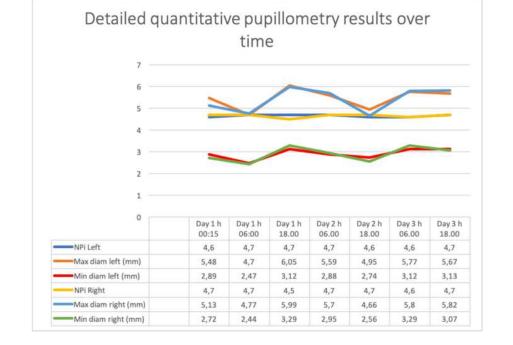
Surgeons and radiologists, at the end of the procedures, reassure you and always tell you that everything is ok!? But when a 20 y/o boy with a mild SAH loses his sight in front of you, you are alone and you don't know what to do!!!

## **METHODS**

B-mode and Color-Doppler ultrasound and automated pupillometry were used as point-of-care diagnostic devices.

# **RESULTS**

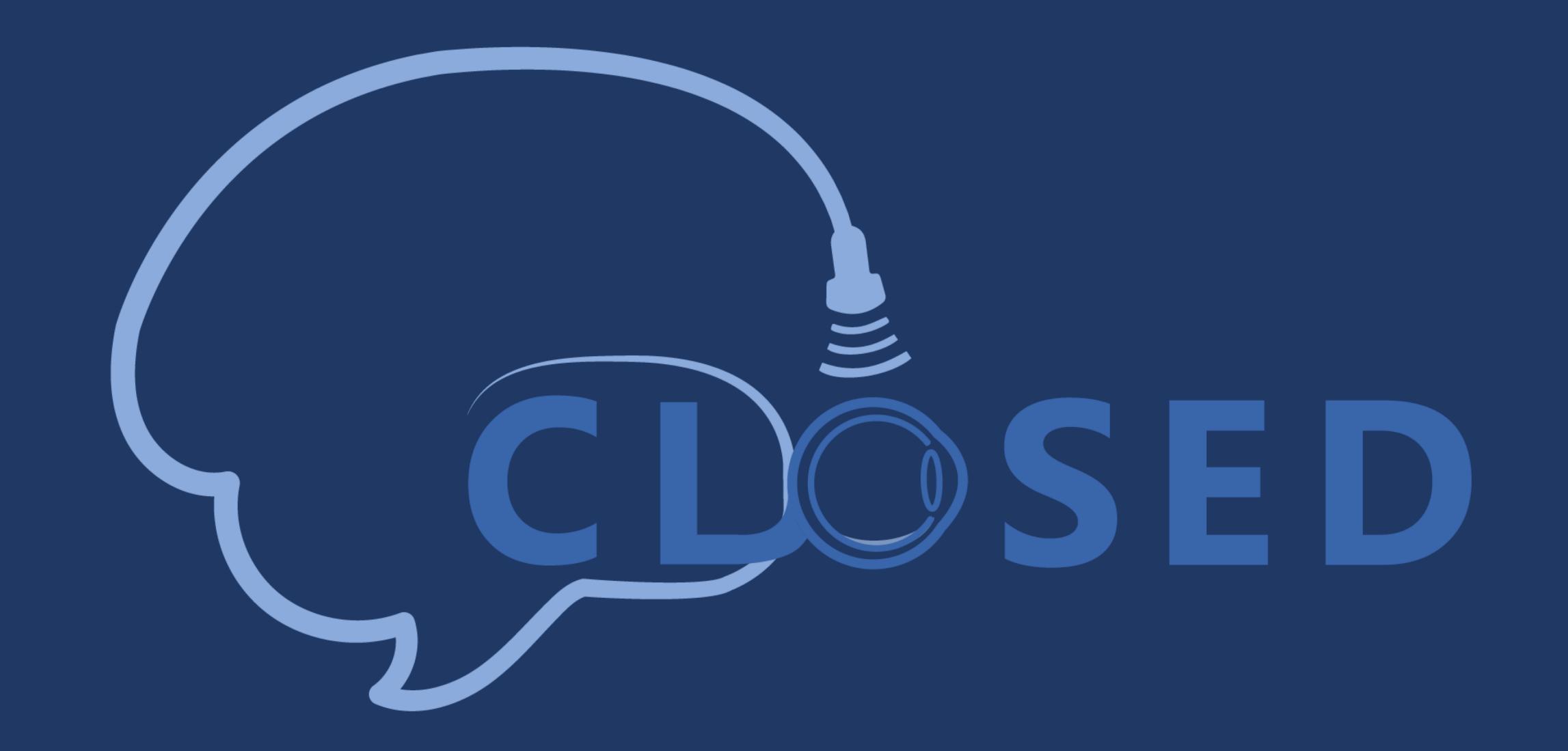




## CONCLUSIONS

 Amaurosis fugax can occur after endovascular procedure and should be investigated. Suspected visual loss is a neurological emergency that deserve a prompt evaluation. Ultrasound and pupillometry were presented as two useful point-of-care diagnostic tools for neurointensivist as an immediate assessment of the second and third cranial nerve.

# How we faced a visual loss with ONSD ultrasound and pupilometer









# **AMMO BAR**

- an occlusion of the ophthalmic artery and an ICP increase were excluded by a color-doppler and Bmode ultrasound, as the blood-flow and the optic nerve sheath diameters were in the normal range in both eyes.
- as a further test an automated pupillometry was used to assess the pupillary function and the third cranial nerve status.

## DISCLOSURES

none

### REFERENCES

- 1. Silva MA, See AP, Dasenbrock HH, Patel NJ, Aziz-Sultan MA. Vision outcomes in patients with paraclinoid aneurysms treated with clipping, coiling, or flow diversion: A systematic review and meta-analysis. Neurosurg Focus 2017;42(6):E15. 2. Durst C, Starke RM, Gaughen J, Nguyen Q, Patrie J, Jensen M.E., Evans A.J. Vision
- outcomes and major complications after endovascular coil embolization of ophthalmic segment aneurysms. Am J Neuroradiol 2014;35(11):2140-2145.
- 3. Rajajee V, Vanaman M, Fletcher JJ, Jacobs TL. Optic nerve ultrasound for the detection of raised intracranial pressure. Neurocrit Care 2011;
- 4. Aspide R, Bertolini G, Albini Riccioli L, Mazzatenta D, Palandri G, Biasucci DG. A Proposal for a New Protocol for Sonographic Assessment of the Optic Nerve Sheath Diameter: The CLOSED Protocol. Neurocrit Care 2020;32(1):327-332
- 5. Foroozan R, Savino PJ, Sergott RC. Embolic central retinal artery occlusion detected by orbital color doppler imaging. Ophthalmology 2002;109(4):744-748.
- 6. Ertl M, Altmann M, Torka E, Helbig H, Bogdahn U, Gamulescu A, Schlachetzki F. The Retrobulbar "spot Sign" as a discriminator between vasculitic and thrombo-embolic affections of the retinal blood supply. Ultraschall der Medizin 2012;33(7):E263-E267.
- 7. Mac Grory B, Lavin P, Kirshner H, Schrag M. Thrombolytic Therapy for Acute Central Retinal Artery Occlusion. Stroke 2020;51:687–95.
- 8. Aoun SG, Stutzman SE, Vo PUN, El Ahmadieh TY, Osman M, Neeley OJ, Plitt A, Caruso JP, Aiyagari V, Atem FD, Welch BG, White JA, Batjer HH, Olson DWM. Detection of delayed cerebral ischemia using objective pupillometry in patients with aneurysmal subarachnoid hemorrhage. J Neurosurg 2020;132(1):27-32.
- 9. Phillips SS, Mueller CM, Nogueira RG, Khalifa YM. A Systematic Review Assessing the Current State of Automated Pupillometry in the NeuroICU. Neurocrit Care [Internet] 2019;31(1):142-61. Available from: https://doi.org/10.1007/s12028-018-0645-2
- 10. Kim HM, Yang HK, Hwang JM. Quantitative analysis of pupillometry in isolated third nerve palsy. PLoS One 2018;13(11):e0208259.



