

Indocyanine green video angiography

- [Diagnostic values of the "to and fro" conflict sign on intraoperative indocyanine green video angiography as a warning sign of the focal cerebral hyperperfusion and watershed shift phenomenon after STA-MCA bypass for adult patients with Moyamoya disease](#)
- [Epstein-Barr virus-associated smooth muscle tumor partially occluding the superior sagittal sinus: illustrative case](#)
- [AUGUR-AIM: Clinical validation of an artificial intelligence indocyanine green fluorescence angiography expert representer](#)
- [Preliminary Results of Paraclinoid Aneurysm Clipping With Indocyanine Green-Video Angiography: A Single-Center Experience in Vietnam](#)
- [Intraoperative Fluorescent Imaging with Indocyanine Green during Thoracoscopic Esophagectomy with Subcarinal Lymph Node Dissection for Esophageal Cancer with a Right Superior Pulmonary Vein Anomaly: A Case Report and Literature Review](#)
- [Indocyanine Green Angiography-Assisted Marsupialization of a Petrous Apex Cholesterol Granuloma: 2-Dimensional Operative Video](#)
- ["Pure Fat Flap"-Perforator-based Adiposal Layer Only Flap for Lateral Ankle Reconstruction](#)
- [Cerebral Aneurysms and Arteriovenous Malformation: Preliminary Experience with the Use of Near-Infrared Fluorescence Imaging Applied to Endoscopy](#)

[Indocyanine green videoangiography](#) (ICG-VA) is an [intraoperative technique](#) used to highlight [vessels](#) in [neurovascular surgery](#). Visualization of [cerebral vessels](#), their branches, and the surrounding [structures](#) are essential during [cerebrovascular surgery](#).

Its application in the study of the vascular pathophysiology in CNS tumors and its role in their surgical management is still rather limited.

An [innovation](#) of ICG-VA (i.e., the [FLOW 800](#) algorithm integrated into the [surgical microscope](#)) allows a semiquantitative evaluation of [cerebral blood flow](#). The aim of a study of Acerbi et al. was to evaluate for the first time the systematic application of ICG-VA and FLOW 800 analysis during surgical removal of CNS tumors ¹⁾.

Indications

[Indocyanine green videoangiography indications](#)

Disadvantages

[ICG](#) flow alone, but not other structures, can be observed using ICG-VA.

Sato et al., from [Fukushima](#), Japan, [Essen](#), [Germany](#), published in [2018](#) a novel high-resolution

intraoperative imaging system using **laser light** source for simultaneously visualizing both visible **light** and **near infrared** (NIR) **fluorescence** images of **indocyanine green videoangiography** (ICG-VA).

They used a novel system for 14 **cerebrovascular** cases. The **operative field** was illuminated via an **surgical microscope** using a novel **laser light** source with four bands at 464 (blue), 532 (green), 640 (red), and 785 nm (NIR region). The observed light from the operative field was split using a beam splitter cube into visible (420- 660 nm) and NIR fluorescence emission light (832-900 nm). Images from the color video and NIR fluorescence emission windows were merged for visualization on a monitor screen simultaneously. **Laser light** was compared with **xenon light**, and both setups were tested for **cerebrovascular surgery**.

Laser light has numerous advantages over **xenon light**. The present setup clearly visualized the color operative field with enhanced blood flow. Complete **clipping** or incomplete clipping with neck remnant or remnant flow into an **aneurysm** was confirmed in aneurysm surgeries. **Feeding artery** and draining **veins** were easily distinguished in case of **arteriovenous malformation**.

Using the present setup, they can observe the color operative field and enhanced **blood flow** using ICG in real-time. This setup could facilitate **cerebrovascular surgery** ²⁾.

References

1)

Acerbi F, Vetrano IG, Sattin T, de Laurentis C, Bosio L, Rossini Z, Broggi M, Schiariti M, Ferroli P. The role of indocyanine green videoangiography with FLOW 800 analysis for the surgical management of central nervous system tumors: an update. *Neurosurg Focus*. 2018 Jun;44(6):E6. doi: 10.3171/2018.3.FOCUS1862. PubMed PMID: 29852759.

2)

Sato T, Bakhit M, Suzuki K, Sakuma J, Fujii M, Murakami Y, Ito Y, Sure U, Saito K. A Novel Intraoperative Laser Light Imaging System to Simultaneously Visualize Visible Light and Near-Infrared Fluorescence for Indocyanine Green Videoangiography. *Cerebrovasc Dis Extra*. 2018 Jul 27;8(2):96-100. doi: 10.1159/000490872. [Epub ahead of print] PubMed PMID: 30056450.

From:

<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:

https://neurosurgerywiki.com/wiki/doku.php?id=indocyanine_green_video_angiography

Last update: **2025/06/21 23:15**

