

Introduction

Videoangiography (VA) with indocyanine green (ICG) has been an important advance in neurosurgery, but viewing the data on a separate monitor is less than ideal. There is now a way to visualize this information displayed in the microscope itself using augmented reality (AR). The hope is that viewing the microscopic field and data from ICG-VA at the same time would improve surgical workflow and perhaps improve surgical outcomes.

Methods

Patients with a vascular disorder or brain tumor were enrolled in an IRB-approved pilot trial to evaluate the use of augmented reality (AR) videoangiography and comparing it to regular VA with ICG. The technique of VA-ICG with AR is not yet FDA approved.

Results

This is early in the pilot trial, and three patients have been enrolled in the study. The utility of AR to enhance ICG-VA seems promising. Representative pictures and video of the AR-enhanced technique are useful. The intraoperative workflow is improved and better maintains the attention of the surgeon in the operative field. This technique allows direct visualization of the surgical field and AR data from ICG simultaneously.

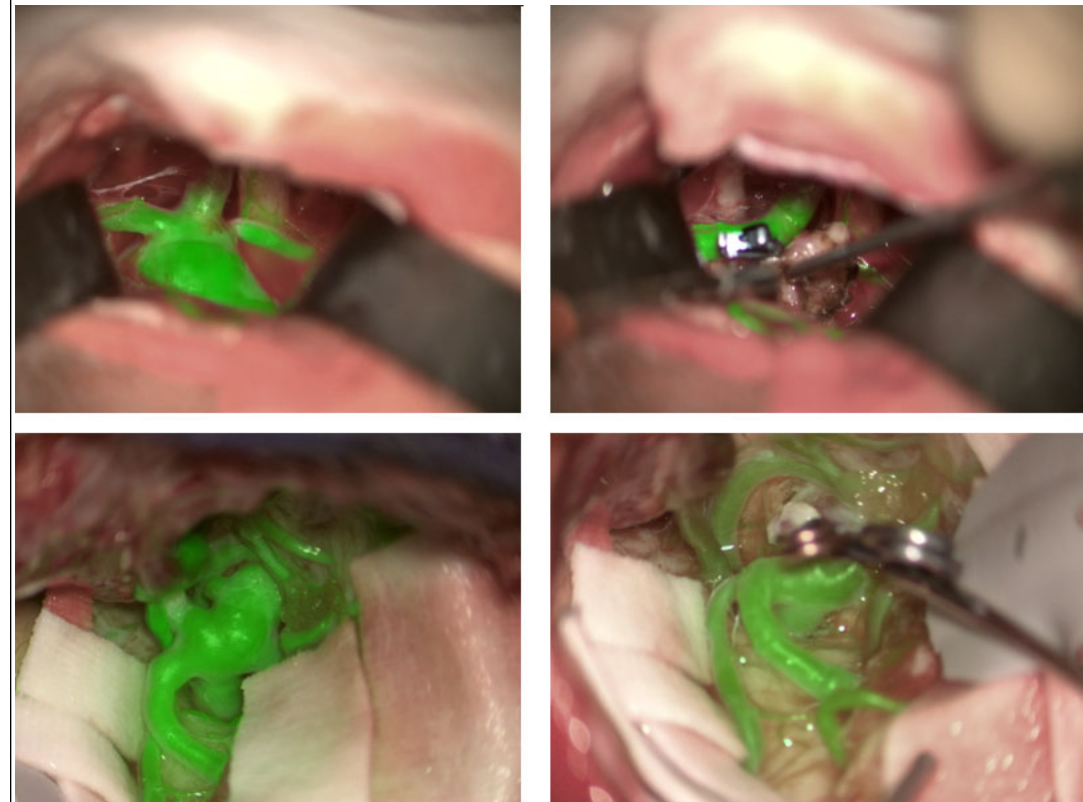
Conclusions

The use of augmented reality (AR) to enhance ICG-VA has the potential to improve the workflow and accuracy of ICG-VA and hopefully improve surgical outcomes.

Learning Objectives

By the conclusion of this session, participants should be able to compare different techniques of videoangiography

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Intraoperative photographs of data from ICG videoangiography overlaid into the microscope view using augmented reality.

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