Introduction
The operative microscope and endoscope have significantly advanced modern neurosurgery. These devices' technical limitations include suboptimal optics, ergonomics, and maneuverability. A recently developed 3D, 4K video microscope operative system combines characteristics from the operative microscope and endoscope to provide a portable, high-definition operative experience. Existing exoscopes lack stereopsis with 2D monitors, thereby limiting their widespread adoption in neurosurgery.

Methods
Assess dissection time and visualization of critical structures in a series of human cadaveric cranial neurosurgical approaches with the 3D 4K-HD video microscope as compared to a standard operating microscope. Orbitozygomatic, Supraorbital, Interhemispheric transcallosal, and sub-occipital approaches were undertaken in 8 cadaveric heads, as shown in the accompanying figures.

Results
Dissection times of critical structures was comparable with the 3D 4K-HD video microscope and a standard operating microscope. The low profile video microscope facilitated inversion of the operative corridor with smaller craniotomy, enhanced instrument maneuverability, wider depth of focus, and decreased obstruction in passing surgical instruments. The large monitor offered an immersive surgical experience and allowed multiple team members the same high-quality view as the primary operator. Finally, the video microscope possessed a more ergonomically favorable setup as compared to the traditional microscope, allowing the surgeon to be in a neutral position independent of

Conclusions
The novel 3D 4K-HD video microscope system possesses favorable optics, focal length, ergonomics, and maneuverability as compared to the traditional operating microscope. The video microscope's shared surgical view possesses potential educational and workflow advantages. This cadaveric feasibility study justifies trial of this technology in cranial cases under an IRB.

Learning Objectives
Assess the surgical potential of a novel, three-dimensional (3D), high-definition (4K-HD) video microscope system in microneurosurgical procedures.

References

Legend:
ON, optic nerve; OC, optic chiasm; CA, carotid artery; PCommA, posterior communicating artery; SHA, superior hypophyseal artery; HA, recurrent artery of heubner; A1, A1 segment of anterior cerebral artery; A2, A2 segment of anterior cerebral artery; ACha, anterior choroidal artery; BA, basilar artery; BT, basilar tip, P1, P1 segment of posterior cerebral artery; T, tentorium; SCA, superior cerebellar artery; P, pons; PICA, posterior inferior cerebellar artery; M3, M3 segment of middle cerebral artery; F, falx; CC, corpus callosum; PcA, pericallosal artery