

Advances in [video](#) and [fiber optics](#) since the 1990s have led to the development of several commercially available high-definition neuroendoscopes. This technological improvement, however, has been surpassed by the [smartphone](#) revolution. With the increasing integration of smartphone technology into medical [care](#), the introduction of these high-quality computerized communication [devices](#) with built-in [digital cameras](#) offers new possibilities in [neuroendoscopy](#). The aim of a study of Mandel et al., was to investigate the usefulness of smartphone-endoscope integration in performing different types of [minimally invasive neurosurgery](#).

They presented a new surgical [tool](#) that integrates a smartphone with an [endoscope](#) by use of a specially designed adapter, thus eliminating the need for the [video](#) system customarily used for endoscopy. They used this novel combined system to perform minimally invasive surgery on patients with various neuropathological disorders, including [cavernomas](#), [cerebral aneurysms](#), [hydrocephalus](#), [subdural hematomas](#), [contusional hematomas](#), and spontaneous [intracerebral hematomas](#).

The new endoscopic system featuring smartphone-endoscope integration was used by the authors in the minimally invasive surgical treatment of 42 patients. All procedures were successfully performed, and no [complications](#) related to the use of the new method were observed. The quality of the images obtained with the smartphone was high enough to provide adequate information to the neurosurgeons, as smartphone cameras can record images in high definition or [4K](#) resolution. Moreover, because the smartphone screen moves along with the endoscope, surgical mobility was enhanced with the use of this method, facilitating more intuitive use. In fact, this increased mobility was identified as the greatest benefit of the use of the smartphone-endoscope system compared with the use of the neuroendoscope with the standard video set.

[Minimally invasive](#) approaches are the new frontier in neurosurgery, and technological [innovation](#) and integration are crucial to ongoing progress in the application of these [techniques](#). The use of smartphones with endoscopes is a safe and efficient new method of performing endoscope-assisted neurosurgery that may increase surgeon mobility and reduce equipment [costs](#) <sup>1)</sup>.

<sup>1)</sup>

Mandel M, Petito CE, Tutihashi R, Paiva W, Abramovicz Mandel S, Gomes Pinto FC, Ferreira de Andrade A, Teixeira MJ, Figueiredo EG. Smartphone-assisted minimally invasive neurosurgery. J Neurosurg. 2018 Mar 1;1-9. doi: 10.3171/2017.6.JNS1712. [Epub ahead of print] PubMed PMID: 29529913.

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