

## **Aneurysm Surgery In The Era Of Endovascular Intervention**

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Surgical eradication of the intracranial aneurysms is the most reliable therapy, however, less invasive nature and introduction of advanced equipment, endovascular treatment has been appealing to patients and also to practitioners. Consequently, to achieve the optimal results concomitant to safety with less managing risk in the complex aneurysm surgery, the strategy would not be always simple as neck clipping but also consists of several advanced techniques, and each procedure should be essentially real time monitored by the objective scientific technology as well as surgeons' perception.

In this regards, we have adopted neurophysiological monitoring such as SEP and MEP, endoscope, intra-arterial fluorescent video-angiography, and endoscopic indocyanine green (ICG) video angiography in aneurysm surgery. MEP is very sensitive to motor dysfunction and strongly helps to prevent motor deficits. Endoscope could provide view around corners and observation of areas hidden from the microscope. Intra-arterial fluorescence video angiography using ICG or sodium fluorescein is simple and not time consuming compared to the conventional intraoperative DSA and provides sufficient information about real time blood flow images of perforators and parent artery. However, observation territory of fluorescence videoangiography is limited to the microscopic view while endoscope can provide the surface anatomy of the arteries hidden from microscopic view but not blood flow information. To overcome a drawback of each modality, we also introduced endoscopic ICG video angiography that brings both surface anatomy and blood flow information of the arteries located in the deep and obstructive area from the microscope.

In this talk, the experience of complex aneurysms treatment with multi clip technique, clip on wrapping, ultrasound curetting for thrombus or skull base anatomy, and parent artery occlusion with/without bypass will be reviewed.