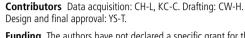**OPEN ACCESS**

Feasibility and workflow analysis of IV-DSA-based augmented reality-guided brain arteriovenous malformation resection in a hybrid operating room: i-Flow tailored method

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ABSTRACT

Augmented reality (AR) has emerged as a promising technology in various medical fields.[1 2] In the context of brain arteriovenous malformation (bAVM) surgery, AR offers the potential to enhance surgical visualization and improve procedural accuracy.[3 4 5 6] This report aims to explore the application of digital subtraction angiography (DSA) from an IV contrast injection (IV-DSA) in AR-guided resection of bAVMs in a neurosurgical hybrid operating room.

The workflow of IV-DSA-based AR-guided surgery for the resection of bAVMs consists of four main components: (1) acquiring source images through i-Flow tailored or multiphase scans (Siemens, Germany); (2) labelling targets in the workstation using Smartbrush software (Brainlab, Westchester, Illinois, USA); (3) using the Brainlab Curve navigation system; and (4) merging microscopic AR fusion using Zeiss Kinevo (AG, Germany). In video 1 we show the entire workflow and introduce i-Flow tailored IV-DSA data acquisition in the hybrid operating room. In summary, IV-DSA-based augmented reality is an innovative technique for bAVM surgery.

wait for 19 sec and start 3D rotation scan

Video 1 -i-flow tailored iv-DSA

Contributors Data acquisition: CH-L, KC-C. Drafting: CW-H. Design and final approval: YS-T.

Competing interests None declared.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved by the Institutional Review Board (IRB) of Taichung Veterans General Hospital (TCVGH) ID: CE17084A. Participants gave informed consent to participate in the study before taking part.

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