HCI represents a growing area of clinical research in intraprocedural image navigation. A recent review has documented the different approaches undertaken by various research groups,[8] largely employing commercially available camera-based platforms, such as Microsoft Kinect (used for gaming) (Microsoft Corp) or Leap Motion Controller (LMC) (Leap Motion Inc), which use hand and limb gestures as commands for image navigation.[14–17] Other techniques, such as voice recognition and eye tracking, have also been evaluated as mechanisms for image interaction.[8] Overall, the studies have shown their feasibility for implementation, particularly with Kinect and LMC; however, few studies have been tested in a real clinical environment, and the experiments have reported mixed results. Namely, these studies reported short training times and ease-of-use responses from the study participants. However, findings reflect false-positive activation in a dark environment, confinement to a fixed area of interaction within the camera's line of sight, and indefinite benefits over the existing mode of image interaction, such as the conventional keyboard and mouse.[8] These limitations have not been observed with the image navigation technology during testing in the present case series.

While the image navigation technology we have described in our case series provides effective and intuitive control of a number of different image manipulation functions, the current release that was tested does not enable the user to perform drawing, measuring, and segmentation. This is particularly useful in cases for radioembolization therapy when 3-dimensional reconstructions are needed for spatial planning. Nonetheless, our observations in the present study show the promise of the technology platform as a translatable and useful technology in the endovascular suite.

CONCLUSION

Procedural workflow is a field of recent improvement efforts and new technologies are arising giving the physicians new alternatives. Handheld remote control of the PACS system such as the TIPSO AirPad is definitely a great resource for the operative workspace. ■

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Address for correspondence: Robert Beasley, MD, FSIR, FSCAI, Section Chief, Vascular and Interventional Radiology, Mount Sinai Medical Center, 4300 Alton Road, Miami Beach, FL 33140, Email: Robert.beasley@msmc.com

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