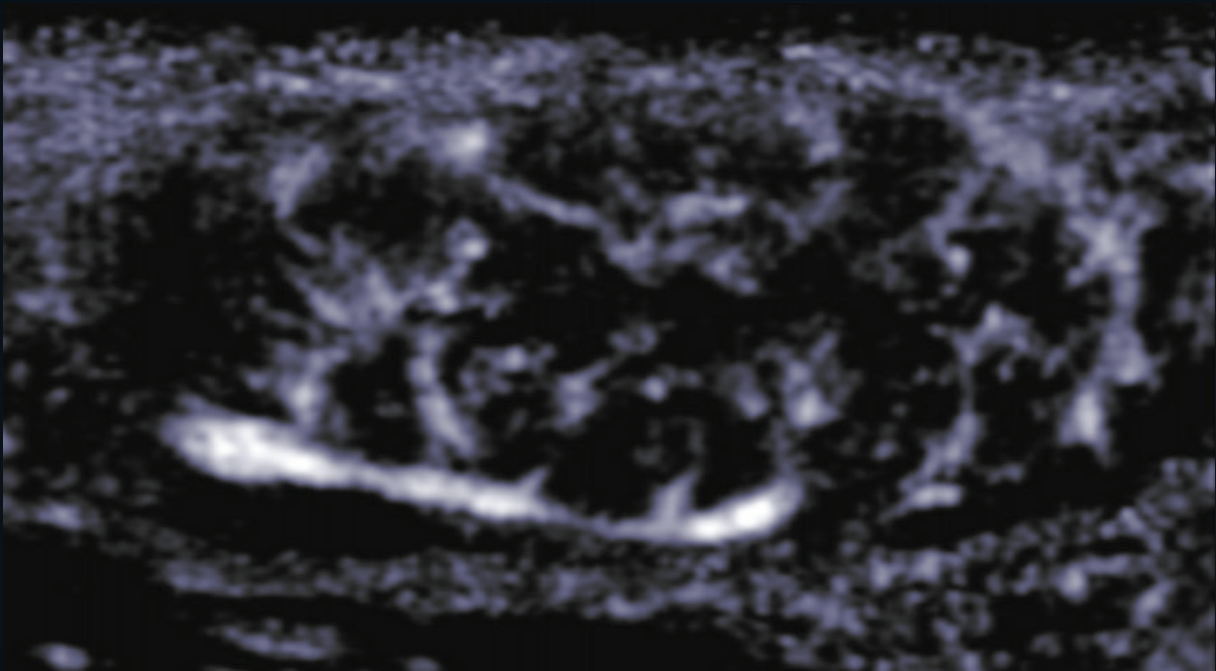


SMI (Superb Micro-Vascular Imaging)

Aplio™ 500 Platinum Series



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HISTORY

An 84-year-old male presented with right hemiparesis and aphasia. A carotid duplex examination was performed using the Aplio 500 Platinum Series ultrasound system with the Innovation 2016 software.

TECHNOLOGY

The patient was imaged using Toshiba's Aplio 500 Platinum Series with a linear array (3-11 MHz) transducer, utilizing

color Doppler, monochrome Superb Micro-vascular Imaging (mSMI), and mSMI hold accumulation function.

FINDINGS

The bilateral carotid duplex examination was within normal limits via our institutional carotid stenosis criteria. No abnormal plaque or luminal defects were noted.

However, for some patients, incidental findings can be more significant than any vascular pathology. In this case, a 35.8mm x 14.5mm homogeneous mass was identified in the right infra-auricular region. This mass was easily palpated. (Image 1).

B-mode image optimization is a significant process that should be performed prior to the acquisition of secondary imaging parameters. Color Doppler imaging (Image 2) depicted a few blood vessels feeding into the mass. mSMI (Image 3) and mSMI with hold accumulation mode (Image 4) provided additional information which depicts a hypervascular mass. mSMI was able to visualize more blood vessels and branching details than color Doppler imaging, while providing a higher imaging frame rate and reduced clutter artifacts. When incidental findings are encountered, the enhanced sensitivity to low velocity blood flow provided by SMI can provide additional diagnostic information.

DIAGNOSIS

An incidental hypervascular mass was found by B-mode. The use of secondary imaging, specifically mSMI and the mSMI hold accumulation mode, depicted the internal vascularized component with better sensitivity to low velocity blood flow than color Doppler imaging. Although the patient was lost to follow-up and lacks a definitive diagnosis, this case clearly highlights the ability of SMI to depict more branching details and reduced clutter artifacts than color Doppler imaging.

CONCLUSION

Proper image optimization and the use of SMI can provide significant supplemental diagnostic information, especially when confronted with incidental findings.



Image 1. Homogeneous mass located in the right infra-auricular region.

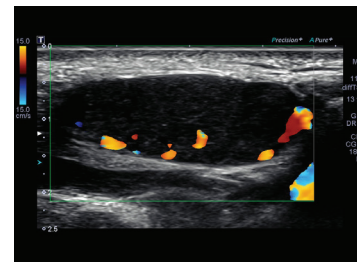


Image 2. Color Doppler imaging within the mass.

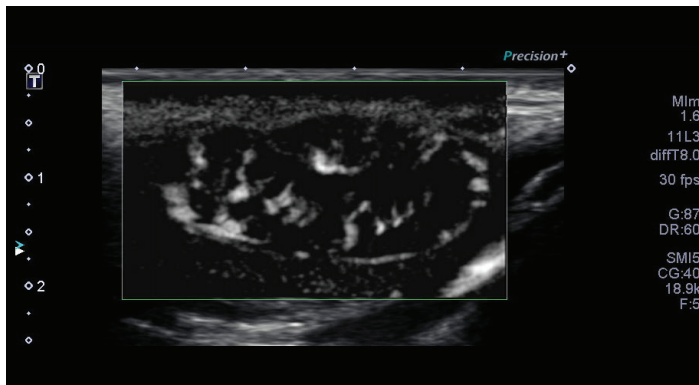


Image 3. mSMI visualization of vascularity within the mass.

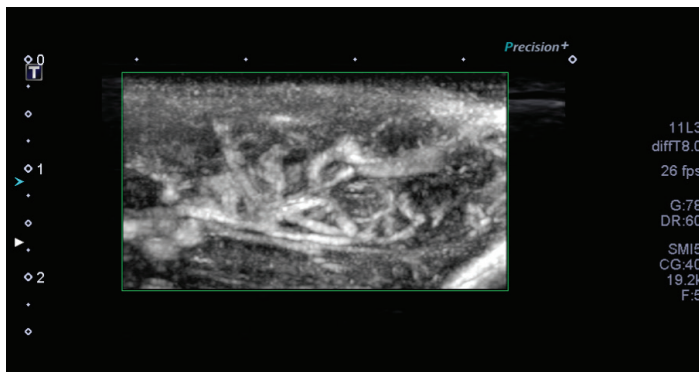


Image 4. mSMI with the hold accumulation mode.

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