

CLINICAL VIDEO

Contrast-enhanced transoral carotid ultrasonography for the evaluation of a long stenotic lesion in the internal carotid artery

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Contrast-enhanced transoral carotid ultrasonography (CETOCU), which is essentially transoral carotid ultrasonography [1] performed with ultrasonography contrast agent [2], produces clearer intraluminal imaging as the contrast agent flows through the lumen. In CETOCU, an endovaginal probe is inserted into the mouth and pressed against the wall of the pharynx. CETOCU enables imaging for 5 min after contrast agent injection and thus allows focused evaluation of the region of interest. CETOCU imaging with characterization of plaque vulnerability enables us to select a suitable type and length of carotid stent encompassing the whole length of the atheromatous plaque (Figs 1 and 2).

Conflict of Interest

All authors report no disclosures.

Authorship

YH: involved in study concept, acquisition of data, analysis, and interpretation. TY, TS, HO, MA, TF, TT, and SN:

Key Clinical Message

Contrast-enhanced transoral carotid ultrasonography (CETOCU) is a novel modality for imaging the distal extracranial internal carotid artery, which is not possible with conventional carotid ultrasonography. We present a representative case that demonstrates the usefulness of CETOCU.

Keywords

carotid ultrasonography and carotid artery stenosis.

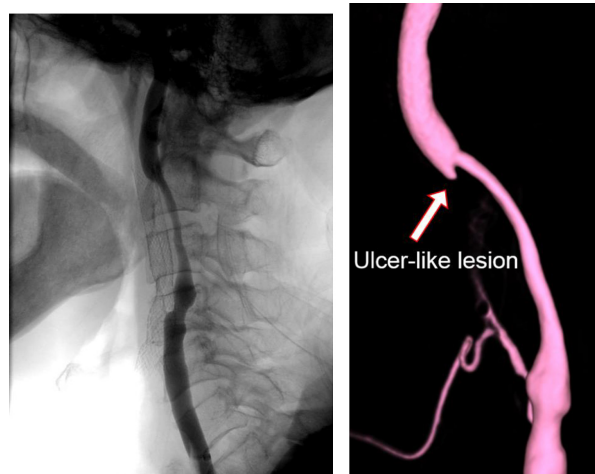


Figure 1. Right carotid angiogram. Carotid angiogram performed on a 73-year-old man with asymptomatic stenosis of the right internal carotid artery. Carotid angiogram reveals a long stenosis with irregular surface morphology. At the upper end of the atheroma, an ulcerative complex lesion is suspected (arrow). However, this lesion is located far above the mandibular angle; thus, further evaluation by transoral carotid ultrasonography is indicated.

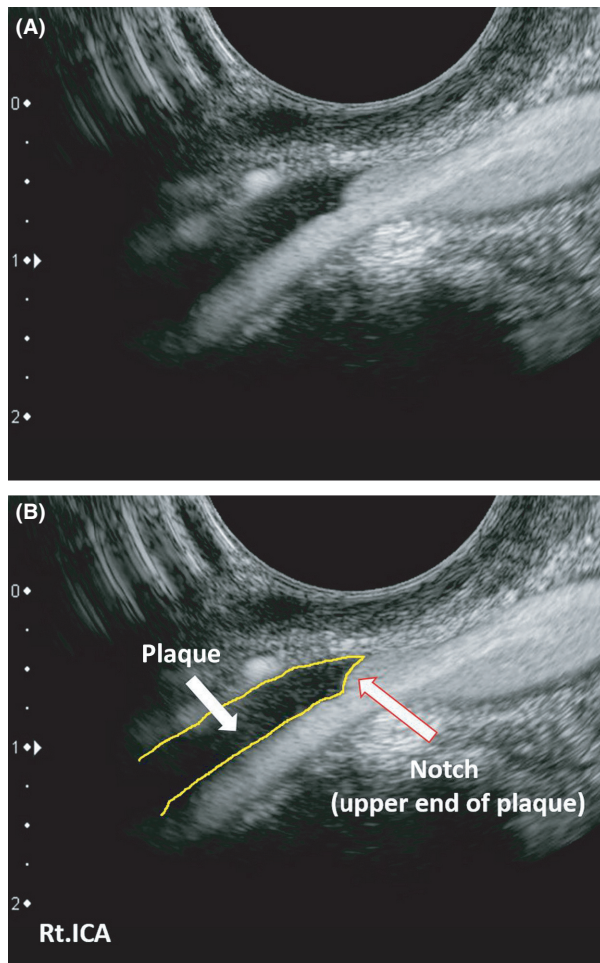


Figure 2. (A) Contrast-enhanced transoral carotid ultrasonography (CETOUCU) of the right internal carotid artery (video clip). (B) Schematic image of (A). CETOUCU is performed using a Xario ultrasonography system equipped with a PVT-661VT 3–9 MHz Endovaginal Probe (both Toshiba Medical Systems, Tokyo, Japan). CETOUCU reveals that the surface morphology of the notch was smooth and had no intraplaque neovascularization. These findings suggest that the ulcer-like lesion on carotid angiogram is not a complex atheromatous lesion but a stable plaque.

involved in acquisition of data. TU: involved in study supervision. YH: involved in critical revision of the manuscript for important intellectual content and study supervision.

References

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2. Matsumoto, N., K. Kimura, M. Uno, et al. 2012. Enhanced carotid plaque on contrast – enhanced ultrasound is associated with plaque instability and rupture. *Int. J. Stroke* 7:E12.

Supporting Information

Additional Supporting Information may be found online in the supporting information tab for this article:

Video S1. Video shows view of examination by CETOUCU for a long stenotic internal carotid artery.