

Diagnosis and treatment evaluation of in-stent restenosis of carotid artery stenting using optical coherence tomography

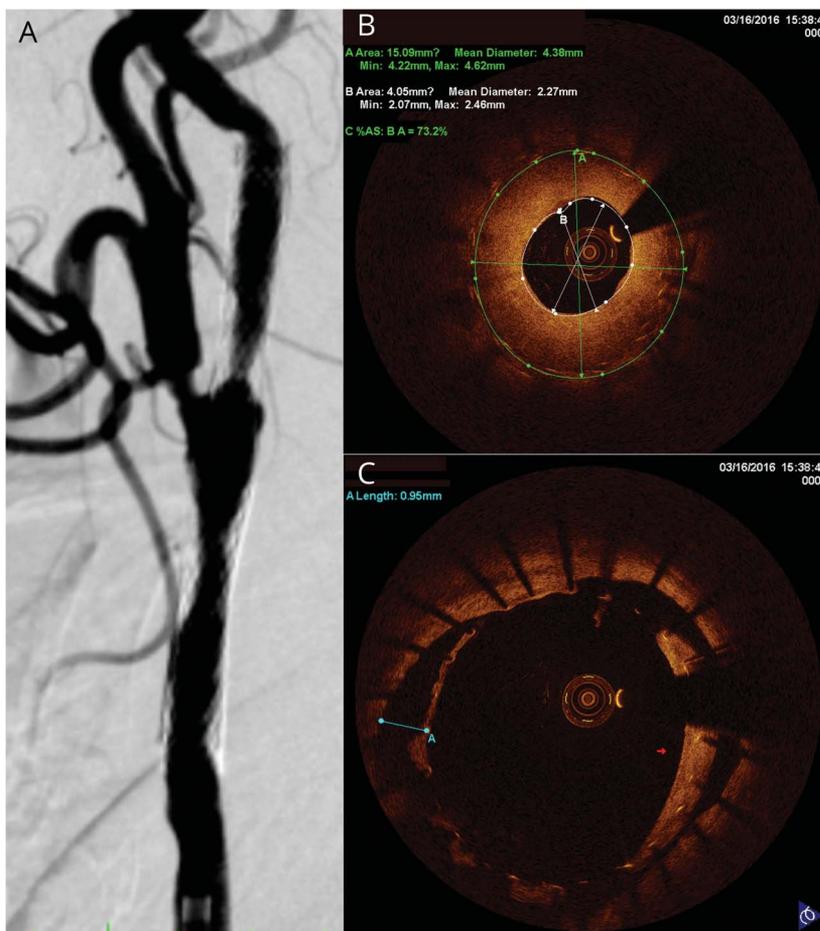
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Figure 1 Diagnosis of in-stent restenosis (ISR) after carotid artery stenting using optical coherence tomography



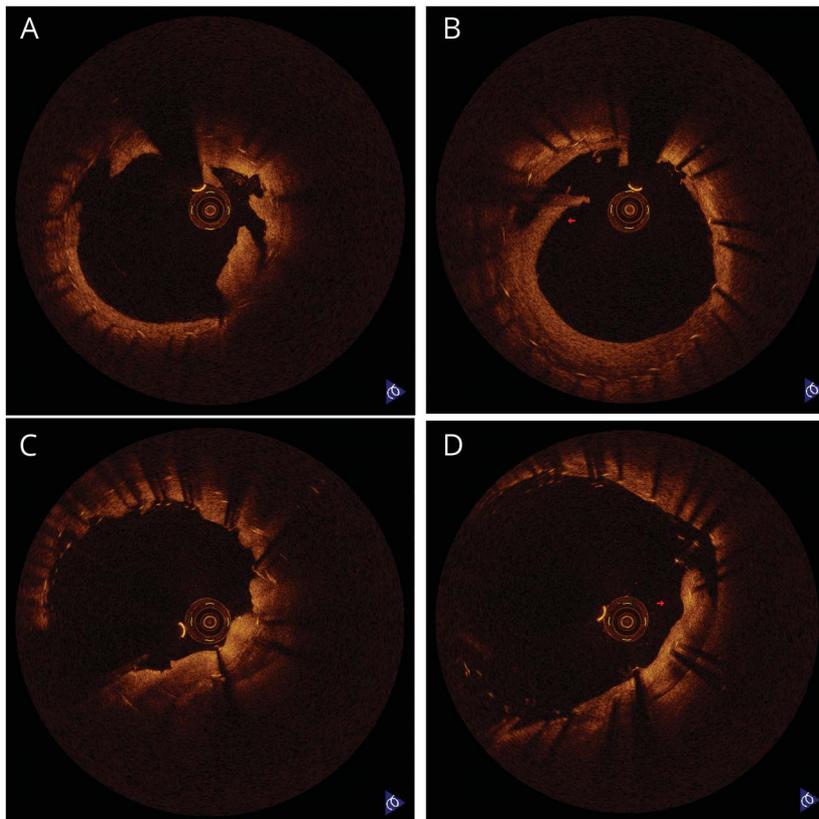
(A) Angiography with ISR detected. (B) Severe ISR (73.2%) with fibrotic neointimal growth over the deployed stent struts at the midportion of the stent. (C) Stent malapposition, stent struts neointimal formation, and unhealed artery dissection can be observed on cross-section image of carotid bifurcation.

A 65-year-old man underwent balloon angioplasty and repeat carotid artery stenting (CAS) due to in-stent restenosis (ISR). Intravascular optical coherence tomography (OCT) showed a severe ISR with fibrotic neointimal growth (figure 1). Post 6.0 × 30 mm balloon angioplasty, OCT showed intimal disruption and artery dissection (figure 2). After the 8 × 40 mm stent fully expanded, OCT showed stent struts well apposed, but tissue protrusion from the spaces between stent struts can be observed (figure 2). OCT allowed measurement of intimal

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Figure 2 Optical coherence tomography (OCT) evolution of balloon angioplasty and precise 8 × 40 mm stent implantation for in-stent restenosis



(A) Substantial intimal disruption was observed at the stenosis segment of internal carotid artery. (B) Artery dissection caused by balloon angioplasty. (C) Tissue protrusion was clearly visualized at the stenosis segment of internal carotid artery. (D) The disrupted intima were attached to a regular lumen contour with little space residual according to the stent expanding.

hyperplasia after the CAS and observation of intimal disruption and stent strut apposition intraoperatively.^{1,2}

Author contributions

All authors: conception and design, acquisition of data, analysis and interpretation of data. Dr. R. Liu: drafting the article. Dr. Ye: critically revising the article. Dr. X.F. Liu: approved the final version of the manuscript on behalf of all authors.

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