Carotid artery stenting for long CTO and pseudo occlusion of carotid artery - 2 case reports -

Katsutoshi Takayama, MD, Ph.D
Department of Radiology and Interventional Neuroradiology
Ishinkai Yao General Hospital, Yao, Osaka, Japan
Disclosure

Speaker name:

Katsutoshi Takayama, M.D., ph. D

I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

- I do not have any potential conflict of interest
Background

Endovascular recanalization in patients with chronic carotid occlusion or pseudo occlusion with full collapse has been reported to be feasible, but technically challenging.

We report two cases of successful carotid artery stenting for long CTO and pseudo occlusion of carotid artery.
Case 1

• Male / 77 year-old

C/C: Left sided hemiparesis

• PI: He was admitted to our institution with left sided hemiparesis. Brain MR diffusion-weighted imaging (DWI) on admission showed the right watershed infarction.

• P/Hx: HT, >Medication

• Risk factor: DM, Smoking (1 pack per day for 45 years)
DWI on admission

Acute infarction!!
Brain MRA
Cervical MRA
Angiography

RCAG

Early Phase

Delayed Phase
Angiography
Perfusion CT

CT perfusion images demonstrated prolonged mean transit times in the territory of the right middle cerebral artery and showed cerebral blood flow to be in the penumbral range.
Clinical Course

• Initially he was treated medically with antiplatelet therapy and showed clinical improvement.
• However, on the 5th day and the 17th day after admission, he had transit left sided weakness and numbness.
• We performed CAS for CTO of ICA under local anesthesia at one month from the ictus.
CAS for CTO

Pre

Cross the lesion
CAS for CTO

9F Optimo and Guardwire

Proximal protection

Savvy 2mm x 4cm

pre PTA

distal protection

Guardwire
CAS for CTO

Precise 7mm x 4cm and Precise 9mm x 4cm

Post PTA

Aspiration of debris
Total 380 cc
Aspirated debris

Aspirated blood contained a considerable amount of debris

Blood clot and fibrous material
FU DWI on the following day

No new bright lesion
Perfusion CT 13 days later

CT perfusion images revealed symmetric mean transit times in both cerebral hemispheres.
Post treatment clinical course

Pt was discharged without any complication 3 weeks later. Follow-up angiogram obtained 36 months later demonstrated a good patency of ICA. At the 4 year follow-up, he remains neurologically intact.
FU 36 months later
Discussion

Natural history of chronic occlusion of the ICA

Stroke rate in the ipsilateral territory
5-7%/year
in the no impaired cerebrovascular reserve group
30%/year
in the impaired cerebrovascular reserve group

Our case also belongs to this risk category.

Predictors for Successful Endovascular Intervention in Chronic Carotid Artery Total Occlusion

Ying-Hsien Chen, MD, a Weng-San Leong, MD, b Mao-Shin Lin, MD, a,c Ching-Chang Huang, MD, a Chi-Sheng Hung, MD, a Hung-Yuan Li, MD, a Kok-Kheng Chan, MD, d Chih-Fan Yeh, MD, a Ming-Jang Chiu, MD, PhD, e Hsien-Li Kao, MD a

N: 138

Technical success rate: 61.6%

30-day procedural complication rate: stroke, intracranial hemorrhage, and death: 4.3%

30-day mortality: 1.4%

Case 2

• Male / 62 year-old
C/C : Asymptomatic right carotid artery near occlusion
• PI : He was a 62 year-old man with right carotid artery pseudo occlusion was suspected on the screening MR angiography incidentally.
• P/Hx : HT, HL, DM, OMI, depression – ->Medication
• Risk factor : Non-current smoker
Asymptomatic right carotid artery near occlusion with collapse 62 M
Asymptomatic right carotid artery near occlusion with collapse 62 M
Asymptomatic right carotid artery near occlusion with collapse 62 M
Asymptomatic right carotid artery near occlusion 62 M

DSA

AP

Towne

Lt. CAG

Lt. VAG
Asymptomatic right carotid artery near occlusion 62 M

Brain SPECT with acetazolamid single photon emission computed tomography
Carotid artery stenting 62 M
Carotid artery stenting 62 M

Pre PTA: Rapid Cross 2.0x150mm
Stent: 1. Precise 6x30mm, 2. Precise 6x30mm, 3. Precise 9x40mm
Post PTA: Rapid Cross 4.0x40mm
Carotid artery stenting 62 M
Carotid artery stenting 62 M
4th stent placement
Integrity BMS 3x22mm
Carotid artery stenting 62 M

Post

AP

LAT
MRI DWI next day

No new bright lesion
MRI FLAIR next day
Asymptomatic subarachnoid hemorrhage
CT next day
We controlled strictly blood pressure and gave Propofol for a week.
CT 7 days
SPECT 7 days later
Post treatment clinical course

Patient was discharged without any complication 2 weeks later.
Carotid near occlusions **without full collapse** has been reported a lower risk of stroke than other severe stenoses.

N: 230

90 day stroke rate: 18%

**Carotid near occlusion without collapse** 0%

**Carotid near occlusion with collapse** 43%

E, Johansson, et al. Journal internal medicine 2015;277:615-623
Conclusion

CAS for Carotid CTO and near occlusion with collapse would seem to be beneficial when performed by an experienced neurointerventional team.
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