TRANSRADIAL CAROTID STENTING IN A PATIENT WITH BOVINE ARCH ANATOMY

Muhammad Nadir Khan, Tahira Muqaddas

Army Cardiac Center, Lahore Pakistan

ABSTRACT

Carotid artery disease is a major cause of ischemic CVA. We report our experience in stenting of the left internal carotid artery (LICA) in patients with bovine arch, in which right brachiocephalic and left carotid share a common trunk from the aortic arch1.

Keywords: Bovine arch, Carotid artery, Stenting.

INTRODUCTION

Carotid artery stenting (CAS) is a widely used procedure to treat carotid artery stenosis, especially in patients at high risk for carotid endarterectomy (CEA)[2]. Outcomes of the SAPPHIRE trial demonstrated the equivalence of CAS to CEA in patients considered at risk for complications. The bovine arch introduces new challenges to the procedure.

CASE REPORT

A 85 years old lady with underlying HTN, DM and IHD came with sudden transient loss of left eye vision. She has history of TIA in form of Rt hemiplegia, which recovered after 12 hours about 4 weeks before admission. She had normal visual acuity at time of examination and rest of the physical examination was also unremarkable. Duplex USG of carotid arteries showed 70 to 80% left carotid bulb stenosis. Echo was normal.

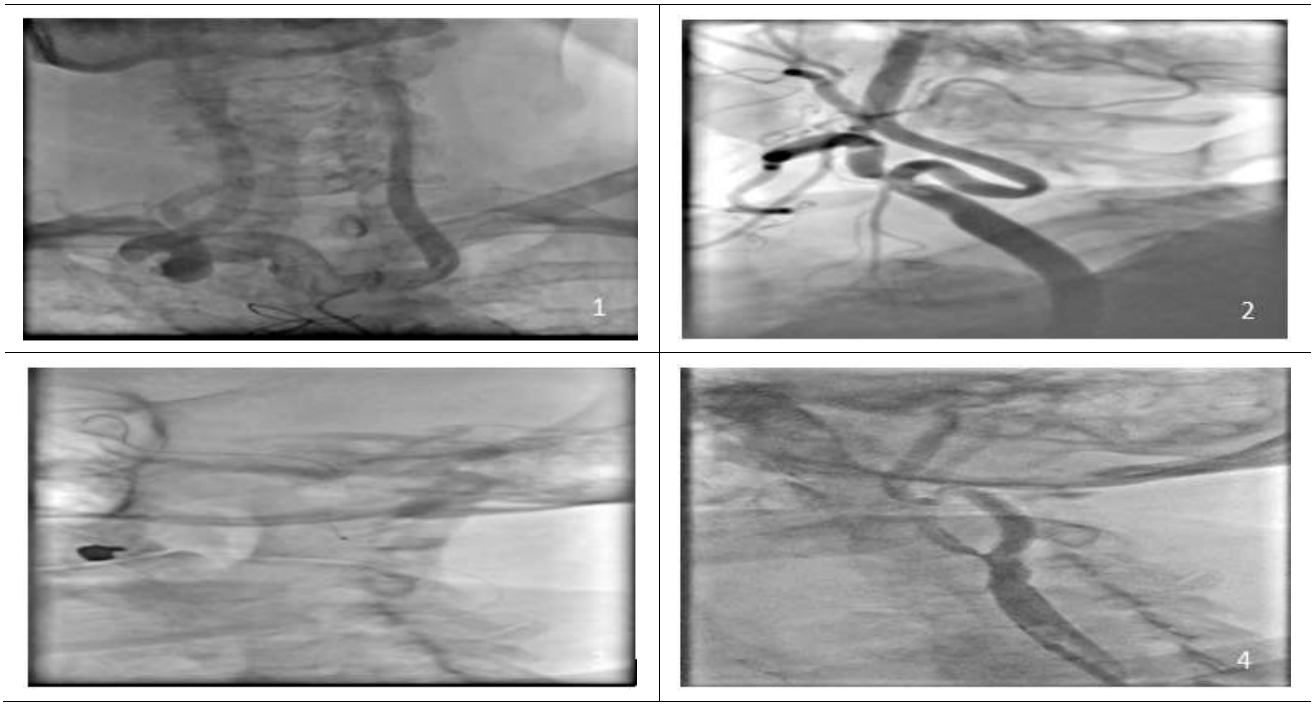

Figure: 1-Bovine arch, 2-Stenosis of LCCA, 3-Distal protection device in LICA, 4-Post stenting result.

Correspondence: Dr Muhammad Nadir Khan, Associate Professor, Army Cardiac Center Lahore Pakistan
Email: yesnadirkhan@gmail.com

CT scan of brain showed left MCA infarct. CT angiography neck confirmed the lesion in Left carotid bulb causing 70-80% stenosis but missed to show bovine arch anatomy.

An 8F arterial sheath was inserted via the right femoral artery. The RCCA was directly engaged by the 6 F diagnostic catheter. Right carotid angiography was normal.

Catheter or wire could be crossed into the left common carotid artery. JB 3 diagnostic catheter was used to define the anatomy of the left carotid which showed a bovine arch in figure. The LCA was originating from the Brachiocephalic artery. There was 70% stenosis before the bifurcation of the LCA. We tried to place a 0.035 inch guide wire in the LCA but were not successful. Another 0.035 inch Hydrophilic guidewire was placed in the LCA but it would prolapse into the Aorta once guide catheter was advanced. A 0.014 inch PTCA guidewire was then advanced into the LCA and the guide catheter was advanced over it with the help of a 0.035 inch guidewire but again the PTCA guidewire prolapsed into the Aorta. It was decided to approach the LCA from the right radial artery with a sheathless technique. A 6F radial sheath was passed in the right radial artrery. A 0.014 inch PTCA guidewire was advanced through the right radial sheath into the Aorta. The 6F arterial sheath was removed and manual pressure was applied over the right radial artery for temporary haemostasis. A 2.5 x 15 mm Balloon was inflated ahead of the 8F guide catheter and the whole assembly was advanced over the PTCA guidewire until the guide catheter reached the ostium of the LCA. Then a 0.035 inch wire was placed in a 5 French Heart Rail catheter and both were advanced in the 8F guide catheter till the wire and the child catheter reached LCA. The 8F guide catheter was then telescoped over the 5F catheter till it finally reached the LCA. A 7.5 mm Accunet distal protection device was deployed in the straight portion of the LICA distal to the lesion. IV 0.5 mg of atropine was given before stenting and before post dilatation. Direct stenting of the lesion was performed with a 7-10 x 40mm self-expandable Acculink stent. It was post dilated with a 5.0 x 15 mm NC at 12 atm balloon with good end result. The distal protection device was removed. Post procedure view showed no residual stenosis. Pt developed mild transient weakness of right leg on 2nd day which improved within 24 hours.

DISCUSSION

The Bovine arch occurs in 13% of population. Transfemoral approach is still the most common route for carotid angiography[3] and stenting LICA stenosis with Bovine arch anatomy can be approached by right arm approach[4] and it is still possible to proceed with carotid stenting using our novel sheathless guide advancement technique which is reproducib[5]. This method of advancing guiding catheter is useful and safer than others for carotid artery stenting.

CONFLICT OF INTEREST

This study has no conflict of interest to be declare by any author.

REFERENCES

1. Barbiero G, Cognolato D, Casarin A. Carotid artery stenting in difficult aortic arch anatomy with and without a new dedicated guiding catheter: preliminary experience. Eu Radiol 2013; 23: 1420-28.
2. Piero M, Stefano G, Paolo M, Daniela T, Franco F, Alessandro L, et al. Carotid Artery Stenting in Patients With Left ICA Stenosis and Bovine Aortic Arch: A Single-Center Experience in 60 Consecutive Patients Treated Via the Right Radial or Brachial Approach. JEVT 2014; 21(1): 127-13.
3. Giorgio V, Giuseppe BZ, Guido B. Choose the Appropriate Access Route in Bovine Arch and You Will Turn a Complex Left Carotid Artery Stenting Procedure Into a Simple One. JEVT 2014; 21(1): 137-39.
4. Giorgio V, Giuseppe BZ, Filippo M, Francesco L, Leonardo B, et al. A Tailored Approach to Overcoming Challenges of a Bovine Aortic Arch During Left Internal Carotid Artery Stenting. JEVT 2012; 19(3): 329-38.
5. Wei-Chieh L, Hsiu-Yu F, Huang-Chung C, Shu-Kai H, Chih-Yuan F, Chien-Jen C, et al. Comparison of a Sheathless Trans-radial Access With Looping Technique and Transbrachial Access for Carotid Artery Stenting. JEVT 2016; 23(3): 516-20.