

Unusual Complication of Covered Endovascular Reconstruction of Aortic Bifurcation

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Introduction: We describe an unusual complication in a 51 year old male patient following CERAB in which the patient had proximal migration of the left limb of the covered stent although patent, whilst the contralateral right limb had occluded.

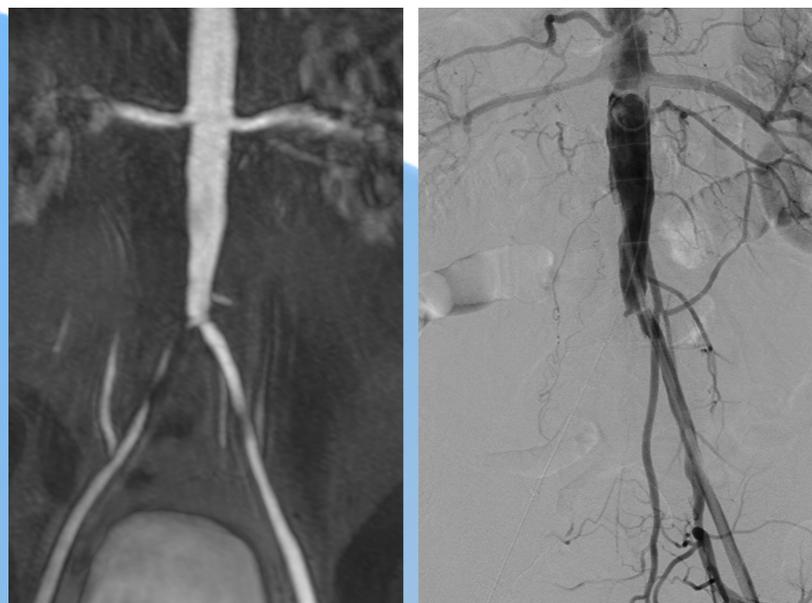


Fig 1: Initial MR Angiogram and on-table angiogram demonstrate tapered distal aorta with occluded right common iliac artery and critically stenosed left common iliac artery origin

Clinical History: A 51 year old obese male smoker with COPD presented with one month history of right leg claudication. MR angiogram demonstrated stenosis of the distal aorta, occluded right common iliac artery (CIA) and critically stenosed origin of left CIA. There was no significant infra-inguinal vascular disease.

Due to the patient's co-morbidities, the multidisciplinary team decided to perform Covered Endovascular Reconstruction of Aortic Bifurcation (CERAB) rather than aorto-bi-femoral graft or aorto-uni-iliac graft with right to left femoro-femoral cross-over graft.



Fig 2: Aortic and bi-iliac stent deployment, completion angiogram demonstrating patency of the stents

Procedure : Bilateral ultrasound guided common femoral artery punctures, 6 French sheath access on the right and 7 French sheath access on the left. The CERAB involved deployment of a 10 x 80 mm balloon expandable Atrium stent within the distal aorta. An attempt was made to flare the upper portion of the aortic stent to 16 mm but it would not expand beyond 14 mm. Two atrium stents - 6 x 60 mm extended with 6 x 40 mm were placed into the right CIA and one 6 x 40 mm stent into the left CIA.

A sliver of contrast was noticed around the upper part of the at the stent but further attempts to flare the Atrium stent to 16 mm were unsuccessful. This was accepted and completion angiogram demonstrated good position and patency of the stents with good 3 vessel distal run off in bilateral legs.

Bilateral CFA punctures were closed using "Perclose" closure device

Complication: Four weeks later the patient presented with an acutely painful, cold, pulseless right leg with paraesthesia and sensory loss. CT angiogram demonstrated an occluded right CIA stent causing the symptoms. Interestingly, the left CIA stent had migrated up into the aortic stent but it remained patent. Patient underwent an aorto-bi-femoral graft successfully without any further complications.

Possible Cause: It is difficult to explain the cause of the left CIA stent migration.

One possible explanation is that the 10 mm diameter stent within the aorta and 6 mm stents within the common iliac arteries were probably small. This may have resulted in the stents sitting loosely within the respective vessels, and the left CIA stent may have been pushed upwards by the "Perclose" closure device while the left CFA access was being closed.

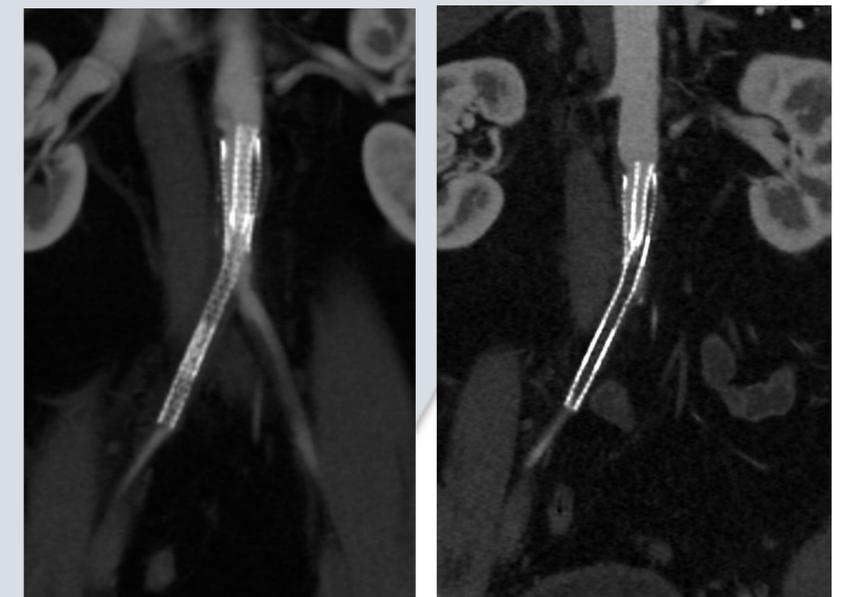


Fig 3: CT angiogram demonstrates occluded right CIA stent and proximally migrated left CIA stent

Conclusion: The CERAB technique is a safe and feasible alternative to open surgical reconstruction of the aortic bifurcation in complex occlusive disease. Procedural complications include vascular injury, stent occlusion and distal emboli among others.

The complication we have described is unusual in which the stent has migrated proximally rather than distally. One possible cause is the smaller diameter of the stents used and the usage of perclose device. This complication should be borne in mind whilst using closure devices after placing iliac stents.