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## **TUNNEL STENT TECHNIQUE AS AN ALTERNATIVE TREATMENT FOR LEFT MAIN PROTECTION IN VALVE-IN-VALVE TRANSCATHETER AORTIC VALVE IMPLANTATION**

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**Rational:** Coronary protection is crucial when performing percutaneous aortic valve-in-valve procedures in order to prevent coronary artery occlusion (CAO) in patients at risk and the most commonly used technique is Chimney stenting. Here we report the case of a 66 years old woman, previously submitted to surgical aortic valve replacement with aortic homograft, who subsequently developed severe aortic stenosis for which a valve-in-valve transcatheter aortic valve implantation (TAVI) was planned with Chimney technique that was then modified as tunnel technique in order to create a more physiological structure between left coronary artery ostium and aortic root possibly reducing the risk of intrastent thrombosis.

**Technical resolution:** After the computed tomography angiography evaluation, left coronary artery resulted at risk of CAO and TAVI procedure was started using Chimney technique for left coronary protection. However, after valve implantation, the procedure was modified as tunnel technique as following: after the retraction of the first catheter used for left coronary cannulation, though leaving the coronary wire in situ, the coronary was reaccessed with another catheter through the cells of the prosthetic valve frame and another wire was put in left coronary and two stents were implanted between the frame of the aortic prosthesis and coronary ostium.

**Clinical implications:** We created a continuous tunnel between left coronary ostium and biprosthetic valve frame, as straight as possible; even if it was not perfectly straight and some curves were present in its course, they were sweeter than the right angle created with Chimney, possibly leading to a reduction in stent thrombosis and death at follow-up, also because the structure built between coronary stents and biprosthetic valve frame resulted more physiological being more similar to aorto-coronary anatomy with respect to that obtained with Chimney stenting.

**Perspectives:** Tunnel technique can be used as an alternative treatment to Chimney stenting when coronary protection is required during percutaneous aortic valve-in-valve procedures and might reduce the risk of coronary thrombosis and death during follow-up in these patients; however, tunnel technique is a procedure longer than Chimney, can require a larger amount of contrast medium and coronary reaccess may be challenging, so that the selection of patients in whom performing this new strategy should be carefully evaluated.