







Percutaneous balloon aortic valvuloplasty via transbrachial access

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Introduction: Aortic stenosis (AS) is the most common valvular disease in adulthood that prevents normal opening of the aortic valve and limits blood flow during systole. The typical symptoms of severe AS are shortness of breath, chest pain, and syncope. Treatment of AS depends on the disease severity and the patient's risk profile. Severe AS is treated with percutaneous balloon aortic valvuloplasty (BAV), transcatheter aortic valve implantation (TAVI), or surgical valve replacement. The first percutaneous BAV was performed by A. Cribier in September 1985 in a 72-year-old patient with severe symptoms who was denied surgical valve replacement due to her age, and the procedure resulted with excellent result. Nowadays, BAV as a minimally invasive procedure is performed in high-risk patients with severe AS as a bridge to surgical aortic valve replacement or TAVI.^{1,2} The first-choice vascular access in BAV procedure is the femoral artery. However, sometimes the procedure must be performed via an alternative arterial route, that is the case in patients with severe peripheral disease or diseases of the aorta, like coarctation. *Aim:* To present an alternative vascular access to perform percutaneous BAV via transbrachial access.

Case report: 79-year-old patient was hospitalized due to severe AS. The patient had many comorbidities, including extensive malignant disease under active treatment, cardiomyopathy, and stenosis of the descending aorta. Because of this a team of cardiologists and oncologists decided for BAV treatment. CT aortography showed tortuous aorta and coarctation, and it was decided to perform BAV via the brachial artery. The brachial artery was punctured, the ProGlide was placed and 8F sheath was inserted. A coronary angiography revealed normal coronary arteries. Using the right coronary catheter the straight wire was inserted into the left ventricle and then replaced with an Amplatz superstiff wire. The right radial artery was punctured to place a protective wire in the right subclavian artery. Aortic valvuloplasty was performed via transbrachial access with a 20 mm balloon dilatation during electrostimulation of the heart at 180/min. Control ventriculography showed no aortic regurgitation and the patient increased her systemic arterial pressure for 20 mmHg. After the procedure, the right brachial artery was successfully closed with the ProGlide device with angiographic confirmation. The patient was discharged on the next day.

Conclusion: BAV is a minimally invasive procedure performed under local anesthesia and used in palliative care or a bridge to surgical aortic valve replacement or TAVI. Transbrachial access is an alternative vascular approach for BAV procedure that may be needed in patients with severe peripheral arterial or aortic disease.

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LITERATURE

- Hosokawa S, Hiasa Y, Seno A, Yasuoka T, Izumi T, Ogura R. Predictors of early restenosis after intracardiac echocardiography guided antegrade balloon aortic valvuloplasty in high-risk or inoperable patients. *Cardiovasc Interv Ther.* 2018 Apr;33(2):109-115. <https://doi.org/10.1007/s12928-016-0451-8>
- Schneeberger Y, Schaefer A, Schofer N, Silaschi M, Deuschl F, Blankenberg S, et al. Transcatheter aortic valve implantation utilizing a non-occlusive balloon for predilatation. *Int J Cardiol.* 2019 Jan 15;275:65-69. <https://doi.org/10.1016/j.ijcard.2018.10.059>