

# Aortic Root Enlargement or Sutureless Valve Implantation?

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## Abstract

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Aortic valve replacement (AVR) in patients with a small aortic annulus is a challenging issue. The importance of prosthesis–patient mismatch (PPM) post aortic valve replacement (AVR) is controversial but has to be avoided. Many studies support the fact that PPM has a negative impact on short and long term survival. In order to avoid PPM, aortic root enlargement may be performed. Alternatively and keeping in mind that often some comorbidities are present in old patients with small aortic root, the Perceval S sutureless valve implantation could be a perfect solution. The Perceval sutureless bioprosthesis provides reasonable hemodynamic performance avoiding the PPM and providing the maximum of aortic orifice area. We would like to see in the near future the role of the aortic root enlargement techniques in the era of surgical implantation of the sutureless valve (SAVR) and the transcatheter valve implantation (TAVI).

We read with great interest the case report written by doctor Selman Dumani et al and we would like to congratulate them for their successful fourth redo procedure and for their publication in this valuable journal [1]. It is well known that in order to avoid the patient-prosthesis mismatch (PPM) there are some techniques like Manugian [2] and other surgical procedures. As referred in the international bibliography [3], stentless valve is another option. Recently the sutureless valves seem to be a good tool to avoid PPM [4]. The sutureless valves, like Perceval S aortic valve, are bioprosthetic valves indicated in old patients with comorbidities and small aortic root. We have used also the Perceval S valve in some "difficult" cases like in patient with achondroplastic Dwarf [5] and in porcelain aorta with great results.

Taken all these information about small aortic root, we would like to ask the authors about the use of a Perceval aortic valve in their patient. Their patient was young (52 years old) but high risk and without very long life expectancy. They did not refer at all the sutureless valves; is there any issue using this tool? Then, there is the valve-in-valve procedure in case of sutureless valve degeneration. What's the author's

opinion about this dilemma? In our opinion, in the era of sutureless aortic valve and the trans-catheter techniques, in order to avoid a severe PPM we may take under consideration these options. Especially in high risk patients with comorbidities and small aortic root the Perceval S valve is the ideal solution. It minimizes the cross clamp time, it is not necessary to work with the annulus because it is self-expanding without any suture in the aortic annulus. With the Perceval S valve implantation we achieve the maximum possible of the effective orifice area avoiding the PPM while we offer a brief intervention in patients with small aortic root [4].

We really would like to know the future of the surgical techniques of aortic root enlargement in the "modern" cardiac surgery and interventional cardiology era.

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