Docket #: S22-333

Geometric Aortic Graft

Stanford researchers at the Woo Lab have developed an innovative supra-hemostasis aortic graft, an advanced version of conventional aortic grafts. Current aortic grafts do not have reinforced suture area which can cause bleeding around the anastomosis line.
The key feature of this graft is a distal segment with a slightly larger diameter than the main graft, enabling the creation of a smooth, double-layered aortic graft when folded down. An interior skirt becomes an extension of the aortic graft after folding, providing an extra layer for suturing or serving as the sole suture line.
This design offers versatility and aims to address the common issue of bleeding in aortic procedures, providing reinforced suture areas to mitigate concerns about bleeding around the anastomosis line. The device is applicable for aortic root or aortic arch anastomosis, allowing for a double-layered, reinforced anastomosis with the added benefit of the supplementary skirt for enhanced suture line reinforcement.

Stage of Development
Prototype Design

Figure

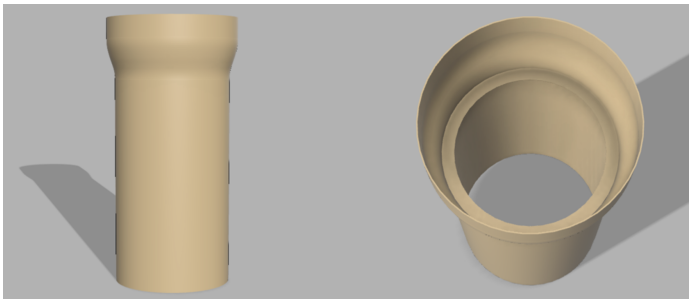


Figure description: CAD renderings of composite inclusion graft (*Image Credit – Woo Lab*)

Related Technologies

Stanford Docket S22-308 "Composite Inclusion Graft for Ross Procedure" describes a composite inclusion graft that addresses several challenges associated with the Ross procedure, such as late autograft dilation. This inclusion technique was developed to support the autograft and prevent this late autograft dilation.

Stanford docket S22-404 "Innovative prosthetic valve design for severe mitral annular calcification" describes an innovative prosthetic valve which ensures a perfect seal to eliminate risk of potential para-valvular leaks.

Applications

- Aortic graft for aortic valve replacement procedures

Advantages

- Allows for a double-layered, reinforced anastomosis
- Creates a stronger hemostatic seal, reducing bleeding during surgery
- Intuitive to use
- Easy to incorporate

Patents

- Published Application: WO2024229417
- Published Application: 20260047918

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