

**Boston Scientific's Clampless Heart Surgery
HEARTSTRING® II Proximal Seal System**
Kristin Meader Biomedical/ Electrical Engineer

Boston Scientific's mission "is to improve the quality of patient care and the productivity of health care delivery through the development and advocacy of less-invasive medical devices and procedures." Boston Scientific is one of the largest medical device company dedicated to less-invasive medicine, has over 28,000 employees, 26 manufacturing, distribution & technology centers, delivering more than 15,000 products in over 45 countries, investing nearly \$6 billion in new technologies over the past five years, enrolling tens of thousands of patients in pre- and post-approval clinical studies, and contributes more than \$25 million annually to research, education and local communities.

"Off-pump beating heart coronary revascularization is a valuable surgical technique for high-risk patients, particularly those with severe atherosclerotic changes of the aorta, COPD, recent stroke, or for those in whom blood administration is contraindicated." Certain devices that were patented by Boston Scientific now make this surgery less invasive. These devices position the heart and keep the area steady so that the surgeon can work. This prevents the heart from beating and produces positive effects. Candidate for coronary artery bypass graft surgery should consider Clampless Beating Heart Surgery as an option for a less invasive procedure.

The HEARTSTRING® II Proximal Seal System is designed to "help reduce the release of emboli associated with the side-biting clamp. HEARTSTRING® II allows you to achieve clampless hemostasis during proximal CABG anastomoses while suturing with your own hand." This system allows the surgeon to use hand-suturing techniques without a side-biting clamp.

The procedure includes several steps that show how this product is less invasive. First, a cut using proprietary cutters creates a clean circular aortotomy. Next, a coiled seal is deployed through the aortotomy. The coiled seal is positioned against the inner aortic wall and anastomosis is performed with conventional suturing. Finally, the seal is uncoiled and withdrawn before final tightening of stitches. The HEARTSTRING II Proximal Seal System gives accuracy and precision to Clampless Beating heart surgery.

Benefits include fewer traumas to the body, since the heart-lung machine is not used. Also, fewer cognitive and neurological effects (for example, a stroke) may also occur. There is less risk of problems with memory, and faster recovery rates and shorter hospital stays are always an added bonus. Lastly, fewer blood transfusions may be needed in the near future.



References :

1. http://findarticles.com/p/articles/mi_qa4100/is_200601/ai_n16027950/pg_5
2. <http://www.brighamandwomens.org/vascularsurgery/PeripheralVascular.aspx>