Cleveland Clinic Innovations

Vascular Hemostasis Band

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PRODUCT

Novel Aortic and Arterial Encircling Method for Immediate Hemostasis Control and Bleeding Prevention.

INDICATION

Cardiology, Hemostasis

VALUE PROPOSITION

- Immediate method to stop bleeding with no surgical fixation to vascular wall.
- Manages high-pressure bleeds as well as continuous oozing.
- Band properties remain unchanged post-application vs. surgical sealants and other hemostats.
- Biocompatible and non-dependent on coagulation properties

DEVELOPMENT STAGE

- Prototype available
- Animal studies

INTELLECTUAL PROPERTY

US Patent: 11,172,932

CONTACT INFORMATION

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UNMET NEED

Persistent oozing and bleeding can occur at any time during surgical procedures involving anastomosis or any invasive manipulation on major vessels, including the aorta. The bleeding may become uncontrollable due to coagulopathies caused by long cardiopulmonary bypass time, resulting from induced hypothermia, acute dissection of the aortic wall, and multiple holes in the graft or aorta made by the suture needle. Several methods have been used by surgeons to manage the bleeding, reinforce the bleeding site, and secure the hemostasis. Most of these are hand-made in the operating room, never ready-to-use or available prior to application, and not standardized. There is a need for a standardized solution to control and prevent persistent oozing and bleeding during surgical procedures.

SOLUTION

This device consists of a band wrapped circumferentially around a blood vessel to rapidly contain bleeding from vascular repair sites during various types of surgical repair of vascular tissues (normal, ruptured, or frail). The following features of the device cause the hemostasis: 1) mechanical concentric force applied circumferentially on the vessel, graft, or both; 2) the specifically designed internal surface of the device contains a dedicated tread to isolate each bleeding point from another, limiting the blood flow and redistributing the blood material (liquid blood or clots) between the device and the surface of the vessel of a graft. In addition, the device surface acts as a thrombogenically active plane, promoting immediate clotting. The band incorporates an array of containment chambers to provide an unprecedented level of hemostasis.