Vascular Anastomosis Device

Tech ID: 32673 / UC Case 2021-924-0

ABSTRACT

Researchers at the University of California, Davis have developed a surgical device to facilitate vascular anastomosis procedures with enhanced ease and speed.

FULL DESCRIPTION

Vascular anastomosis is the process where two ends of a severed blood vessel, such as an artery or vein, are sewn together to establish blood flow. This procedure is typically performed by hand, and takes an experienced surgeon around 45-60 minutes to complete. The duration of this procedure is significant since during this time the surrounding tissue does not have access to blood flow and could be damaged. There is one vascular anastomosis device (VAD) on the market that can replace hand-sewing, but it has limited capabilities. For instance, the operation time using this device is around 20-100 minutes, which could cause oxygen depravation to certain tissue, and it also requires a high level of surgical skill to operate. Furthermore, this device cannot be used on blood vessels with a diameter larger than 5 mm. A more sophisticated VAD is needed to overcome these challenges and improve surgical success and improve patient outcomes.

Researchers at the University of California Davis have developed a vascular anastomosis device (VAD) with improved features and usability. It uses a disposable cartridge where both ends of the vessel are inserted. Cartridges come in variable sizes for use in different sized vessels and have self-aligning magnets to ensure proper alignment/placement. The vessels are held in place with suction that is achieved through an attachment to medical grade compressed air that is already available in operating rooms. With both ends of the vessel held securely in place, they are then attached using a pneumatically fired stable to finish the procedure and establish blood flow. This entire process takes around 2-5 minutes, significantly faster than hand-sewing as well as the existing VAD that is commercially available. This device overcomes many of the limitations of the competing VAD and can greatly improve surgical procedures that require vascular anastomosis.

APPLICATIONS

- Use in surgical procedures than involve vascular anastomosis

FEATURES/BENEFITS

- Enables rapid procedures that can be completed in 2-5 minutes
- Low surgical skill or training required
- Quill-dart staples make the cartridges easy to manufacture

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20250221711	07/10/2025	2021-924

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OTHER INFORMATION

KEYWORDS

vascular anastomosis, VAD, surgical device, medical device, artery bypass surgery

CATEGORIZED AS

- **Biotechnology**
  - Other
- **Medical**
  - Devices
  - Disease: Cardiovascular and Circulatory System
  - Other

RELATED CASES

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