

# Percutaneous vascular anastomosis: a device for creating a minimally invasive vascular access

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## Technology description

### Invention

This device consists of an expandable tubular graft that when unsheathed completely creates a branch anastomosis. The device is image guided, minimally invasive, does not require fine suturing, and requires a significantly lower level of procedural training.

### Background

Hemodialysis replicates kidney functions for those with renal failure, filtering waste out of blood. Blood is taken out, treated, and replaced. Dialysis may occur three times a week with three to four hour long sessions. The traditional methods to get access to the blood involve surgery in the arm or leg through which a vein is artificially connected to an existing artery. The heart pumps blood out through arteries and blood returns through veins. Dialysis involves a high flowrate through an artificial entry, and a fistula or graft allow the vein to better accommodate this change. However, that risks infection and fails 60% of the time. A simple percutaneously created anastomosis device is needed. Such a device would obviate the need for an open surgical procedure replacing it with a closed, sutureless, through-the-skin approach serving as the foundation for alternative forms of dialysis to be developed. Such a device would be disruptive to current methods and would significantly reduce the morbidity, mortality, expense and availability of chronic dialysis.

## Application area

Creates vascular access for dialysis.

Opens the door to other potential applications arterial bypass, traumatic vascular injury, and/or venous access.

## Advantages

The device allows for completely different procedural approaches to be considered freeing the way for new minimally invasive methods of providing hemodialysis.

Simplify existing patient care and exposure to major surgery, ideally to the extent that a skilled nurse or similar practitioner could place a small inexpensive device at bedside.

Is minimally invasive and does not require fine suturing.

Requires a significantly lower level of procedural training than open surgery.

## Institution

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