Rapid Clearance of Acute Thrombus From The Large Veins: The AngioVac System

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Disclosures
- Angiodynamics
- BTG Corporation

Background
- Large Venous Thrombus is a challenging clinical problem
- Percutaneous and Open techniques have been used for decades, however technical challenges remain

What is the AngioVac
- The AngioVac Cannula is indicated for use as a venous drainage cannula and for removal of fresh, soft thrombi or emboli during
- Target vessels for thrombus/embolus extraction include, but are not limited to, the iliac and femoral veins, Inferior Vena Cava (IVC), Superior Vena Cava (SVC) and Right Atrium (RA)

FDA Status
- Vortex Medical Founded in 2008
- Original clearance March, 2009
- Subsequent clearance March, 2014

Background
- Large volume percutaneous thrombectomy has historically been associated with significant blood loss
- Open surgery can carry a high complication rate during intra-cardiac and intra-abdominal thrombectomy
The Right Patient

- Pre-Operative imaging and case planning are the keys to success
  - Is this acute thrombus or a mobile entity?
  - Would I expect it to come off the vessel/cardiac wall?
  - Do I have a back up plan and a bail out plan?
  - What other adjuncts do I need to complete this case?
    - Filter removal, Mechanical Thrombectomy, Lysis, Snares etc...

AngioVac Case Volume

- Tricuspid Valve
- Lead Embolism
- Pulmonary Embolism
- Other

What is in the “AngioVac kit”

- 22 Fr Cannula with tip
- Circuit Tubing
- Filter
- Pump Head

Cannula Placement

- 18 Fr reinfusion cannula into a 20 Fr Sheath
  - I don’t use the reinfusion cannula directly in the patient
- 22 Fr AngioVac cannula into a 26 Fr Sheath
**Cannula placement**
- Insert the cannula over a wire
- Once the cannula is in place remove the inner obturator

**Connect the circuit.**
- Flush all tubing and prime the circuit
- Connect the suction and reinfusion cannulas to the circuit

**Going “On Pump”**
- ACT of > 300
- Inflate the angiovac balloon to 1-2 mmHg
- Start the centrifugal pump attempting to achieve a volume flow of 2500-3000 cc/minute
- Become comfortable with the pump speeds, volume flows and use of tubing clamps

**Primary Angiovac thrombectomy**
- Advance the angiovac cannula towards the thrombus
- Utilize other techniques to embolize the thrombus into the suction cannula
- Advance the cannula to and into the thrombus

**Closure**
- Return Blood back to the patient
- Flush the Filter
- Remove the cannula and sheaths

**Sentara Norfolk Experience**
- 20 Cases with intermediate term follow up
  - 90% procedural success
  - 0 Patient Mortality
  - 3 access site complications
  - Once case terminated early
Case #1

- 52 year old woman with a history of DVT. Had a Trapese filter placed. Anticoagulation stopped.
- Presented with 3 days of abdominal pain and bilateral swollen legs.
- Venous Duplex demonstrated IVC and In Filter Thrombosis and Bilateral LE thrombus to popliteal Veins.
More data is needed

RAPID Registry
- Registry of AngioVac Procedure In Detail
- Enrollment started in August

The Future

Thank You