



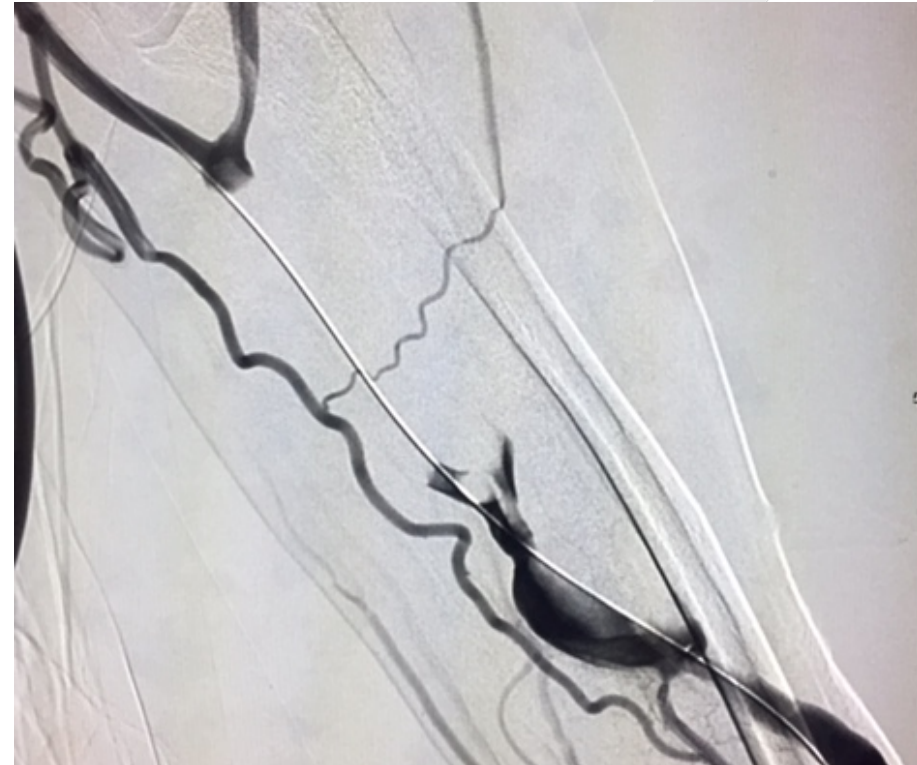
VASCUPEDIA

Aspiration Mechanical Thrombectomy in AV fistula salvage

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Background

- It is believed that native AV Fistula creation is superior to synthetic grafts, tunnelled dialysis lines, peritoneal dialysis access and any other form of dialysis access in managing patients with renal failure, where renal transplant is not possible.
- However these AV fistulas are not without complications.



AV Fistula thrombosis

- There are multiple causes for AV fistula complications.
- We will focus on the management of native/graft AV fistula thrombosis secondary to underlying stenosis, using mechanical aspiration technology.

*Note it is very rare to get AV fistula thrombosis without an underlying cause.



Current leading systems on the Market

No lysis needed systems:

Indigo ((Penumbra)) CATD/8/6



Aspirex[®]S ((Straub Medical))

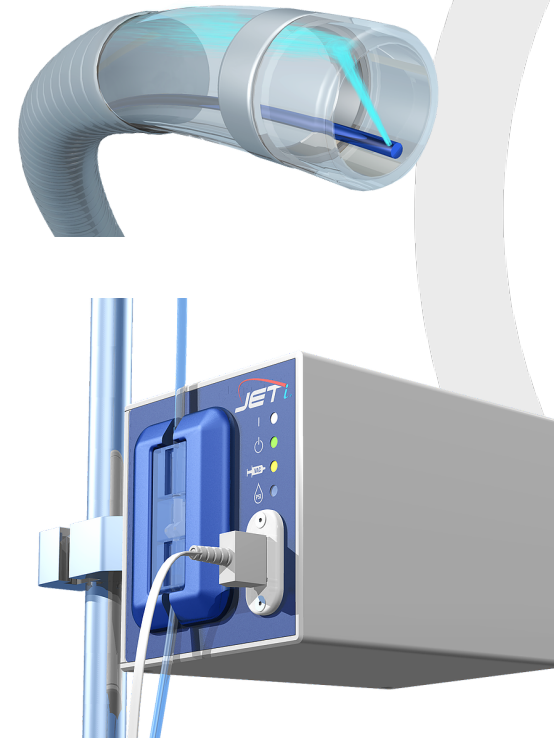


Continue

- Angiojet (Boston scientific)
lysis needed



- JETi (Walk vascular) No lysis



Future and developing technology from Neuro and Cardiology

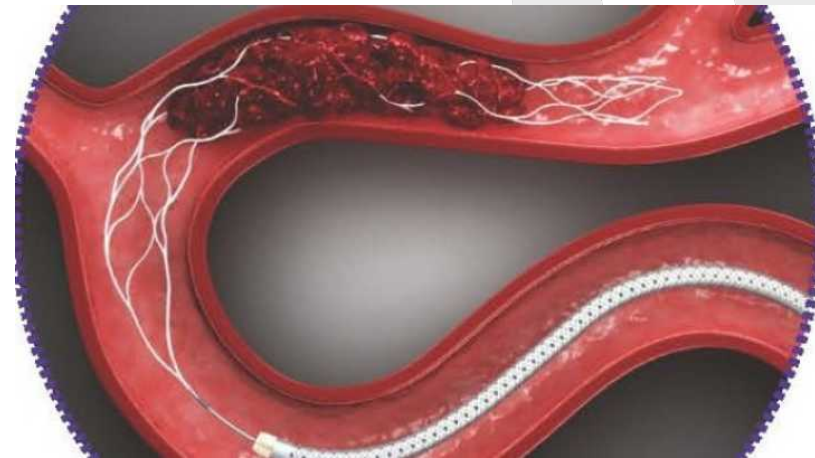
(Many others not listed in this presentation):

Sofia plus (Microvention)



Trevo Retriever (Stryker)

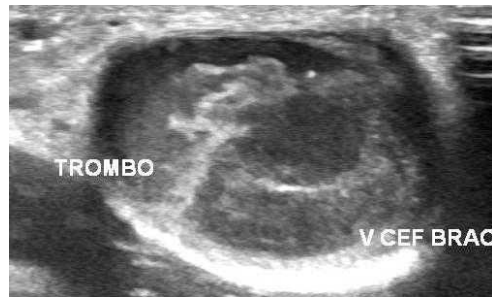
<https://youtu.be/PxcERzyl67I>



Management

- It is important to have a service in place aimed at identifying early fistula complications:

*Dialysis team, lead nursing staff, pressure measurements, access to dialysis clinics, early reporting of malfunction/complications and a team able to treat promptly.



- Endovascular techniques are paramount in this process:

- *Clinical assessment and history
- *Doppler USS studies
- *Fistulogram studies

It is important to quickly and aggressively assess the complication and treat as soon as possible to avoid further complications (clot progression/extension/chronic vs acute)

Management

- Access depends on clot location:
 - * Arterial Vs single Venous Vs double venous Vs central IJV puncture for sheath insertion.

Sheath type and size:

- * Soft valve sheaths (Merit/Terumo)
- * Short sheaths in most venous puncture cases. Long in some IJV access cases.
- * Size depends on system used, and stenosis to be treated after (Balloon size etc)

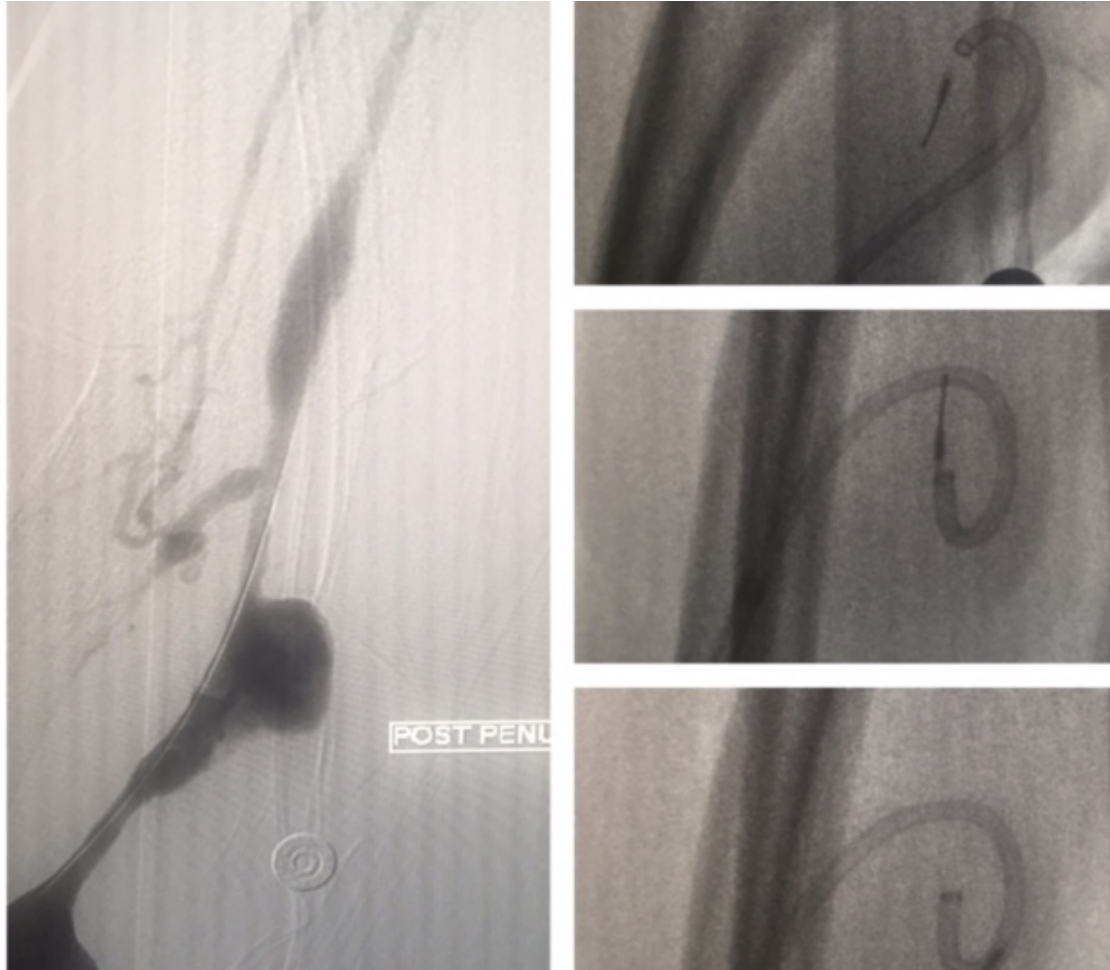
- Wire access:
 - Mostly hydrophilic (e.g Terumo glide)
 - If arterial anastomosis involved may choose 0.018 and 0.014 wires.
 - * Operator dependent.



System choice depends on the following factors:

- Patient potassium level
(Angiojet can not be used safely in hyperkalemia)
- Vessel size and sheath/catheter that can safely be used
- Lysis use contraindications and risks (Elderly, recent bleed, pregnancy)
- Vessel dynamics; straight vs aneurysmal vs loop
- Clot age (Acute Vs Chronic)
- Availability at time of procedure
- Cost of the system
- Day case VS over night bed access

Indigo CAT8 aspiration system to de-clot AV fistula

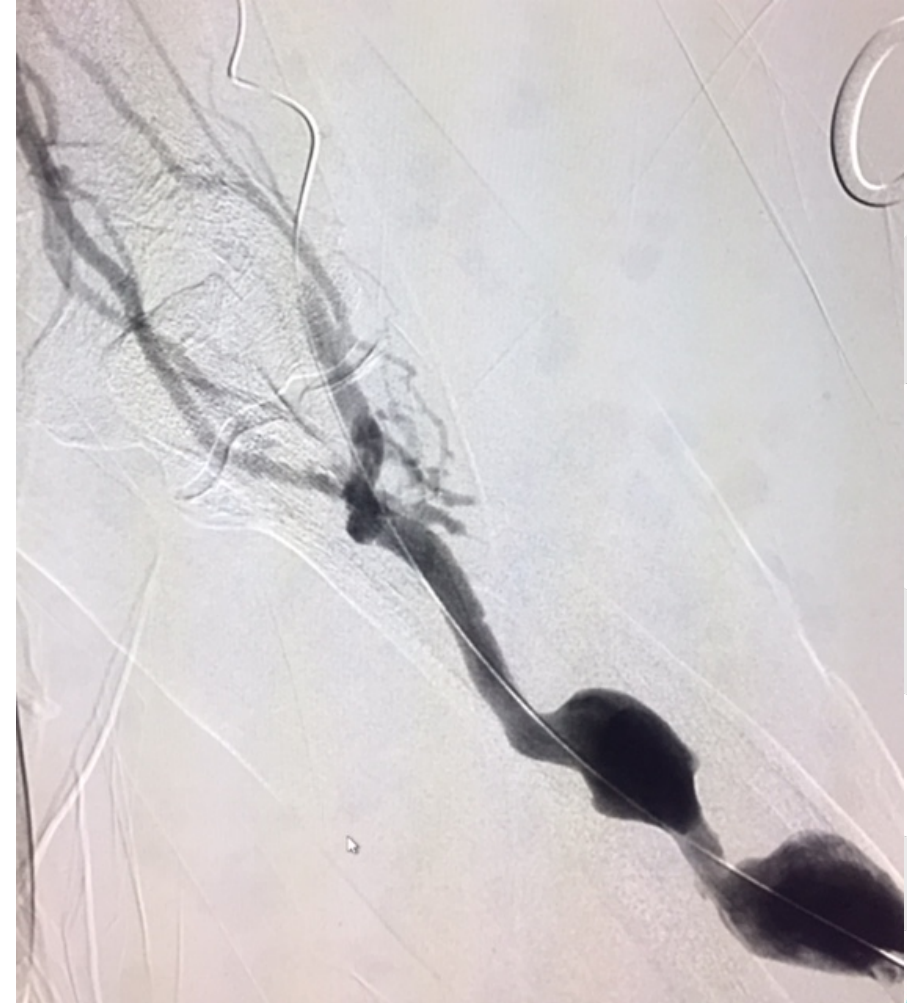
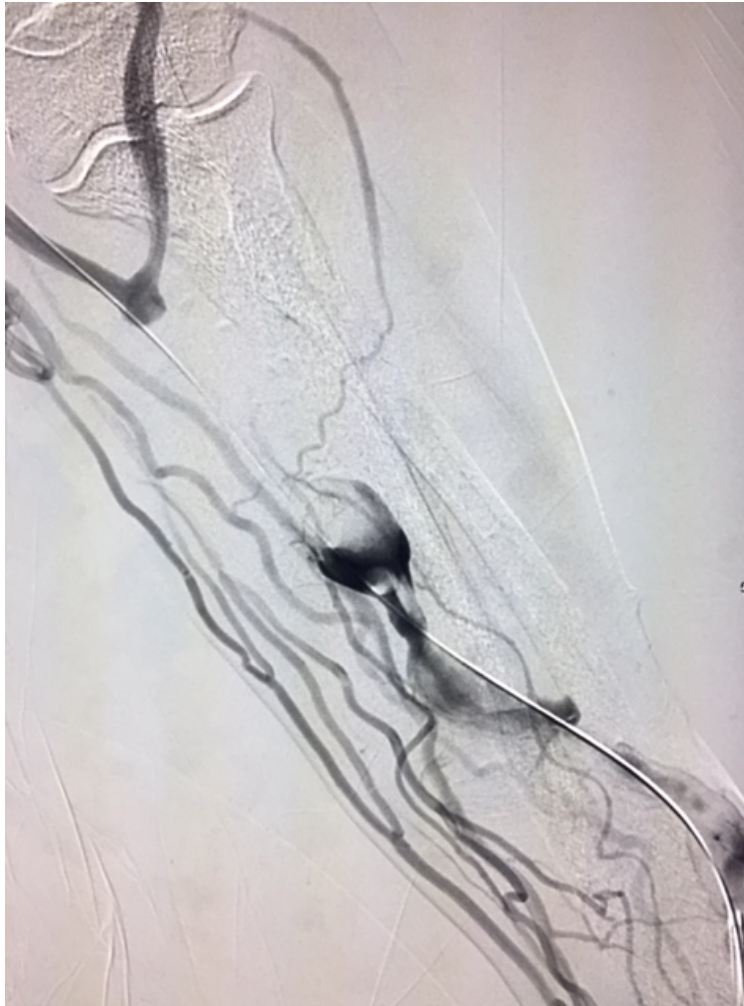


- I.V. Sedation: 50 units fentanyl
1mg midazolam (Important that patient experience is comfortable as possible as they are likely to return in future)
- USS guided infiltration of local 1% lidocaine to puncture site.
- 8Fr short sheath Merit medical
- 2000-5000 units of Heparin I.V.
- CAT8 Indigo/Sep8, Tubing for the mechanical aspiration pump system

Mechanical Aspiration



Mechanical Aspiration of AV fistula Clot



Treat underlying cause

Depending on cause and location the following options or combinations maybe considered:

- Standard balloon angioplasty
- High pressure balloon
- Drug coated balloons
- Cutting balloons
- Stenting

- Haemostasis: Sheath maybe left as access (A and/or V) for immediate dialysis.
- Manual compression following sheath removal.
- Other compression techniques: pressure via flow switch



Follow up

- This can be direct in immediate dialysis session: failed VS success
- Follow up Doppler USS studies
- Dialysis pressure monitoring
- Patient education and awareness



Conclusion

- AV Fistula for renal failure patients remains a popular and successful tool for dialysis access.
- Early prevention and intervention is likely to maintain its long term success. New technology such as mechanical aspiration for thrombosis is proving to be successful. More trials are needed to assess this and in particular the risks of TPA/lysis in this patient group.
- Having a system in place for clinicians and patients to pick up early complication signs and follow up post treatment are paramount and should be available in any trust providing this service to ensure success.
- Patient comfort during procedures and education throughout this journey are vital tools for compliance and patient satisfaction.