

## CASE 1

# Complex Thrombectomy and Fistuloplasty in a 56-Year-Old Male with ESRD and Diabetes Mellitus

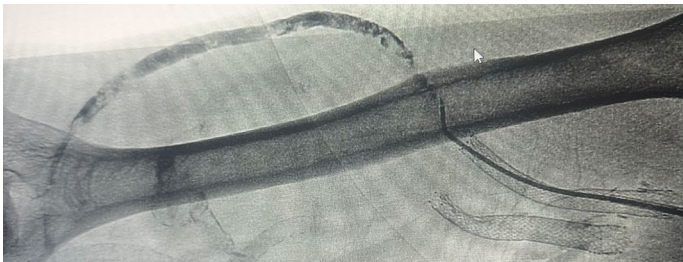
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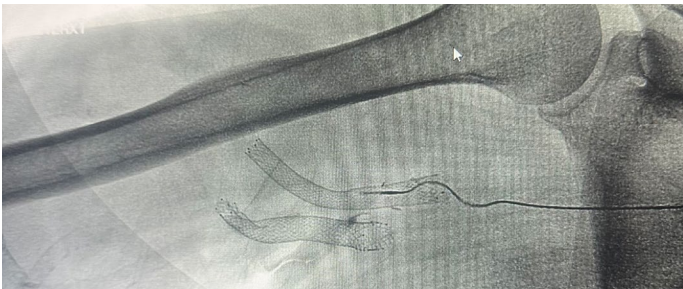
## CASE HISTORY

56-year-old male with a medical history of End-Stage Renal Disease (ESRD) and Diabetes Mellitus presented with a non-functional arteriovenous fistula (AVF) that had been unresponsive for 8 days. The patient, on dialysis for 2.5 years, had a history of three prior interventions on the AVF.

Upon examination, ultrasound revealed complete thrombosis of the fistula, extending from the inflow through stented sections to the subclavian outflow. Additionally, the patient had a tunneled catheter placed by general surgery at an external hospital.



**Fig 1. Initial fistulogram demonstrates thrombosis of non-stented portion of fistula.**



**Fig 2. Cleaner XT 135 CM used within stented section to restore adequate flow and patency.**

## PROCEDURE

The procedure began with central venous access via a right common femoral vein puncture, followed by the insertion of a 9 French 70 cm Flexor-Ansel high flex sheath into the subclavian vein.

A .035 Bentsen wire, guided by a C2 catheter, was navigated through the stented section. Thrombectomy was then performed using a Penumbra Cat 8 Torq 105 cm Lightning catheter in conjunction with a 135 cm Cleaner XT™ Rotational Thrombectomy Device, revealing a slurry of macerated thrombus in the post-maceration fistulogram.

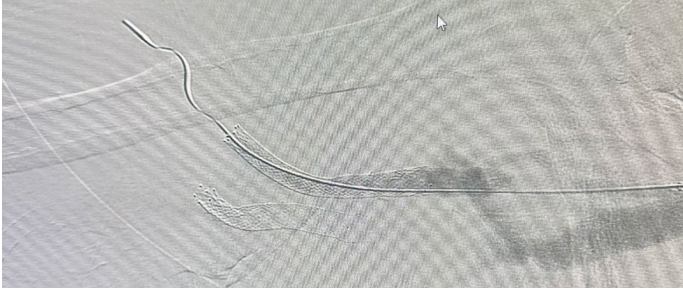
Subsequently, vacuum-assisted aspiration removed approximately 60 ml of thrombus and blood, and a 7 mm x 6 cm x 135 cm Dorado PTA balloon was utilized for serial fistuloplasty. The post-PTA fistulogram showed brisk flow through the stents with no residual thrombus.

To restore fistula flow, the Dorado balloon was advanced to the arterial anastomosis, and the plug was removed, resulting in a noted strong thrill during intra-procedure palpation. Closure of the procedure involved removing the devices and achieving hemostasis through manual compression at the femoral vein access site.

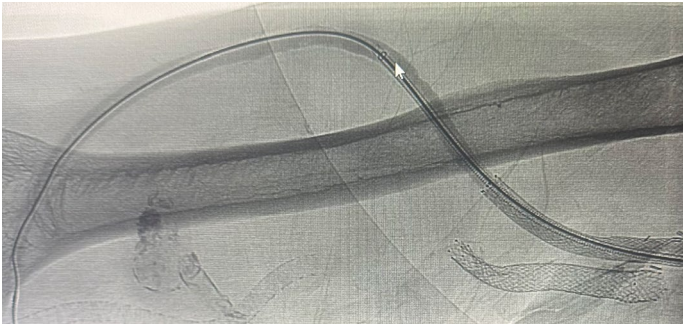
Post-procedure, the patient tolerated the intervention well, and no complications were observed during the 24-hour follow-up.

## CONCLUSION

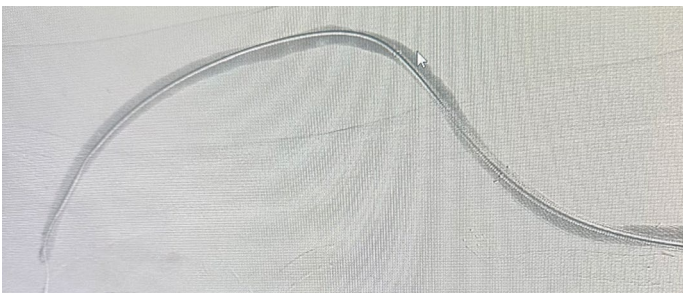
The case demonstrates a complex yet successful thrombectomy and fistuloplasty in a patient with a challenging history of ESRD, diabetes, and multiple prior interventions. The use of combined mechanical and aspiration thrombectomy techniques facilitated effective clearance of an extensive thrombus and restoration of functional flow in the AVF via central venous approach. The patient's post-procedural course was uncomplicated, highlighting the efficacy and safety of the approach.



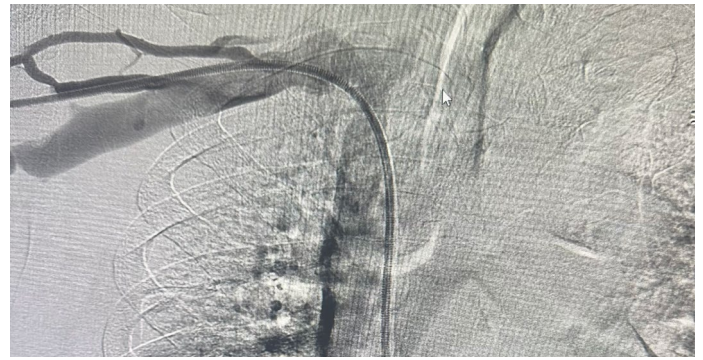
**Fig 3. Cleaner XT advanced through stents and treated thrombus burden on retraction.**



**Fig 4. Full restoration of flow.**



**Fig 5. Patent post Cleaner XT thrombus maceration.**



**Fig 6. Aspiration performed to central vein to ensure complete thrombus clearance.**

## REFERENCES

1. [The Cleaner XT™ Device as an Endovascular Adjunct for Pharmacomechanical Thrombolysis of Thrombosed Arteriovenous Fistulas and Grafts](#)  
Khian Wan Sarah Joy Huan, Chieh Suai Tan, Deborah Chua, Charyl Jia Qi Yap, Ru Yu Tan, Tze Tec Chong, Tjun Yip Tang. Published in Ann Vasc Dis. 2020 Dec 25;13(4):390-396. DOI: 10.3400/avd.20-00046.
2. [Cleaner XT Rotational Thrombectomy: An Efficacious Endovascular Technique for Salvage of Thrombosed Arteriovenous Access and a 12 Month Outcome Analysis](#)  
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3. [Safety and Efficacy of the Argon Cleaner Rotational Thrombectomy System for Hemodialysis Access Interventions](#)  
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## CASE 2

# Thrombectomy and Central Venous Access in Hemodialysis Graft Dysfunction

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## CASE HISTORY

A 72-year-old male with end-stage renal disease on hemodialysis presented with a non-functioning arteriovenous graft.

## PROCEDURE

The patient was brought to the interventional suite where access was gained via the right common femoral vein under ultrasound guidance. A thrombosed dialysis circuit was identified, and a decision was made to proceed with thrombectomy. A 6 French vascular sheath was placed, and selective catheterization of the dialysis graft was achieved with a diagnostic catheter under fluoroscopic guidance.



Fig 1. Initial venous access via right CFV.

## INTERVENTION

Mechanical thrombectomy was performed using the 135 cm Cleaner XT™ Rotational Thrombectomy device. This procedure successfully cleared the thrombus and restored flow within the graft. Venography post-intervention showed a significant improvement in the graft patency with residual stenoses of 30-40% in the cannulation zone, which were addressed with angioplasty.

**Prophylaxis:** Heparin was administered for deep vein thrombosis/pulmonary embolism prophylaxis.

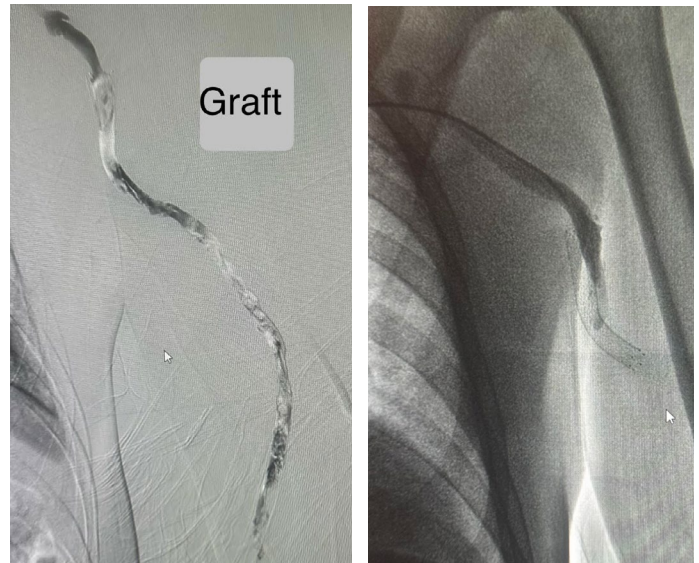


Fig 2. Left: Fistulagram demonstrates complete thrombosis of graft section.

Fig 3. Right: Central venous cannulation of graft from lower extremity with prior stenting demonstrated.

## CONCLUSION

The procedure was completed without immediate complications, and the patient exhibited stable vitals throughout. Estimated blood loss was less than 10 mL. The patient was observed post-procedure and then transferred to the recovery area in stable condition.

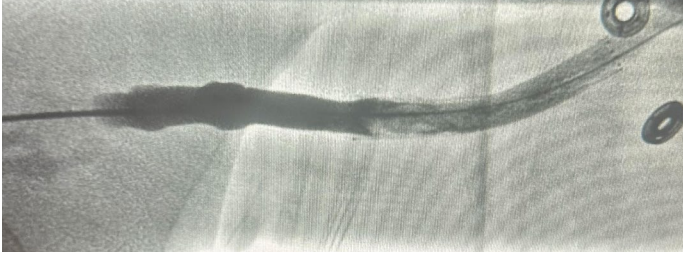


Fig 4. Large indwelling in-stent thrombosis demonstrated.



Fig 5. Cleaner utilized in graft and pulled back through stent to clear thrombosis and restore graft patency.

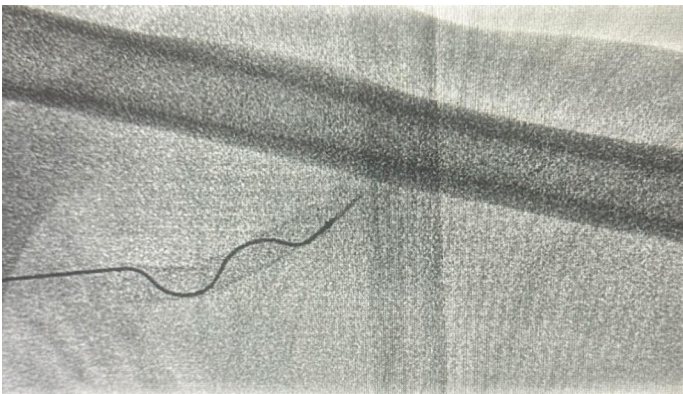


Fig 6. Cleaner treating in-stent thrombosis.

## FOLLOW UP

The patient will be monitored for graft function and signs of recurrent thrombosis or stenosis. It is recommended that the patient have regular ultrasound evaluations of the graft to preempt potential complications and ensure the longevity of the vascular access.

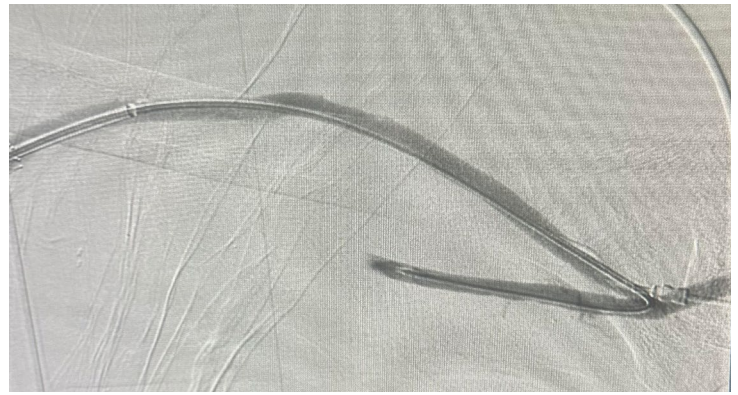


Fig 7. Restoration of flow and patency of graft to SVC.

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4. [Safety and efficacy of the Argon Cleaner Rotational Thrombectomy System for Hemodialysis Access Interventions.](#) Madassary, K. (2022). hmpgloballearningnetwork.com. (Retrieved Jan. 18, 2023)

**Patient Confidentiality: All patient-identifying information has been altered or removed to maintain confidentiality**

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