

Different Options For Thrombosuction Treatment in ALI: Which Device In Which Case & When to Go For Open Surgery



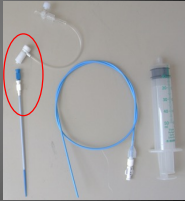
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Disclosures

- Speaker fees for W.L. Gore
- Speaker & Proctor fees for Cook Inc.
- Consultant Bentley Innomed GmbH
- Speaker fees for Artivion

Manual Thrombosuction for ALI

- 8F Sheath
– Removable Valve
- 8F/6F Aspiration catheter
– 1 end-hole
- 50cc Syringe




Newer Devices for Mechanical Thrombosuction




INDIGO Penubra

- Aspiration pump
- Catheter & separator



Evolution: Lightning Bolt

- Computer aided modulated aspiration
– Dual clot detection algorithms



Mechanical thrombectomy in acute limb ischemia: ad Interim results of the INDIAN UP Trial

Gianmarco de DONATO¹, Edoardo PASQUI¹*, Maria A. RUFFINO², Massimo SPONZA³, Angelo SPINAZZOLA⁴, Giuseppe GUZZARDI⁵, Francesco INTRIERI⁶, Daniele SAVIO⁷, Giancarlo PALASCIANO⁸, INDIAN UP Trial group¹

The Journal of Cardiovascular Medicine 2021; 22(10):1015-1024
DOI: 10.1177/1533312521104884

- 250 Pts with ALI treated with INDIGO
 - Rutherford Classification
 - I: 10.8%, IIa: 34.9%, IIb: 54.4%
 - Assisted technical success: 96.4%

→ INDIGO: Confirmed value in the treatment of ALI

STRIDE Multicenter Study

One-year limb salvage and quality of life following mechanical aspiration thrombectomy in patients with acute lower extremity ischemia

Thomas S. Maldonado, MD¹, Alex Powell, MD², Heiko Wendorff, MD³, Jarrad Rowse, MD⁴, Kharjan H. Nagarseeth, MD⁵, David J. Dexter, MD⁶, Alan M. Dietzek, MD⁷, Patrick E. Muck, MD⁸, Frank R. Arko, MD⁹, and Jayer Chung, MD¹⁰ for the STRIDE study group, New York, NY; Miami, FL; Munich, Germany; Birmingham, AL; Baltimore, MD; Norfolk, VA; Danbury, CT; Connecticut and Cincinnati, OH; Charlotte, NC; and Houston, TX


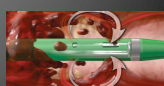
J Vasc. Surg. 2024;60:1159-68

- 16 Centers, 119 Patients
 - Limb salvage rate
 - 98.2% at 30 days, 88.5% at 1 year

→ INDIGO: Safe & Effective option for ALI

Angiojet

- Control Console + Pump
 - 1. Delivery of thrombolytic agent
 - 2. Thrombus Aspiration
- Catheter

Rheolytic Pharmacomechanical Thrombectomy for the Management of Acute Limb Ischemia: Results From the PEARL Registry

Journal of Endovascular Therapy
1-12
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sagepub.com/journalsPermissions.nav
DOI: 10.1177/1526280515592849

Daniel A. Leung, MD¹, Lawrence R. Bliz, MD², Teresa Nelson, MS¹, Ali Amin, MD, RVT³, Peter A. Soukas, MD⁴, Aravinda Nanjundappa, MD, RVT⁴, Mark J. Garcia, MD⁵, Robert Lookstein, MD⁶, and Eugene J. Simoni, MD⁶

- Multicenter Registry
- 283 pts, Thrombectomy with Angiojet
 - Technical Success: 83%
 - Additional Thrombolysis: 48%
 - Freedom from amputation at 1 year: 96%

→ Angiojet ± Thrombolysis: ↑ Limb salvage rates

Short-Term Complications and Outcomes in Pharmaco-Mechanical Thrombolysis First and Catheter-Directed Thrombolysis First in Patients with Acute Lower Limb Ischemia

Stefan Acsua,^{1,2} Emil Karonen,^{1,2} Frida Ekk,³ and Talha Butt,^{1,2} Lund, and Malmö, Sweden


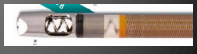
Ann. N.Y. Acad. Sci. 2013; 129: 211-262

- 347 pts
 - Angiojet vs Thrombolysis
- Similar rates of
 - Technical success, (86.2% vs 84.8%),
 - Major bleeding (15.5% vs 18.7%),
 - Distal embolization (25.9% vs 16.6%)

→ Angiojet: Good treatment alternative to thrombolysis

Rotarex S

- Generator
 - “Drive System”
- Catheter
 - Rotating helix and tip
 - Also for more chronic lesions

Percutaneous mechanical atherothrombectomy using the Rotarex[®]S device in peripheral artery in-stent restenosis or occlusion: a French retrospective multicenter study on 128 patients

Romarie Loffroy¹, Nizano Edris², Gilles Gouzanh³, Alain Chabanier⁴, Jean-Marc Pernec⁵, Antoine Sangnier⁶, Mehdi Touil⁷, Bernard Wweier⁸, Dionysios Pongas⁹, Olivier Chevallerie¹⁰, Nicolas Falvo¹¹, Christophe Gallaud¹², Marco Midolla¹³, Nathalie Garrier¹⁴, Marie-Pierre Guesfond¹⁵, Mathieu Bostin¹⁶, Serge Aho-Glege¹⁷, Stéphanie Boss¹⁸

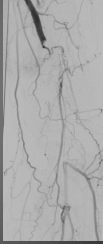
Quant Imaging Med Surg 2019;10(1):281-291

- 128 pts, In-stent Thrombectomy with Rotarex S
 - Technical success 96.9%
 - Adjunctive PTA: 74.2%
 - Adjunctive Stenting: 12.5%
 - Limb salvage @ 1 Year: 93.7%

→ Rotarex S: Effective for in-stent lesions

Case Example (1)

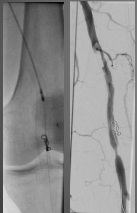
- 53 YO Male
- ALI 3 days ago, left side
 - Grade I
- Viabahn (PAA) 4 years before



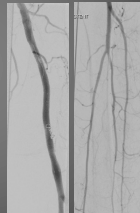
L. R. 21.12.2067

Case Example (1)

After Rotarex



After adjunct stenting



J Vasc Interv Radiol. 2024 Jan;35(1):25-31. doi: 10.1016/j.jvir.2023.09.022. Epub 2023 Sep 29.

Rotational Mechanical Thrombectomy to Treat Iliac Limb Occlusion after Endovascular Aortic Aneurysm Repair: The Rotational Mechanical Thrombectomy Italian Study


Gioele Simone¹, Giacomo Isenma², Felice Pecoraro³, Michele Antonello⁴, Giuseppe Guzzardi⁵, Ettore Dirotto⁶, Giovanni Feliani⁷, Bruno Migliara⁷

- 5 Centers, 23 patients limb occlusion after EVAR
 - 1 Acute limb ischemia, 11 claudication, 11 chronic limb threatening ischemia
- Technical Success: 100%
 - Relining: 82.6%

→ Rotarex S: Effective for iliac limb occlusion post EVAR

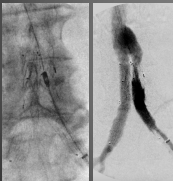
Case Example (1)

- 68 YO Male
- ALI 5 days ago, left side
- Iliac limb occlusion 20 days post-EVAR




Case Example (1)

After Rotarex

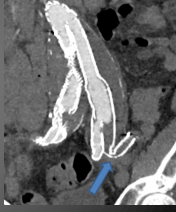


After Relining




Case Example (2)

- 68 YO Male
- EVAR + IBE Left
- EIA limb occlusion 9 days post-OP
 - Extreme angulation EIA



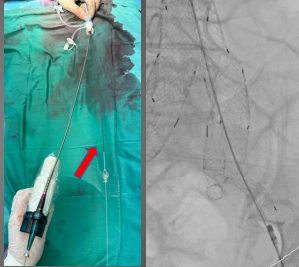
Courtesy Dr. Hasegaki

Case Example (2)



Courtesy Dr. Hasegaki

Rotarex parallel to "Buddy Wire" to straighten the angulation



Courtesy Dr. Hasegaki

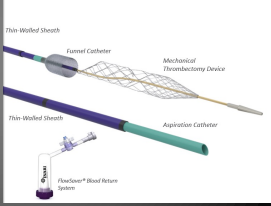
After Rotarex and Relining



Artix Thrombectomy System (Inari Medical)

Recently FDA-cleared for arterial thrombectomy

- Mechanical and aspiration devices
 - Acute & more chronic thrombus
- Over the wire system
- Blood return ability

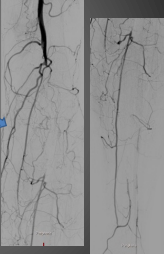


When to go for OPEN Surgery?

Long "acute-on-chronic" Occlusions

- 58 YO Male
- ALI 12 days ago
- Grade I

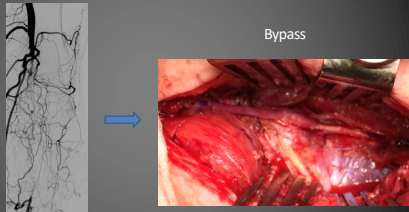
Collaterals



M.K. 20.08.1958

Thrombosuction failed...


Bypass



M.K. 20.08.1958

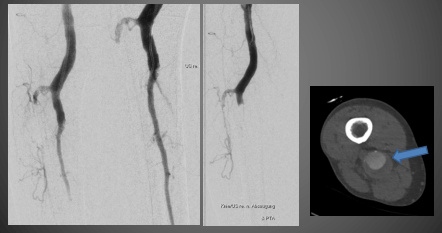
Popliteal Aneurysm

- 81 YO Male
- ALI 2 days ago
- Grade I



M.K. 20.08.1958


Thrombosuction failed...



M.K. 20.08.1958

Complications after Thrombosuction

- 73 YO Female
- ALI 6 hours ago
- Grade I

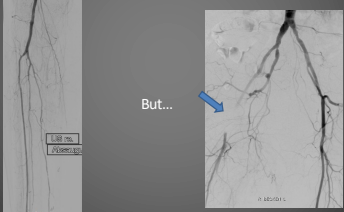


I.H. 22.04.1963

Successful Thrombosuction

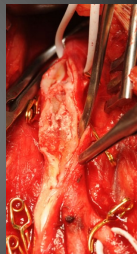
But...

Occlusion of CFA



I.H. 22.04.1963

- Femoral Thromboendarterectomy



I.H. 22.04.1943

Conclusions

- Newer mechanical thrombosuction devices
 - INDIGO Penumbra
 - Increasing use and increasing published results
 - Rotarex
 - Effective for in-stent stenosis/occlusion including iliac limbs
 - Also in more chronic occlusions
 - Avoid crural arteries (Risk of vessel injury)

Conclusions

- Open surgery
 - Long “acute-on-chronic” occlusions
 - Popliteal aneurysm
 - Failed thrombosuction
 - Complications after thrombosuction