Recanalisation of venous occlusions with Aspirex®S mechanical thrombectomy – the effective one session treatment, which largely replaces the need of thrombolysis.
Disclosure

Speaker name: Thomas Heller

- I have the following potential conflicts of interest to report:
  - Receipt of grants/research support
  - Receipt of honoraria and travel support
  - Participation in a company sponsored speakers’ bureau
  - Employment in industry
  - Shareholder in a healthcare company
  - Owner of a healthcare company

X I do not have any potential conflict of interest
Rationale for interventional treatment

- Therapy of the **acute** symptoms / phlegmasia
- Prevention of a postthrombotic syndrom
- Protection against pulmonary embolism
- Avoidance of a chronic thromboembolic PH
primary clinical indications

• symptomatic Iliofemoral Vein Thrombosis
• symptomatic Cervicobrachial Vein Thrombosis
• Vena Cava Thrombosis
• symptomatic Portal Vein Thrombosis
• (pulmonary Embolism)
• (no controindication against pharmocological lysis) or endovascular intervention
• (age of thrombus < 21 d)
Why to treat a proximal VTE EARLY?
Over time, thrombus organization begins with the infiltration of inflammatory cells into the clot. This results in a fibroelastic intimal thickening at the site of thrombus attachment in most patients and a fibrous synechiae in up to 11%. In many patients, this interaction between vessel wall and thrombus leads to valvular dysfunction and overall vein wall fibrosis. Histological examination of vein wall remodeling after venous thrombosis has demonstrated an imbalance in connective tissue matrix regulation and a loss of regulatory venous contractility that contributes to the development of chronic venous insufficiency.

Transmural, endovascular & perivascular inflammatory process results in a fibrous mass, membranes, spurs, scared tissue, destroyed venous walls, calcifications & cordlike obliterations.


Peculiarity of veins

Transmural, intraluminal inflammatory- and conversion-reaction leads to a solid, wall-adherent thrombus, membranes, septums, sails, calcifications, webs.

Low flow
What do we need to reach this goal?

Endovascular revascularisation system

- effective
- fast
- easy to use
- no or little side effects
- single use (definitively)
- no lysis drug, no ICU-stay
therapeutic options in the treatment of DVT

Conservative medical treatment (eg. LMWH, OAC, DOAC)

OP / Fogarty

Systemic thrombolysis

Endovascular approaches

- local thrombolysis, CDT
- thrombus fragmentation and removal by Ballon-PTA, Basket, Aspiration
- thrombus fragmentation
  - Tretorola (Teleflex)
  - Cleaner 15 / XT (Argon)
  - Mantis (Invamed)
- pharmacomechanical thrombolysis
  - AngioJet (Boston Sc.)
  - EkoSonic (BTG)
- mechanical thrombectomy devices
  - Aspirex (Straub)
  - Indigo (Penumbra)
  - Angiovac (Argon)
  - JETi (WalkVascular)
therapeutic options in the treatment of DVT

**CaVenT**: 57 hrs

**ATTRACT**: 24 hrs

**BERNUTIFUL**: 24 hrs, Comerota …
## Aspirex technical data

<table>
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<tr>
<th>Size</th>
<th>Length cm</th>
<th>GW</th>
<th>OD mm</th>
<th>rVD mm</th>
<th>Rotation rpm</th>
<th>MAC ml/min</th>
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<td>8-shape</td>
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</table>

GW - Guidewire, OD - outer diameter, rVD - recommended Vessel diameter, MAC - maximum aspiration capacity
Aspirex technical data
59 y m, MTS, desc. Iliofemoral DVT I
59 y m, MTS, desc. Iliofemoral DVT I
59 y m, MTS, desc. Iliofemoral DVT I
59 y m, MTS, desc. Iliofemoral DVT I
17 year old female patient, iliofemoral DVT left
14 year old female patient, iliofemoral IVC DVT right
24 month later
87 year old female patient, iliofemoral DVT left
Two center experiences for DVT thrombectomy with the Aspirex® catheter

24 Aspirex thrombectomy procedures
20 DVTs lower limb
4 DVTs upper limb

26 Aspirex thrombectomy procedures
23 DVTs lower limb
3 DVTs upper limb

Technical success analysis
Procedural details analysis
Safety analysis
6 month follow up patency analysis
26 patients (12 female = 46%), Mean age: 50
Duration of symptoms: 1 day – 6 months (and longer)
21 iliofemoral DVT (5 r, 14 l, 12 b)
2 descending IVC thrombosis (?, m 9 y, f 27 y)
3 subclavian vein thrombosis (2 Port, 1 idiop.)
Technical success = ready in cath lab: 96 % (25/26 patients)
Stent rate: 89 %
No SAE (bleeding, pulmonary embolism)
  o 2 perforations (brachial vein, CFV) no therapy
  o 1 wire loss snare
May-Thurner syndrome: 43.1 years, 66 % female
Cancer patients with more phlegmasia symptoms
Duration of symptoms: 1 day – 3 months
Hemodynamic technical success in cath lab with Aspirex and stent implantation: 100 % (24/24 patients)
No prolonged lytic therapy, just r-tPa bolus in 2 patients
Stent rate 100 %
Complications: No bleeding, PE
  o 2 small perforations in the CIV → stent
  o 1 wire loss → snared
Summarized Data

Technical Success: 49/50, 98%
Major complication: 0/50
Minor complication: 4/50, 8% perforation
  2/50, 4% wire loss
  6/50, 12%
6 month patency: 45/50, 90%
# System comparison

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<tr>
<th></th>
<th>Loc. Lysis</th>
<th>AngioJet</th>
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Conclusion

PMT with a mechanical thrombectomy device (Aspirex®S)
- reduces thrombus burden
- restores vein patency fast and effective
- preserves valvular function
- able to prevent PTS
- low risk, less adverse effects
- fast, low X-ray dose
- reduce lysis-time and drug
- reduce ICU stay
- „one stop shopping“

- able to remove material and to create channel
- multifunctional
- not only restricted to classic iliofemoral DVT
Thank you
Recanalisation of venous occlusions with Aspirex®S mechanical thrombectomy – the effective one session treatment, which largely replaces the need of thrombolysis

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