May-Husni Procedure in the management of severe symptomatic femoral vein occlusion

Saint-Petersburg, Russia

Evgeny Shaidakov, MD, PhD, Professor for cardiovascular surgery

May-Husni Procedure

Does It stand the test of time?

Evgeny Shaidakov, MD, PhD, Professor for cardiovascular surgery

Historical data

1954
RICHARD WARREN, THEODORE THAYER

The first description of sapheño-popliteal transposition concept

Mysteriously lost for 16 years...

1970
MAY, HUSNI, FRILEUX

Revision of the operation, new attempts were undertaken

Warren-Thayer Procedure?

1970
MAY, HUSNI, FRILEUX

Revision of the operation, new attempts were undertaken

World experience (published data)*

Study | No of patients | AVF | Follow-up, months | Clinical success | Patency, %
--- | --- | --- | --- | --- | ---
Warren (1954) | 14 | - | 23 | 71 | 57 |
Husni (1970) | 20 | - | ? | 70 | 69 |
Frileux (1972) | 23 | - | ? | 100 | 67 |
Dale (1979) | 6 | - | ? | 80 | ? |
Husni (1983) | 27 | - | 12-132 | 75 | 63 |
Gruss (1985) | 12 | 8 | ? | 42 | ? |
Danza (1991) | 8 | 2 | ? | 75 | ? |
AbuRahma (1991) | 19 | - | 66 | 58 | 42 |
Coleman (2013) | 17 | 3 | 101 | 82 | 56 |

* Contemporary results after sapheño-popliteal bypass for chronic femoral vein occlusion.

Journal of Vascular Surgery: Venous and Lymphatic Disorders, Volume 1, Issue 1, Pages 45-51, January 2013

World experience (published data)*

Study | No of patients | AVF | Follow-up, months | Clinical success | Patency, %
--- | --- | --- | --- | --- | ---
Warren (1954) | 14 | - | 23 | 71 | 57 |
Husni (1970) | 20 | - | ? | 70 | 69 |
Frileux (1972) | 23 | - | ? | 100 | 67 |
Dale (1979) | 6 | - | ? | 80 | ? |
Husni (1983) | 27 | - | 12-132 | 75 | 63 |
Gruss (1985) | 12 | 8 | ? | 42 | ? |
Danza (1991) | 8 | 2 | ? | 75 | ? |
AbuRahma (1991) | 19 | - | 66 | 58 | 42 |
Coleman (2013) | 17 | 3 | 101 | 82 | 56 |

* Contemporary results after sapheño-popliteal bypass for chronic femoral vein occlusion.

Journal of Vascular Surgery: Venous and Lymphatic Disorders, Volume 1, Issue 1, Pages 45-51, January 2013

Study | No of patients | AVF | Follow-up, months | Clinical success | Patency, %
--- | --- | --- | --- | --- | ---
Warren (1954) | 14 | - | 23 | 71 | 57 |
Husni (1970) | 20 | - | ? | 70 | 69 |
Frileux (1972) | 23 | - | ? | 100 | 67 |
Dale (1979) | 6 | - | ? | 80 | ? |
Husni (1983) | 27 | - | 12-132 | 75 | 63 |
Gruss (1985) | 12 | 8 | ? | 42 | ? |
Danza (1991) | 8 | 2 | ? | 75 | ? |
AbuRahma (1991) | 19 | - | 66 | 58 | 42 |
Coleman (2013) | 17 | 3 | 101 | 82 | 56 |

* Contemporary results after sapheño-popliteal bypass for chronic femoral vein occlusion.

Journal of Vascular Surgery: Venous and Lymphatic Disorders, Volume 1, Issue 1, Pages 45-51, January 2013

World experience (published data)*

Study | No of patients | AVF | Follow-up, months | Clinical success | Patency, %
--- | --- | --- | --- | --- | ---
Warren (1954) | 14 | - | 23 | 71 | 57 |
Husni (1970) | 20 | - | ? | 70 | 69 |
Frileux (1972) | 23 | - | ? | 100 | 67 |
Dale (1979) | 6 | - | ? | 80 | ? |
Husni (1983) | 27 | - | 12-132 | 75 | 63 |
Gruss (1985) | 12 | 8 | ? | 42 | ? |
Danza (1991) | 8 | 2 | ? | 75 | ? |
AbuRahma (1991) | 19 | - | 66 | 58 | 42 |
Coleman (2013) | 17 | 3 | 101 | 82 | 56 |

* Contemporary results after sapheño-popliteal bypass for chronic femoral vein occlusion.

Journal of Vascular Surgery: Venous and Lymphatic Disorders, Volume 1, Issue 1, Pages 45-51, January 2013

What can we really take from the past?
Conventional patients selection

1. Chronic occlusion of the femoral (or proximal popliteal) vein
2. Chronic venous insufficiency, C3-C6
   - edema,
   - skin changes,
   - venous ulceration,
   - venous claudication failed to respond to less invasive treatment modalities
3. Severe symptoms, impaired QoL

Pathologic anatomy considerations

1. LIMITED FEMORAL OCCLUSION from the popliteal vein up to the saphenofemoral junction
2. PATENCY OF OTHER VEINS:
   - popliteal vein
   - iliac veins
   - saphenofemoral junction
   - great saphenous vein
3. Severe venous reflux is the contraindication to the procedure!

Pathologic anatomy considerations

SUITABLE GSV!

4. Great saphenous vein should be “great enough” to be anastomosed with the popliteal vein
5. Great saphenous vein should be without varicose transformation
6. Great saphenous vein should be free of thrombophlebitic changes

Best candidates for the procedure

PREDICTORS of long-term outcomes (AbuRhama, 1991) *

- Low maximal venous outflow (severe occlusion)
- Normal venous refill time (>10 sec)
- Venous claudication

Can we do saphenopopliteal bypass if an obstruction above SFJ exists?

With concomitant outflow procedures we can!

- Iliac stenting
- Femorofemoral cross-over venous bypass (Palma procedure)

Unresolved questions

I. GSV competence

Does it have a crucial role in saphenopopliteal bypass?

**YES**

May, 1983; AbuRhama, 1991

- Coleman et al, 2013

**NO**

Incompetence of GSV deteriorates clinical results

Operation is performed to relieve venous hypertension; competence of GSV is ultimately lost as the vein progressively dilates to accommodate the inflow (incompetent GSV still works)
II. Surgical technique

Should we perform a distal AV fistula?

<table>
<thead>
<tr>
<th>Author</th>
<th>Year reported</th>
<th>No. of patients</th>
<th>Follow-up, months</th>
<th>Clinical success</th>
<th>AVF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Husni</td>
<td>1978</td>
<td>26</td>
<td>6-120</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>May</td>
<td>1985</td>
<td>30</td>
<td>NR</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Abu Rahma</td>
<td>1991</td>
<td>19</td>
<td>66</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>Danza</td>
<td>1991</td>
<td>8</td>
<td>NR</td>
<td>75</td>
<td>25%</td>
</tr>
<tr>
<td>Gruss and Hiemer</td>
<td>1997</td>
<td>14</td>
<td>60</td>
<td>50</td>
<td>71%</td>
</tr>
</tbody>
</table>

**AVF - arteriovenous fistula**

NR - not reported

*analyzed by Bo Eklof, 1998*

---

Unresolved questions

II. Surgical technique

Should we reinforce the SFJ by Dacron graft or Vedensky spiral to prevent dilation and secondary incompetence of GSV?

What if we modify the method and use contralateral vein to preserve GSV and its native function on posttrombotic leg?

Should we really wait until the compression is ineffective for several months when microcirculation and lymphatic system impaired by hypertension?

---

Unresolved questions

II. Surgical technique

Does the GSV diameter matter? Which is good enough?

**The GSV may be anastomosed with posterior tibial vein if popliteal vein is injured.**

Abu Rahma, 1991

Should we perform sapheno-tibial bypass in such cases? Is it "the same" in the long-term outlook?

Is it a good solution when face with a serious discrepancy in GSV and patent PV diameters?

---

Current attempts

Evan J. Ryer, Sanjay Misra, Robert D. McBane, Peter Gloviczki

**Great saphenous vein transposition to the popliteal vein (the May-Husni procedure).**

*Journal of Vascular Surgery: Venous and Lymphatic Disorders, Volume 1, Issue 1, Pages 82-83.*

January, 2013

---

Unresolved questions

II. Surgical technique

Should we really wait until compression is ineffective for several months when microcirculation and lymphatic system impaired by hypertension?

---

Our experience (nonpublished data)

From 1999 to 2012...

12 patients with isolated posttrombotic SFV occlusion

- Sapheno-popliteal anastomosis
- Distal AVF
- Extravasal strengthening of SFJ

**Mean follow-up: 86 ± 17 months**

**Long-term track: 10 patients (83%)**

- Clinical improvement: 67% (8 patients)
- Angiographic patency: 83% (10 patients)


---

Our strategy

1. **Preoperative prove of severe symptomatic occlusion**
   - Venous occlusion plethysmography
   - Venous clinical severity score (VCSS)
   - QoL assessment

   Still we don’t have precise methods to assess the impact of venous obstruction to total venous blood outflow and individual features of venous collateral bloodflow!

2. **Operative technique**
   - Sapheno-popliteal anastomosis
   - distal AVF
   - external SFJ strengthening with lavsan spiral

3. **Compression therapy**
May-Husni Procedure
in the management of severe symptomatic femoral vein occlusion

Does It stand the test of time?

Evgeny Shaidakov, MD, PhD,
Professor for cardiovascular surgery

Salvador Dali.
The Persistence of memory, 1931