A case of acute lower limb ischemia in the long-term period after femoropopliteal bypass surgery, that was successfully treated with hybrid therapy.

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Keiji Matsubayashi, Hiromitsu Nota, Yotaro Mori
Disclosure

Speaker name: Ryo Shibata

I have the following potential conflicts of interest to report:

- [ ] Consulting
- [ ] Employment in industry
- [x] Stockholder of a healthcare company
- [ ] Owner of a healthcare company
- [ ] Other(s)

- [x] I do not have any potential conflict of interest
Case: 90 y.o. Male

Chief complaint: Paralysis and numbness of right lower limb

Present illness:

He had underwent bilateral FP bypass surgery for PAD in 2003, and redo right FP bypass surgery for right artificial graft occlusion in 2014.

While mowing the grass, he experienced a sudden onset of motor and sensory disturbance in his right lower limb at around 3:00 p.m. a day in last September. Then, he was urgently transferred to our hospital at around 6:30 p.m.

Past medical history: PAD, Hypertension, Prostate cancer

Medications:

Warfarin2.5mg, Amlodipine10mg, Carvedilol10mg, Flutamide125mg*3, Ezetimibe10mg, Tamsulosin0.2mg, Mirtazapine15mg, Lemborexant, Lendormin, Magnesium oxide

Smoking: 10 cigarettes/day x 50 years (past smoker)

Living environment: Living alone, ADL independent
Previous revascularization

- X-19 FP bypass (Artificial Graft)
- X-8 redo FP bypass (Artificial Graft)
- X-19 FP bypass (Vein Graft)
- X-13 EVT for lt. EIA (BMS)
Case: 90 y.o. Male

- **Vital signs**

  Body temperature: 36.0°C, Blood pressure: 191/87 mmHg, Pulse: 84 beats/min, Respiratory rate: 20 breaths/min, SpO2: 95% (room air)

- **Physical examination**

  Height: 169 cm, Weight: 61.0 kg, BMI: 21.4 kg/m²

  Consciousness: GCS E4V5M6

  Heart sound: normal, murmur (−)

  Lung sound: clear, murmur (−)

  Extremities: **cold, pale, and paralysis** in right lower limb

  Skin: **livedo reticularis** in right lower limb
## Blood test

### Blood count

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBC</td>
<td>7300 / μL</td>
</tr>
<tr>
<td>RBC</td>
<td>432 × 10⁴ / μL</td>
</tr>
<tr>
<td>Hb</td>
<td>12.8 g/dL</td>
</tr>
<tr>
<td>Ht</td>
<td>39.7 %</td>
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<tr>
<td>Plt</td>
<td>25.9 × 10⁴ / μL</td>
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</tbody>
</table>

### Biochemistry

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP</td>
<td>7.9 g/dL</td>
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<tr>
<td>Alb</td>
<td>4.7 g/dL</td>
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<tr>
<td>LDH</td>
<td>306 U/L</td>
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<tr>
<td>AST</td>
<td>31 U/L</td>
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<tr>
<td>ALT</td>
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<tr>
<td>CK</td>
<td>157 U/L</td>
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<tr>
<td>BUN</td>
<td>25.7 mg/dL</td>
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<tr>
<td>Cre</td>
<td>1.08 mg/dL</td>
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<tr>
<td>Na</td>
<td>138 mEq/L</td>
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<tr>
<td>K</td>
<td>3.5 mEq/L</td>
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<tr>
<td>Cl</td>
<td>104 mEq/L</td>
</tr>
<tr>
<td>Ca</td>
<td>8.9 mg/dL</td>
</tr>
<tr>
<td>CRP</td>
<td>0.03 mg/dL</td>
</tr>
<tr>
<td>UA</td>
<td>5.8 mg/dL</td>
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<tr>
<td>LDL-C</td>
<td>90 mg/dL</td>
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<tr>
<td>BS</td>
<td>181 mg/dL</td>
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<tr>
<td>HbA1c</td>
<td>5.5 %</td>
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<tr>
<td>Ht</td>
<td>39.7 %</td>
</tr>
<tr>
<td>AST</td>
<td>31 U/L</td>
</tr>
<tr>
<td>ALT</td>
<td>30 U/L</td>
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<tr>
<td>PT-INR</td>
<td>2.18</td>
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<tr>
<td>APTT</td>
<td>35.3 sec</td>
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<tr>
<td>D-dimer</td>
<td>8.9 μg/dL</td>
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</table>

### Coagulation

<table>
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<th>Value</th>
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<tbody>
<tr>
<td>BUN</td>
<td>25.7 mg/dL</td>
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<tr>
<td>Cre</td>
<td>1.08 mg/dL</td>
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<tr>
<td>Na</td>
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<td>K</td>
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<tr>
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</tr>
<tr>
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<td>0.03 mg/dL</td>
</tr>
<tr>
<td>UA</td>
<td>5.8 mg/dL</td>
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### V-gas

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<tr>
<td>pH</td>
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<tr>
<td>Lac</td>
<td>12 mg/dL</td>
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ceCT imaging

Occlusion at the beginning of bypass graft

F-P bypass graft

Thrombus in bilateral CIA
Problem List

#. Paralysis and numbness of right lower limb
#. Occlusion of right common iliac artery to F-P bypass graft

Diagnosis: right acute lower limb ischemia (Rutherford Grade IIb)
Plan: urgent revascularization with consulting to cardiovascular surgeon
Aortography

Approach: lt. radial
GW: 0.035 radifocus
Catheter: 4Fr Pigtail

Acute occlusion of right common iliac artery
Procedure: cut down technique
Approach: rt. FP bypass graft
Wire: 0.018 Command

Cut down → Wiring

Not pass at the distal bypass anastomosis
Thrombectomy

Catheter: 9mm Fogarty catheter

Removed large amount of red blood clots
Lower limb angiography

Approach: Lt. radial
Catheter: 4Fr Multipurpose

EIA and below were no flow
Next step:

- Need to remove more central and peripheral thrombus

→ Echo-guided distal puncture
EVT

*retrograde*
Approach: rt. dorsalis
Puncture: Micropuncture Introducer kit
GW: 0.014 Cruise → 0.014 Gladius
MC: ICHIBANYARI PAD2

*antegrade*
Approach: rt. F-P bypass
GC: 6Fr destination

Pass the distal anastomosis retrogradely and rendez-vous to Destination
EVT

all true
Approach: rt. FP bypass
GC: 6Fr Destination
GW: 0.014 Gladius
Catheter: 9mm Fogarty catheter
Balloon: SHIDEN HP 3.0/100, CHOCOLATE 5.0/80
Approach: lt. radial
Catheter: 4Fr Multipurpose

Lower limb angiography (after closure of cut down part)

Residual stenosis at the proximal anastomosis
Approach: lt. radial
GC: R2P 6Fr Destination Slender 119cm
GW: 0.018 Command
Balloon: NSE 6.0/40
Final angiography
Post hospitalization progress

CK (U/L)

enter ICU | exit ICU | discharge

Cr (mg/dl)

0 0,5 1 1,5 2 2,5

1 2 3 4 5 6 7 8 9 10 11 12 13 14 48

Mechanical Support

CHDF

Furosemide

Anticoagulant

Heparin | Rivaroxaban 10mg

Antiplatelet

Clopidogrel 75mg

urine (ml)

0 1000 2000 50000 100000 150000

Anticoagulation

Antiplatelet

Support
Discussion

✓ About 10% of ALI are reported to be graft occlusion.


✓ Graft occlusion is thought to be the result of progressive atherosclerosis on proximal or distal edge of the graft, which is important to identify and treat.


✓ In the present case, anastomotic stenosis was found on proximal and distal edge of the FP bypass graft, and balloon angioplasty was performed for each. The ABI measured on the 35th day was 1.09 on the right, a good value.
Conclusion

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