When should Patients with popliteal arterial compression be treated by PTA plus surgical decompression:

Long-Term (10-Year) results show it is sometimes the better treatment

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Popliteal Artery Entrapment Syndrome

- In 1879, while still in medical school at Edinburgh, Anderson Stuart became the 1st to describe the anatomical basis of popliteal entrapment.
- Hamming and Vink, in 1959, performed the 1st operative decompression of an entrapped popliteal artery, at Leyden University in the Netherlands.
- Love and Whelan, of Walter Reed General Hospital in the United States, introduced the term “popliteal artery entrapment syndrome” (PAES) in 1965.

Popliteal Artery Entrapment Syndrome (PAES)

- PAES is defined as a compression syndrome of the popliteal artery caused by muscular or ligamental structures in the popliteal fossa.
- PAES is a rare cause for leg ischemia.
- It is usually treated by surgical removal of the compressing structure and either venous bypass or interposition graft.

Popliteal artery entrapment syndrome (PAES)

- Retrospective analysis of subgroup of patients with acute occlusion of the popliteal artery due to PAES.

And

- Endovascular revascularization followed by musculotendinous section (MTS).
- No initial Bypass performed.

Popliteal artery entrapment syndrome (PAES)

- 5 male patients with thrombotic occlusion of the popliteal and calf arteries due to PAES.
- Mean age: 29 years (17-51 years).

- Treatment:
  - Catheter-directed local lysis (urokinase).
  - Percutaneous thrombectomy (and angioplasty).
  - 1 to 4 weeks after the recanalization: musculotendinous section (MTS).
Results

- 3 patients (mean age 33 years, 27-51y) developed an aneurysm of the popliteal artery after a mean time of 21 months
  - Treatment: venous bypass

- 1 patient (26 years) developed a stenosis 6 months after recanalization
  - Treatment: venous bypass

- 1 patient (17 years) had no further intervention and 11 years after the recanalization and MTS the popliteal artery is normal

After recanalization (percutaneous thrombectomy)

Plantarflexion

Conclusions

- The immediate success rate of the endovascular treatment is high

- Long term surveillance with duplex ultrasound is mandatory due to the high risk of developing stenosis or aneurysm of the popliteal artery despite surgical decompression

- Complications might occur several years after the initial event due to changes in the arterial wall caused by the compression even after musculotendinous section (MTS)

Therefore only in very young patients it might be an option to perform only decompression without replacing the popliteal artery