artery and dorsal pedal artery access with anterior tibial artery balloon angioplasty and Shockwave Lithotripsy for popliteal artery occlusion. Additional procedures included a partial fasciotomy and debridement on July 26, 2024, with follow-up irrigation and debridement of the RLE wound with negative pressure wound therapy on August 28, 2024. Finally, a femorotibial bypass was conducted on September 6, 2024, to help save the gangrenous right lower leg.

Results: Postoperative follow-up demonstrated significant improvement in limb presentation and function with pain reduction despite patient non-compliance with physical therapy. Blood circulation to the foot was restored via the posterior tibial artery resulting in sharp demarcation of the distal foot. The patient's complex condition was managed successfully with a series of targeted surgical interventions that preserved all except the forefront of the right foot.

Conclusion: This case underscores the effectiveness of a multistage surgical approach in managing CLTI complicated by rhabdomyolysis and aortic graft complications. It highlights the need for tailored surgical strategies in patients with extensive comorbidities.

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Atherectomy With Drug-Eluting Balloon for Common Femoral Artery Occlusive Disease: 3-Year Experience

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Objectives: The gold standard treatment for occlusive lesions of the common femoral artery used to be endarterectomy. In recent years, interest in endovascular treatment of the common femoral artery has been increasing. Vessel preparation with rotational atherectomy, followed by drug-eluting balloon usage, could be a good option.

Methods: Between June 2021 and August 2024, 71 patients with 86 occlusive diseases of the common femoral artery had been treated with rotational atherectomy followed by a drug-coated balloon. They were reviewed retrospectively. The primary endpoint was freedom from target lesion revascularization.

Results: There were 51 men and 20 women. Their mean age was 73 years. Of the limbs, 83.7% had had preoperative Rutherford Stage 1 to 3 peripheral arterial disease. The mean length of the lesions was 4 cm. All lesions were heavily calcified. Sixty-one procedures were anterograde with 54 contralateral femoral and 7 upper limb punctures, and 25 were retrograde with ipsilateral superficial femoral puncture. No filter was used. The technical success rate was 100%. No bailout stenting was required. Four patients died after 1 month, two patients experienced a non-ST-elevation myocardial infarction, three an acute kidney injury, five a false aneurysm, and two thrombosis at the puncture site.

Mean follow-up was 16.6 months. The freedom from target lesion revascularization rate was 90.7%. Seven patients needed secondary endarterectomy, and one needed atherectomy. Two patients had a major amputation, and two a minor amputation.

Conclusions: These results show that rotational atherectomy with drug-coated balloon angioplasty for common femoral calcified occlusive disease is feasible and safe. It has the advantages of avoiding the potential complications of surgical treatment and not leaving a stent.

The best indication for this treatment could be in older and sicker patients with intermittent claudication. The worst indication could be in patients with critical limb-threatening ischemia and multilevel extensive occlusive disease.

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Quantification of the Survival Penalty After Major Amputation in Patients With Peripheral Arterial Disease

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Objectives: Despite advancements in vascular surgery, the mortality among peripheral arterial disease (PAD) patients undergoing major amputations remains high. While it is generally recognized that these patients face an increased mortality risk compared to the general population, there is limited data quantifying this survival penalty.

Methods: Retrospective single-center patient data were extracted from medical records, and mortality information was obtained from the Austrian National Death Registry. Survival probability was estimated using Kaplan-Meier curves, and life expectancy was calculated based on population-based general and balanced life Tables provided by the National Statistical Office. The difference between observed and estimated life expectancy was examined across various subgroups.

Results: Of 246 patients, 70.8% underwent transtibial and 29.2% underwent transfemoral amputation. The median follow-up was 492 days (Q1–Q3: 73–1438), during which 203 patients died, with cardiovascular events accounting for 41% of deaths. The median observed survival was 457 days (Q1–Q3: 73–1438), significantly lower than the expected 4697 days (Q1–Q3: 2962–6236, $P < 0.001$). Male patients lost 11.2 years of estimated life expectancy, equivalent to a proportionate reduction in life expectancy of over 90%, while women lost 8.7 years (84.6% reduction). Patients with transtibial amputations (median survival: 738 days), living in multi-person households (823 days), and using prosthetics postoperatively (1320 days) had significantly higher survival rates compared to those with transfemoral amputations (247 days, $P = 0.009$), those living alone (344 days, $P < 0.001$), and wheelchair users (828 days, $P < 0.001$). In a multiple regression model, 1 year in life expectancy was associated with a survival penalty of -0.96 years, thereby affecting younger patients with the highest life expectancies the most.

Conclusions: Major amputation in PAD patients is associated with a significant reduction in survival times compared to standardized mortality rates in the general population. The survival penalty exceeds 70% of the estimated survival time in over 70% of the study population, reflecting a consistent relative effect translating to higher disadvantages in younger patients.

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Training and Learning in Robotic Endovascular Peripheral Arterial Interventions

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Objectives: This study tests a suiTable model for training robot-assisted peripheral vascular interventions and examines the learning curves of endovascular surgeons with different levels of previous experience and main focuses of work, analyzing procedure times, fluoroscopy times, uses of contrast, and radiation emissions.

Methods: Sixteen endovascular surgeons with different previous experience and training performed 9 manual and 18 robotic angioplasties using the CorPath GRX platform on a 3D-printed life-size immersed infragenicular arterial phantom (Fig).

Results: All participants considered the model reliable. When analyzing manual angioplasty outcomes, the juniors took significantly longer to perform angioplasties than the seniors ($P = 0.044$). Among the seniors, interventionists were faster only on the first angioplasty ($P = 0.046$). Analysis of the robotic angioplasty results showed that only 1 junior failed to cannulate 1 of the target arteries once. The total duration, fluoroscopy time, and radiation emission did not differ between juniors and seniors ($P = 0.095$, $P = 0.60$, and $P = 0.64$, respectively). In addition, the learning curves for the maximum benefit required 2 attempts for procedure duration, 1 for fluoroscopy time, and 3 for radiation emission. There were no significant differences between senior vascular surgeons and interventionists. Among juniors, residents had a significantly lower procedure duration ($P = 0.042$) and radiation emission ($P = 0.046$) only for the first angioplasty.

Conclusions: The learning curves for robotic peripheral arterial interventions were short, with a plateau for the procedure and fluoroscopy