
Complications of tibioperoneal interventions

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Introduction to the frequency and type of complications with tibioperoneal interventions • Factors identifying patients at high risk for complications • Complications of specific interventional steps and tools • Methods to detect potential complications • Techniques to resolve complications • Methods to avoid complications • Summary • Check list for emergency equipment for interventions in this specific vessel area

INTRODUCTION TO THE FREQUENCY AND TYPE OF COMPLICATIONS WITH TIBIOPERONEAL INTERVENTIONS

Until recently, scepticism was often expressed concerning the feasibility, effectiveness, and long-term results of catheter revascularization for treatment of infrapopliteal disease. Furthermore, endovascular interventions of the tibial arteries are often viewed as high risk and prone to failure, with fear of enduring the consequences of a limb-threatening complication. Therefore the accepted indication for below-knee endovascular interventions remains primarily the treatment of critical or limb-threatening ischemia,¹ while isolated infrapopliteal endovascular intervention is rarely indicated in patients with intermittent claudication.² An additional important indication for below-knee angioplasty is to improve run-off and subsequent long-term patency after femoropopliteal angioplasty/stenting or bypass grafting.

Patients with critical limb ischemia often have multilevel disease with multiple lesions also in the crural vessels, with the consequence of technically demanding surgical procedures requiring femorodistal and even pedal bypasses with a perioperative mortality rate of up to 6% in these

mostly high-risk patients.³ The risks of surgery have led together with the improved technology and the growing literature demonstrating the efficacy of endovascular treatment for critical limb ischemia (CLI) to a steadily increasing application also in the infrapopliteal arteries. However, experience of the interventionalist is even more important than in other regions of the lower leg arteries, and the infrapopliteal vascular bed should definitely not be approached by the novice endovascular interventionalist.

Patients with CLI are usually older than average, have an increased prevalence of diabetes, and often have associated advanced cardiac and cerebrovascular disease. Patients with infrapopliteal lesions alone or in conjunction with femoropopliteal disease are amongst those with the highest likelihood of coronary heart disease. Furthermore, these patients usually have a lot of comorbidities, identifying them as high-risk patients. The natural history of patients with rest pain alone carries a 5-year mortality rate of about 50%.

In general, the rate of complications reported in the literature for infrapopliteal endovascular interventions is astonishingly low concerning these mainly high-risk patients. This may be due