

Infrapopliteal Angioplasty for Critical Limb Ischemia, Relation of TASC Class to Technical Success and Intra-procedural

Complications

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Objective: Percutaneous transluminal angioplasty (PTA) of infrapopliteal arteries for limb salvage may be indicated for some patients, particularly those with inadequate autologous vein for bypass or prohibitive medical comorbidity. Prior studies have not reported results based on lesion characteristics, and many included claudicants, making interpretation of outcomes difficult. We report our experience with infrapopliteal angioplasty stratified by TransAtlantic Inter-Society Consensus (TASC) lesion classification. **Methods:** From July 2004 to April 2005, vascular surgeons performed infrapopliteal angioplasty on 57 patients for limb salvage (57 limbs, 72 vessels). Intraoperative heparin was given to maintain an ACT of approximately 300 and clopidogrel was used in all patients. Stents were placed for lesions refractory to PTA or flow limiting dissections. Technical success (< 30% residual stenosis) and complications and TASC classification were reviewed. **Results:** Technical success was 83% overall: 100% TASC A, 93% TASC B, 85% TASC C, and 60% TASC D ($p=0.001$ test for trend) (Table1). Stents were used in 7% (5/72) of vessels. There was no 30-day mortality. Intra-procedural complications occurred in 14% of patients (6 thromboembolic events - all successfully treated with rheolytic thrombectomy, and 4 episodes of spasm - all responding to intra-arterial nitroglycerine). Complication rates increased with TASC class ($p=ns$). Patients had 6 postoperative complications (3 groin hematomas - one requiring surgery, two pseudoaneurysms treated with thrombin injection, one episode of congestive heart failure and one episode of transient contrast nephropathy). No technical failure or complication led to loss of a potential bypass target. Of the 12 technical failures, 3 underwent successful bypass, one underwent below knee amputation for unreconstructable disease, 4 healed their wounds or remained symptom free and 4 received no further attempts at revascularization due to lack of target, conduit or poor life expectancy. **Conclusion:** Technical success and intra-procedural complication rates of infrapopliteal PTA are related to TASC class. Bypass options were preserved in patients with unsuccessful PTA. The frequency of thromboembolic events (9%) necessitates familiarity with rheolytic therapy and suggests that embolic protection may be beneficial.

Table 1. Infrapopliteal angioplasty in 57 patients / 72 vessels

TASC Class	Technical success	Stents placed	Intra-procedural complications	Treatment of intra-procedural complication	Postoperative Complications
A	100% (17/17)	6% (1/17)	6% 1 thrombosis	Rheolytic thrombectomy	19% (3/16), hematoma, pseudoaneurysm requiring thrombin injection, CHF
B	93% (14/15)	7%(1/15)	13%, 1 spasm, 1 embolus	IA nitro, thrombolysis	None (0/8)
C	85% (17/20)	5% (1/20)	15% 2 spasm, 1 thrombosis	IA nitro x 2, Rheolytic thrombectomy	23% (3/13), contrast nephropathy, groin hematoma requiring operation, pseudoaneurysm requiring thrombin inject
D	60% (12/20)	10% (2/20)	20%, 3 thrombosis, 1 spasm	Rheolytic thrombectomy	None (0/20)
totals	83% (60/72)	7% (5/72)	14% (10/72)		10% (6/57)