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### **Limb Salvage with Syme Amputation: Experience in 54 cases**

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Syme's ankle disarticulation amputation continues to be overlooked as an alternative to below-knee amputation in cases of life and limb threatening foot infections and gangrene. This study examines pre-operative criteria and outcomes of the Syme amputation to help ascertain predictors that may determine greater success of the operation.

In this retrospective study, pre-operative data and post-operative results were assessed for 54 consecutive patients (mean age 64) who underwent a Syme amputation for non-healing ulceration, osteomyelitis, and/or gangrene. Fifty (93%) patients had diabetes mellitus for an average of 17 years. HbA1c ranged from 5.6 to 13.4 with a mean of 8.0%. Thirty-five (65%) patients had peripheral vascular disease (PVD) of which 15 (53%) of these patients underwent preliminary lower extremity bypass grafting. Seventeen (41%) patients had an ankle-brachial index (ABI) of less than 0.9 and 24 (49%) were greater than 1.2. Of those with skin perfusion pressures (SPP) at the ankle, 38% of patients had values < 30 mmHg. Forty-three (80%) patients either were current smokers or smoked in the past, and 24 (44%) patients had a positive methicillin-resistant Staphylococcus aureus (MRSA) culture originating from their affected foot.

All Patients were followed for an average of 130 weeks until healing, major amputation, or death. Thirty-seven (69%) healed and were ulcer free for >30 days, 31 (57%) are currently ambulating with a Syme prosthesis, 16 (30%) patients required more proximal amputation (12 BKA, 4 AKA), and 25 (48%) patients died at an average of 159 weeks after Syme amputation. Of those that died, 5 (22%) patients had a more proximal amputation. Of the patients with SPP < 30mmHg, 43% needed a proximal amputation compared with 45% of those with values  $\geq 30$ mmHg ( $p=0.173$ ). Nonetheless,  $SPP \geq 30$ mmHg predicted a nearly 5-fold increased probability for healing (OR 4.8, 95% CI 1.13-20.46,  $P=0.034$ )

Syme amputation can be a viable alternative to major amputation when the leg is at risk and SPP values are at least 30mmHg at the ankle. Nonetheless, 3 year mortality (43%) is high in these complicated patients.