

Single Stage Surgery for Osseointegrated Implants for Lower Limb Amputees: A Case Series

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What was the question?

The Osseointegrated Prosthetic Limb (OPL) was introduced in 2011 to address major requirements of normal gait that are not met by socket prostheses. Our hypothesis is that OPL will result in superior function of daily activities, without compromising patients safety. Previously this surgery was done as a two-stage procedure.

How did you the answer?

A. To describe the single - surgical procedure for OPL; and B. To present data on clinical and functional outcomes, and adverse events at the one year. We retrospectively reviewed the first 18 single-stage procedures performed between 2013 and 2014 in a single centre, Sydney, Australia by a single surgeon. Patient inclusion criteria were strict and included: a formal interview with the multidisciplinary team (surgeon, radiologist, anaesthetist, pain physician, psychiatrist, physiotherapist, rehabilitation physician, prosthetist). Baseline patient characteristics were collected. Outcome assessment was conducted at each follow-up visit (3, 6 months and yearly) and included health-related quality-of-life questionnaires (SF-36 and Q-TFA), Mobility Predictor (K Levels AMPRO), functional testing (6MWT and TUG) and energy expenditure evaluation. Change in pre versus post-operative function was assessed using paired t-tests.

What are the results?

The total number of patients was 16 with 18 implantations (9 Trans femoral, 9 Trans tibial). 2 patients were bilateral amputees. K scores, Time Up and Go and 6 MWT tests showed a statistically significant improvement ($p=0.0006$, and $p=0.0149$, respectively). HRQOL improved for all patients. Average energy expenditure increased by 4 fold at final follow up. Infections occurred in 5 patients (4 grade 1 A, 1 grade 1 C) including only low grade superficial infections.

What is your conclusion?

This study demonstrates the feasibility of performing OPL as a single stage procedure for above knee as well as below knee amputees. The results are encouraging, indicating improvement in patient functionality and quality of life, with a low rate of complications.