

A rare case of quadruple limb amputation in electrical burn injury with successful prosthetic restoration

Chai Chau Chung¹, Chow Kok Cheow², Ho Davinna Mei Szu², Liew Lin Kiat², Leong Be Kim²

¹Rehabilitation Centre, Universiti Malaysia Sarawak (UNIMAS), Kota Samarahan, Sarawak, ²Department of Rehabilitation Medicine, Sarawak General Hospital, Kuching, Sarawak

ABSTRACT

Introduction: Quadruple limb amputation resulting from electrical burn injury is a rare and devastating event. We present a rare case of quadruple limb amputation secondary to electrical burn injury with successful prosthetic restoration. **Case Description:** A 24-year-old man sustained a high-voltage industrial electrical burn, affecting 24% of his total body surface area with circumferential mid to full-thickness burns on all limbs. Immediate fasciotomy and debridement were performed, but after two days of monitoring, all four limbs were non-viable, requiring amputations. Upper limb amputations included left trans-radial and right trans-humeral, while lower limb amputations involved left trans-femoral and right trans-tibial. After amputation, given his poor socio-economic background and limited resources, he received customized mechanical functional prostheses and underwent rehabilitation. Psychological support was given to promote a healthy body image and maintain motivation. Despite challenges, successful prosthetic restoration enabled him to grasp objects for daily activities and transition from being wheelchair-bound to walking short distances unaided. **Conclusion:** Electrical burn injuries can lead to rare cases of quadruple amputation due to severe unsalvageable limb tissue damage caused by high-voltage electricity passing through the limbs. Prosthetic restoration in quadruple amputation presents challenges, including customizing prosthetics for varying limb stump shapes and lengths, addressing weight-bearing and balance issues and addressing body image issues. Overcoming these challenges involves customized prosthetic fitting, individualized progressive prosthetic training, and providing psychological support. Despite the challenges of rarity and complexity of quadruple limb amputation from electrical burn injury, successful prosthetic restoration can improve the functional outcome of the affected individual.