# Thumb Replantation Following Prolonged Ischaemia Time and Extremely Hot Weather Exposure Do These Factors Significantly Influence Final Results?

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## INTRODUCTION

a unique replantation procedure of a completely amputated thumb following prolonged ischaemia time and hot weather exposure of about 40°C was performed in an attempt to salvage the patient's hand functions. This is a case of a 30-year old, otherwise healthy non-smoker male who sustained an electrical saw injury to his left thumb. He was referred to our hospital 23 hours following the initial injury and only after having visited 3 different hospitals. He presented with a complete trans-metacarpal amputation of his left thumb just proximal to the first MCP joint. However, there was an intact piece of dorsal skin. At surgery, adequate shortening of the first metacarpal and proximal phalanx of the amputated thumb was performed, followed by first MCP joint arthrodesis using k-wires. The princeps pollicis artery was exposed and repaired followed by repair of the extensors and flexors. The procedure was completed by reconstruction of the venous anastomosis, and exposure and repair of the digital nerves. The patient was put on routine antibiotics and pentoxifylline.

## RESULTS

On 1$^{st}$ post-op day, the patient had good capillary refill of about 3 seconds. On 3$^{rd}$ post-op day, however, a worrisome cyanosis and congestion of the thumb occurred. It was, therefore, decided to refer to leech therapy in an attempt to salvage the replanted digit. Outstanding progressive improvements with resolution of the cyanosis and congestion were noticed thereafter. On the 10$^{th}$ post-operative day, the patient was discharged home. The k-wires were removed at 4 weeks and physiotherapy started thereafter. Current examination of the replanted thumb revealed maintained alignment, a good extension-type pinch using the thumb and index, maintained distal vascularity and sensation, and preservation of the majority of hand functions.

## DISCUSSION

Historically, it has been stipulated that the success of digital replantation depends, among other factors, on the ischaemia time and temperature. Replantation should be carried out within 12 hours for warm, and within 24 hours for cold ischaemiae. We have, nevertheless achieved excellent results although the ischaemia time was 23 hours and the temperature was 40°C. Mulders et. al. described in their study that shorter ischaemia time is associated with successful replantation. We, however, completely agree with Lin et. al. that replantation should still be performed even if the ischemia time was prolonged. Indeed, one may argue the role of leeching. In our case, however, rapid re-perfusion started to take place.

## CONCLUSION

The authors believe that the hand is a crucial part of the body, and whenever possible and only after careful evalusation of the risks and benefits, replantation should always be attempted.