

Early Administration Of Hyperbaric Oxygen Therapy In Forearm Crush Injury. A Case Report.

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INTRODUCTION:

Hyperbaric oxygen therapy (HBOT) is beneficial in promoting acute wound healing. However, few consensuses towards patient selection and timing of HBOT exist

CASE REPORT:

A 40-year-old man sustained an occupational crush injury of his right forearm, where his right hand was trapped in a rolling printing machine. He had severe pain, swelling and multiple oozing wounds from the volar and dorsal aspect of his right forearm. The involved limb was insensate with minimal movement. X-rays showed comminuted segmental fracture of radius and ulna. A diagnosis of compartment syndrome secondary to crush injury of the limb with associated open fractures was made with Mangled Extremity Score of 12. His blood Creatine Kinase was raised to 4000 U/L. Emergency fasciotomy with external fixation was done. Intraoperatively, the muscles of flexors and extensors were macerated and partially salvageable. The vascular bundles were intact, but the nerves were pale.

RESULTS:

We administered early HBOT to the right forearm on day 2 post-op. The regime used was 2 atm (203 kPa) at 2 hours each session for consecutive 5 days. His wounds improved tremendously and only needed single debridement prior to Split Skin Grafting. Plating of the bones were done and there was no evidence of deep infection so far. However, there was no functional recovery up to date.



Figure 1: Forearm on initial presentation



Figure 2: Intra-op crush injury.



Figure 3: Post administration of HBOT

DISCUSSIONS:

In crush injury, restoration of oxygen tension in the penumbra zone is the key zone to prevent secondary ischaemic necrosis. Studies suggested it is beneficial to administer HBOT as early as possible. However, our challenge to this is only few centres in Malaysia offering HBOT and limited usage amongst orthopedic surgeons.

CONCLUSION:

HBOT should be considered as an important adjunct in treatment of crush injury. More clinical trials and effort are needed to create awareness of its benefits.

REFERENCES:

1. Hyperbaric Oxygen Therapy for Wound Healing and Limb Salvage: A Systematic Review: Robert JG. Am J Phys Med Rehabil. 2009; May (1): 471-489.