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A challenging surgery for limb salvage after brachial artery injury

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Statement of the Problem: The brachial artery is the most frequently injured artery in the upper extremity (28% of all vascular injuries). There is a high incidence of associated nerve injuries with the brachial artery injuries, accounting for 27% to 44% rate of functional disability after operative procedure. Beyond a golden period of 6 to 8 hours of ischemia, ischemia-reperfusion injury will endanger the viability of the limb. It has been documented that the primary end-to-end anastomosis is superior to the saphenous vein interposition graft, and the later in turn is more preferable than repair with synthetic graft.

Methodology: A 22-year-old male patient was admitted to our department with glass-lacerated wound at his left elbow with signs of brachial artery injury in the form of brisk bleeding, cold and cyanosed upper limb, absent radial and ulnar pulses and associated profound neurological deficits. The patient was significantly having severe rest pain, indicating severe arterial injury and presented to us more than 6 hours after the injury. An average brachial- brachial Doppler index <0.5 was

considered diagnostic for brachial artery injury. After patient resuscitation, exposure of the brachial artery at the elbow was done, primary end-to-end anastomosis was performed with difficulty due to >3 cm gap, then repair of the associated nerve injuries (median and radial nerves).

Findings: The patient had good arterial blood flow postoperatively assessed by clinical examination and duplex ultrasonography, and he was followed 1 month after the operation then every 3-month period. He had residual functional disability due to the associated nerve injuries in the form of wrist and finger drop.

Conclusion: Limb salvage can be done even in cases of severe brachial artery injuries that may be repaired even beyond the golden time, but the residual functional disability due to associated nerve injuries may significantly affect the outcome

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