

Acute Carpal Tunnel Syndrome from a Solar Panel Electrical Injury: A Case Report and Literature Review

CONCLUSION

PROVIDERS SHOULD HAVE A LOW THRESHOLD FOR CARPAL TUNNEL SYNDROME IN PATIENTS WITH ELECTRICAL INJURIES TO THE UPPER EXTREMITY, WHOSE SYMPTOMS MAY BE COMPLICATED BY CONCOMITANT COMPARTMENT SYNDROME OF THE HAND AND/OR FOREARM.

SIGNIFICANCE STATEMENT

We suspect that this new etiology of electrical burn is on the rise as we see more solar panels being utilized. Treating physicians should be aware of the potential complications of this complex patient population.

DATA SOURCE/POPULATION

- Patient: 46 year old male presented after 5-10 seconds of high voltage (~7500V) direct current (DC) injury to his right forearm.
- Wounds: Deep partial thickness burns to the hypothenar eminence and a full thickness defect with exposed muscle to the right volar forearm.
- Function: Initially had complete function, but within hours developed paralysis while maintaining low forearm compartment pressures.
- Operative Intervention: Forearm fasciotomy and carpal tunnel release on hospital day 1 due to mildly elevated compartment pressures, pain, and paresthesia with resolution of pain and improvement in neurologic exam.
- 3 month follow-up: Partial restoration of function to his hand, but reduced grip strength, and mild persistent pain and paresthesia in the volar wrist and hand.

RESULTS



Initial presentation of wound



POD #1 following release



POD #5 following STSG



Follow-up visit at 3 months

LESSONS LEARNED

The use of high voltage direct current energy has the potential to cause serious harm and appropriate awareness can lead to thorough management and better outcomes for burn victims.

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