

Bilateral Brachial Plexus Pain Catheters for Electrical Burn Injury to the Hands Following Fractal Burning

Andrea Barreto, MD, Melissa Huang, MD, Nathaniel Calixto, MD, Stephen Macres, MD, University of California Davis Health, Department of Anesthesiology

Introduction

A 66 year-old male with HFrEF (EF 20%) with AICD, prior PCI, and type 2 diabetes presented with **third degree electrical burns to the bilateral hands sustained during fractal burning**. During his hospital course spanning two surgeries, regional anesthesia (including a total of four single shot blocks and three nerve block catheters) was used as an adjunct for surgical anesthesia and postoperative pain control.

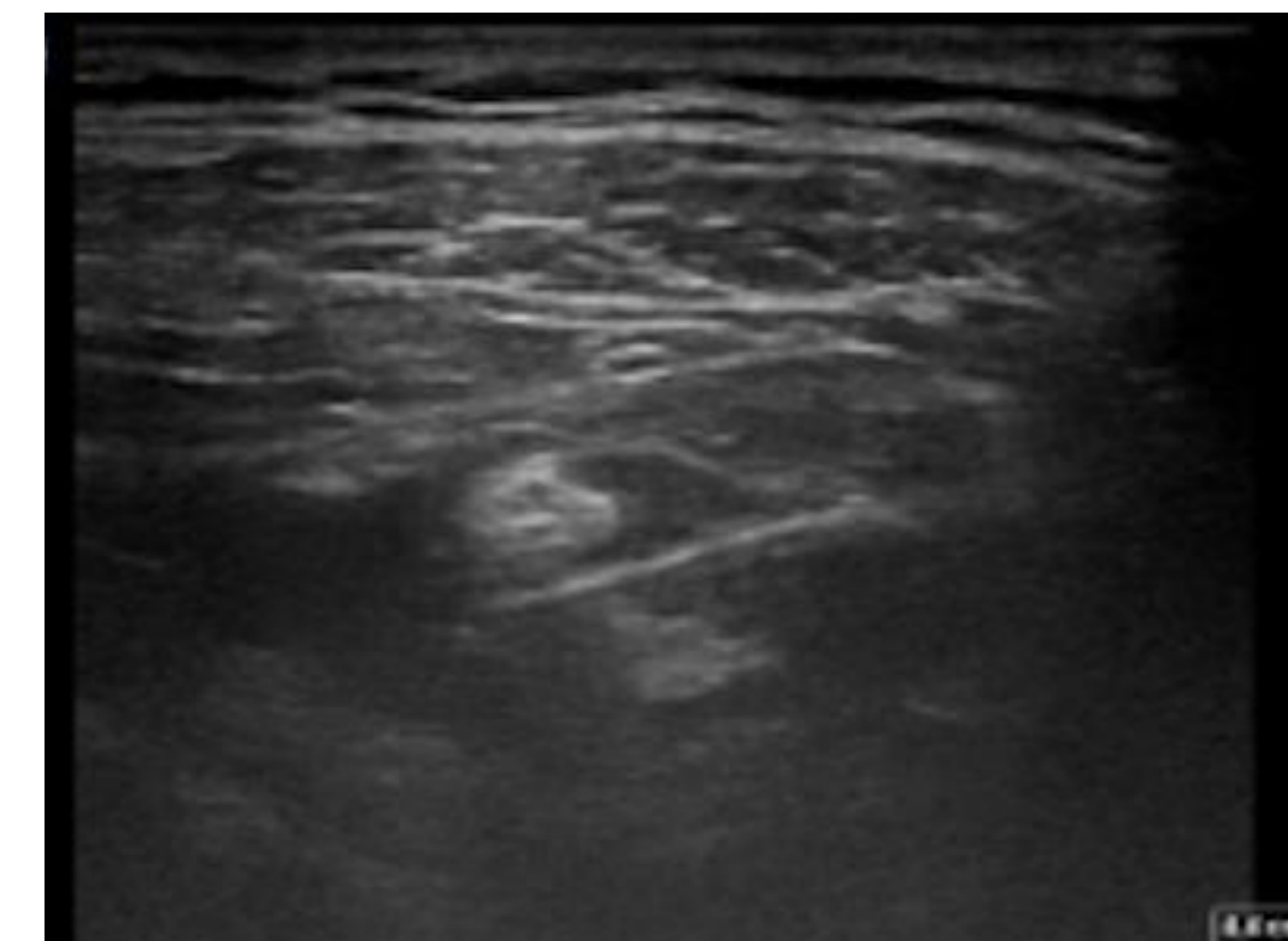
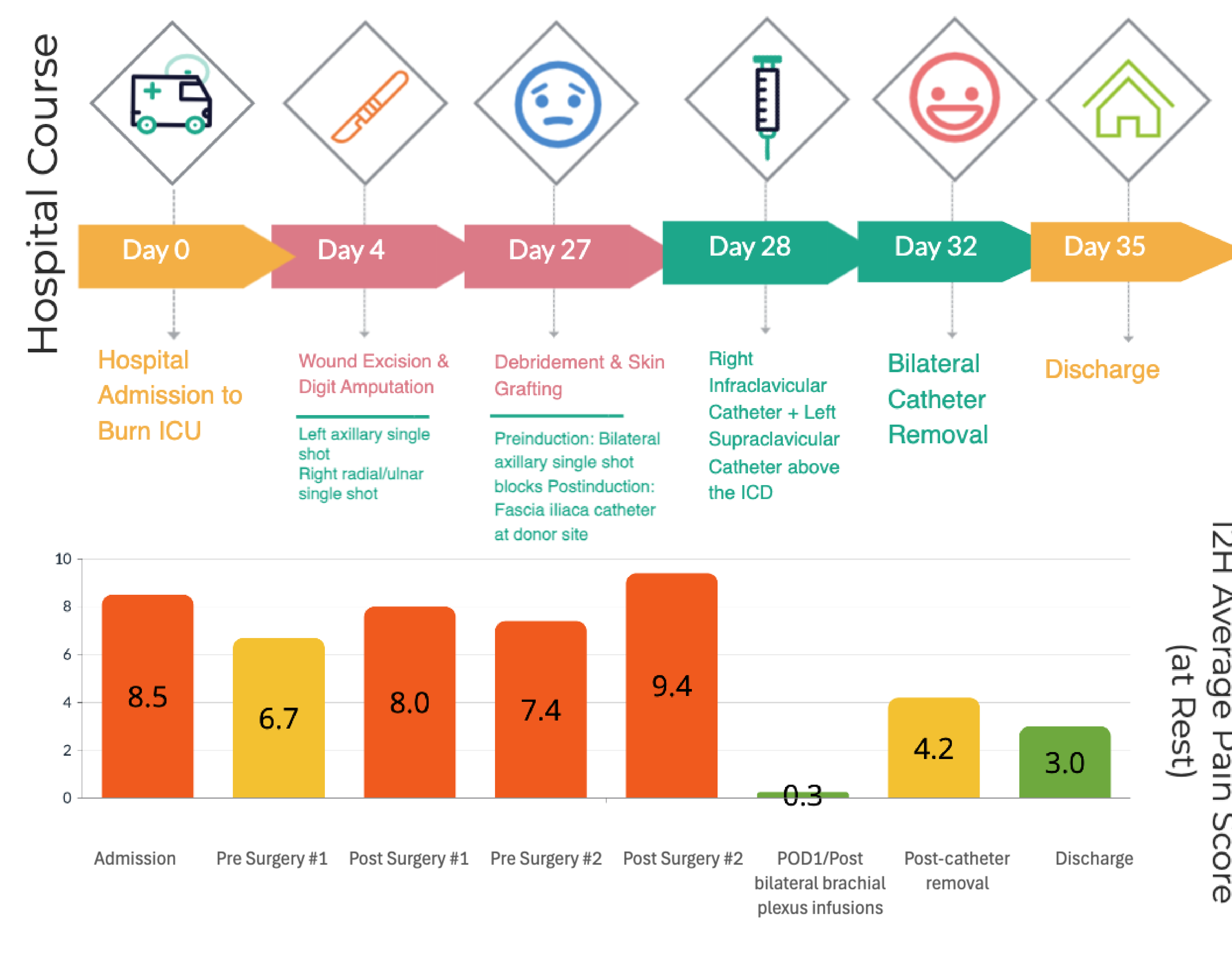


References

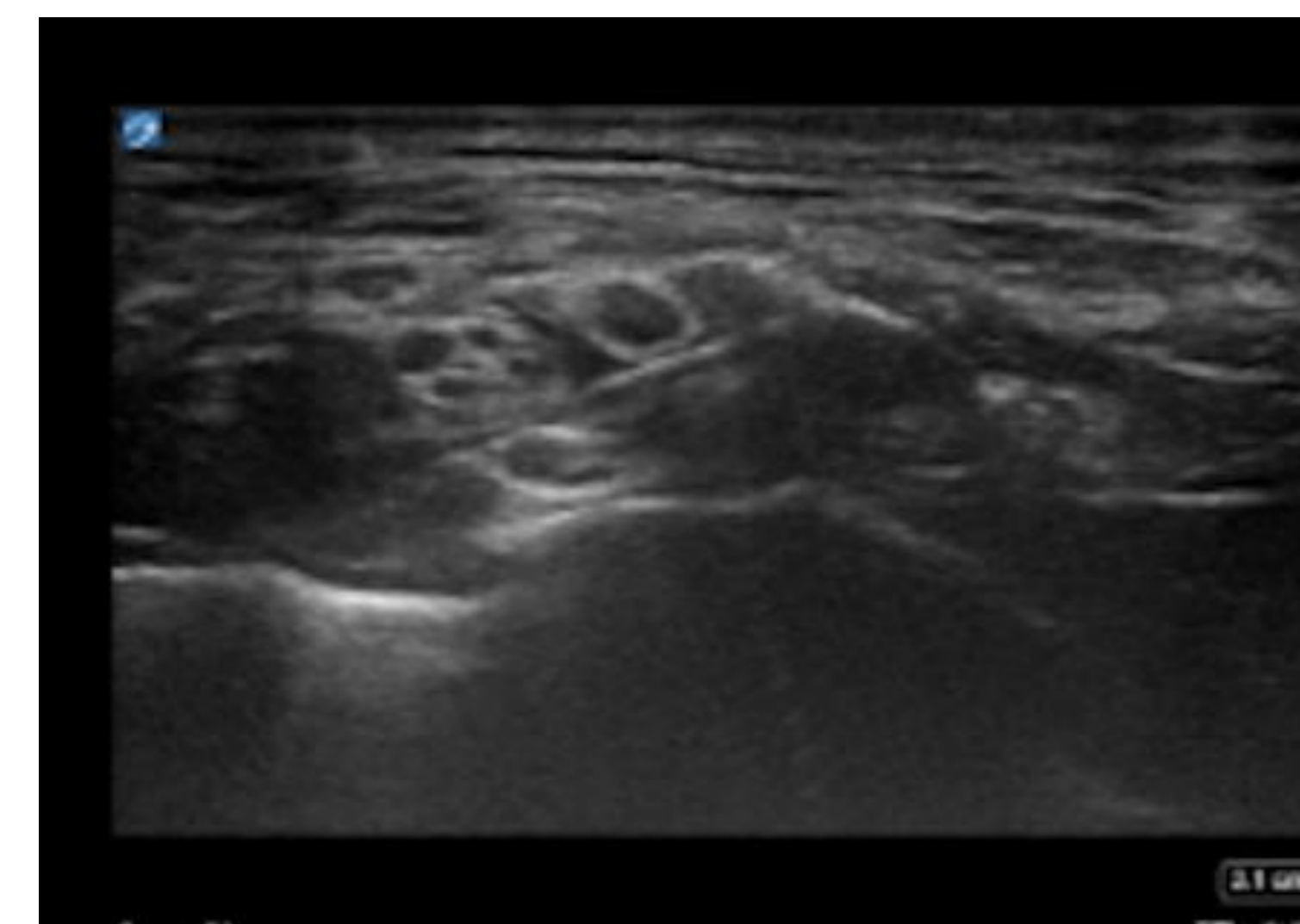
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- Photo: Fractal Wood Burning / CC BY 2.0 (<https://www.flickr.com/photos/reway2007/51335134758>)

Patient images obtained with consent.

Case Report



Right infraclavicular nerve block ultrasound images with corresponding dressing placement and right hand injury



Left supraclavicular nerve block ultrasound images with corresponding dressing placement (with ICD in proximity) and left hand injury

Discussion

- Fractal burning, an increasingly popular technique using electricity to create wood-art, presents a unique injury profile.
- In a case review of fractal burn victims, all patients sustained bilateral hand injuries, and the majority sustained arrhythmias during the inciting event [1].
- This is the first reported fractal electrocution with an ICD in place, which fired at time of the event, and may have been life-saving.
- One study of general burn survivors noted 18% had persistent pain, 27% had depressive symptoms, and 14% had post traumatic stress symptoms up to eleven years after hospital discharge [2].
- In a prior study of hospitalized burn patients, regional anesthesia was shown to decrease patients' narcotic consumption, pain scores, incidence of nausea and vomiting, and overall cost when compared to PCA [3].
- When placing several simultaneous blocks, we were limited by the risk of local anesthetic systemic toxicity. For patients with multiple burn sites, injuries, and medical devices, prudent selection of block and infusion sites is necessary. We had to place a supraclavicular catheter on the side of the ICD instead of infraclavicular.
- Though an RCT found infraclavicular catheters provided superior analgesia to supraclavicular catheters [4], this patient had equally satisfactory pain control bilaterally.
- We found the most success in reducing pain with **perineurial brachial plexus infusions and recommend this for similar patient populations.**