

# Complex Regional Pain Syndrome, Type 2 After Routine Antecubital Venipuncture

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## Introduction

Complex Regional Pain Syndrome (CRPS) is a disorder in a region of the body, usually of the distal limbs, which is characterized by pain, swelling, limited range of motion, vasomotor instability, skin changes, and patchy bone demineralization. It frequently begins following a fracture, soft tissue injury, or surgery. There are two subtypes of CRPS: CRPS I (no evidence of peripheral nerve injury, which is found in 90% of patients) and CRPS II (peripheral nerve injury, which is found in 10% of patients, also known as Causalgia) 6,7. The disease mostly affects women to men in a 3:1 ratio 6,7. We present a case of CRPS II in a 50 year old female with a unique presentation.

## Case Description

A 50-year old female with history of hypertension presented with two weeks of debilitating left arm pain, tingling, and edema. Symptoms developed after routine antecubital venipuncture during which she experienced sudden, radiating pain through her left arm during needle insertion. She noted persistence of symptoms after removal of the needle along the lateral aspect of her forearm and into her hand. Over two weeks she noted insidious progression of her pain, burning, hypersensitivity, and edema to the left upper extremity distal to the elbow. On preliminary evaluation by neurology, she was prescribed gabapentin, oxcarbazepine, and oral steroids without relief.

At the time of evaluation, she was experiencing symptoms from all four categories in the clinical diagnostic criteria (Budapest Criteria) for CRPS. This included allodynia, vasomotor asymmetry, edema, and motor impairments of the forearm flexor, thenar and hypothenar muscles. The patient was successfully treated with Lyrica and left stellate ganglion block.

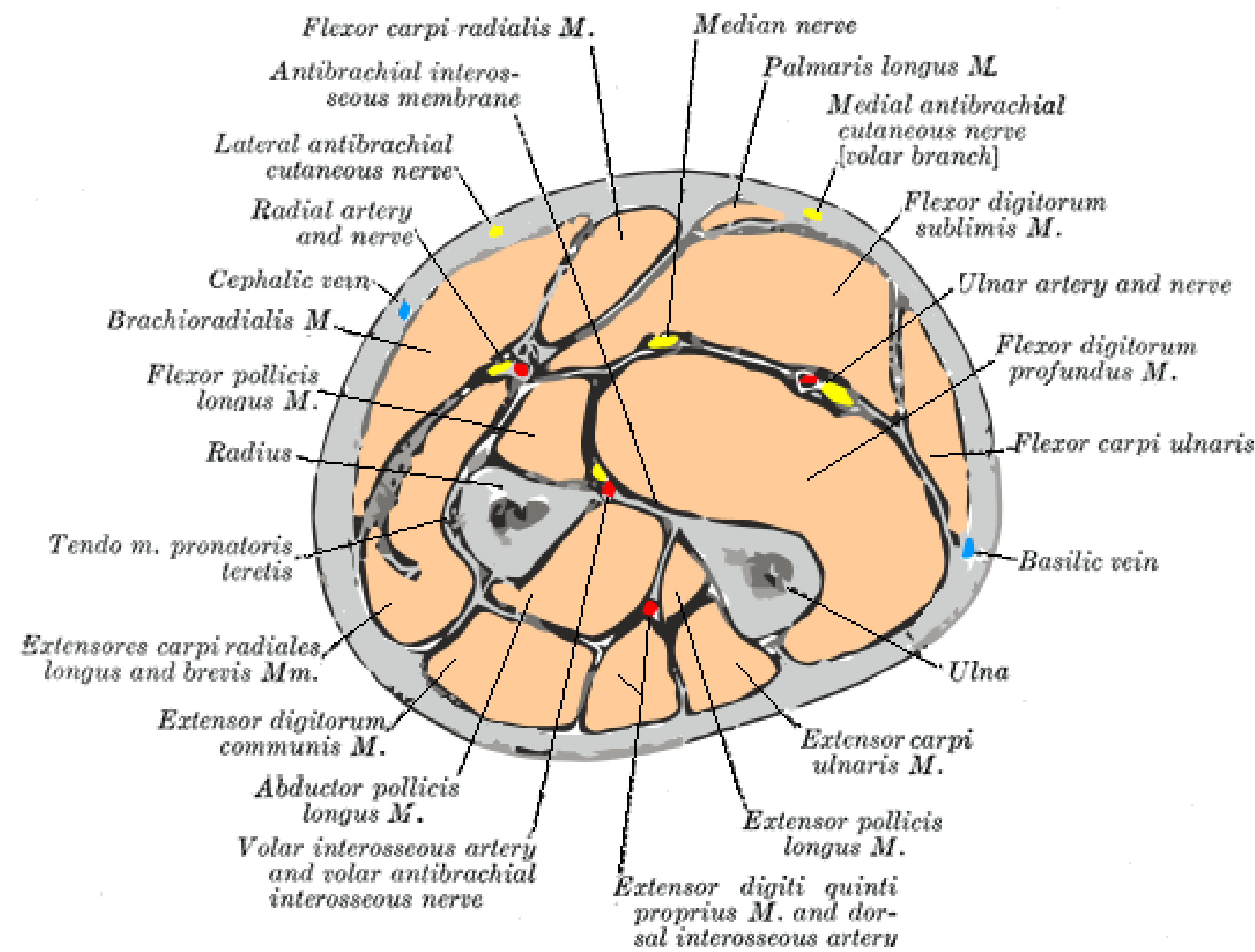


Fig A. Showing Anatomy of Forearm with Proximity of Vasculature to Nerves  
Image reproduced from Wikipedia

## References

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## Discussion

Anatomic variations within the antecubital fossa pose risks for nerve injury during venipuncture<sup>1,2</sup>. The most commonly affected nerves are the superficial cutaneous nerves of the forearm, radial nerve, and median nerve due to their close proximity to the basilic and cephalic veins<sup>3</sup>. There exists a paucity of literature on CRPS, Type 2 after venipuncture. Previously described case reports note stereotypical patterns of pain and muscle atrophy based on dermatomes<sup>4</sup>. This patient presented with an atypical lateral forearm dysthesia and complete motor inhibition secondary to allodynia along an ulnar and median nerve distribution. This unique distribution of sensory and motor impairments clinically suggest involvement of a Martin-Gruber anastomosis between the median and ulnar nerves<sup>5</sup>. Confirmation with electromyography and nerve conduction studies would be the next step in management to confirm this finding. This atypical presentation suggests that causalgia may follow distinct dermatomal and myotomal patterns in Martin-Gruber anastomoses.

On follow-up, patient will undergo stellate ganglia block as both diagnostic and therapeutic management if symptoms persist. Current conservative management is being completed using desensitization strategies and occupational therapy. EMG/NCS may confirm the presence of Martin-Gruber Anastomosis as suggested by the clinical presentation of pain and dystrophic change.

## Conclusion

This case demonstrates an atypical presentation of venipuncture-induced causalgia along a myotome and dermatome suggestive of Martin-Gruber anastomosis.