



# Complex Regional Pain Syndrome (CRPS) Resolution after Increased Vascular Perfusion: A CASE REPORT



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## CASE PRESENTATION

- A 32-year-old female immobilized after a grade 3 ankle sprain was started on rivaroxaban after she developed DVTs in the distal left femoral, posterior tibial and peroneal veins.
- Patient participated in physical therapy, improving ROM with worsening pain. CRPS was diagnosed after evaluation showed allodynia with associated temperature and color asymmetry (fig 1). MRI found marrow edema of the medial malleolus and talar bones.
- Patient was treated with gabapentin, oxcarbazepine, calcitonin intranasal as well as oxycodone to be used prior to physical therapy which she participated in for the following 8 weeks. Follow up ultrasound showed resolution of DVTs.
- Five months post initial injury, and after failed conservative therapy, patient underwent a left L3 sympathetic nerve block, injecting 9cc .25% bupivacaine and 1cc of 10mg dexamethasone. Patient's anticoagulation with rivaroxaban was continued perioperatively.
- Within 30 minutes of intervention there was a notable 7° Celsius temperature change, improvement of discoloration and reduction of allodynia.
- On follow up, patient had near complete resolution of pain, requiring only intermittent acetaminophen for residual left toe and heel pain. Photos were obtained and consent granted for publication.

## IMAGING



Figure 1



Figure 3



Figure 2



Figure 4

**Figure 1 and Figure 2:** Photos taken 2 months prior to sympathetic nerve block.

**Figure 3 and Figure 4:** Photos taken 2 months post sympathetic nerve block.

## DISCUSSION

- The management of CRPS is difficult at best due to its poorly understood pathophysiology and inconsistency in treatment response.
- This patient had incomplete resolution with conservative therapies of gabapentin, physical therapy and treatment of her DVTs.
- Full resolution of symptoms were only realized after blockade of the lumbar sympathetic nervous system, supporting the pathophysiology of the sympathetic nervous system in complex regional pain syndrome.
- Further research is needed to explain why some respond well to sympathetic nerve blockade, while others have little to no response to this treatment modality.
- With only one other documented case of sympathetic blockade with perioperative anticoagulation seen in the literature, this opens a potential for further research into anticoagulation's role in CRPS management.
- Standardization in evaluation and response to treatment must be established to better assess effective management strategies.

## CONCLUSIONS

- The treatment of Complex Regional Pain Syndrome with sympathetic nerve blockage in conjunction with anticoagulation therapy is a potentially novel treatment increasing perfusion with unopposed parasympathetic activity causing vasodilation and perfusion to the affected site of injury.