

Mary Andrews MD, J Drake Wakefield DO, Erin Katz MD, Christopher Paul MD, Prentiss Lawson MD

Introduction:

Complex regional pain syndrome (CRPS) is a poorly understood disorder characterized by chronic pain and, often involves debilitating episodes of hyperalgesia and allodynia. CRPS was previously categorized as “reflex sympathetic dystrophy”, “causalgia”, “algoneurodystrophy”, or “Sudeck atrophy”. More recently, two distinctive categories have been defined: CRPS Type I and CRPS Type II. CRPS Type 1 is defined as pain occurring in the absence of known nerve injury, and CRPS Type II is defined as pain secondary to a confirmed nerve injury. To further add to the compelling nature of this disease, the pathophysiology has not been fully elucidated. It is believed to be secondary to an abnormal tissue response to injury as well as increased sensitization and autonomic dysregulation of the sympathetic nervous system. Given the rarity of this condition and the subjective nature of the diagnosis, the incidence of CRPS in the pediatric population is not known. CRPS Type 1 is believed to be more common in female patients with a mean age of 13. The purpose of this case report is to further investigate CRPS Type 1, as diagnosed by Budapest criteria and clinical correlation.

All of the following criteria must be met:	
- Continuing pain that is disproportionate to the inciting event 1 sign in 2 or more of the categories below 1 symptom in 3 or more of the categories below - No other diagnosis can better explain the signs and symptoms	
Category	Signs/Symptoms
Sensory	Allodynia (pain to light touch or temperature sensation and/or deep somatic pressure and/or joint movement) and/or hyperalgesia (to pinprick)
Vasomotor	Temperature asymmetry and/or skin color changes and/or skin color asymmetry
Sudomotor/Edema	Edema and/or sweating changes and/or sweating asymmetry
Motor/Trophic	Decreased range of motion and/or motor dysfunction (weakness, tremor, dystonia) and/or trophic changes (hair, nail, skin)

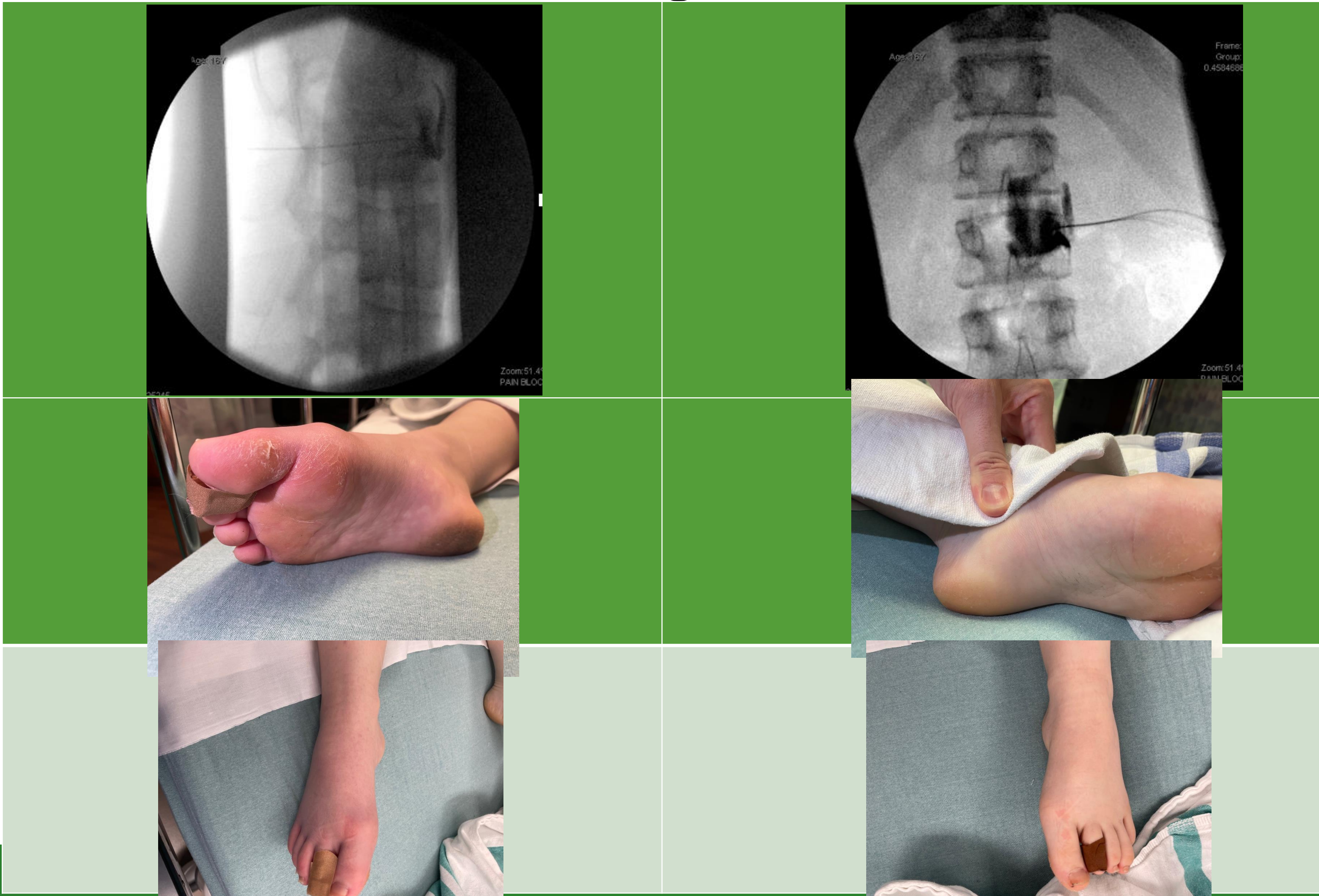
Materials and Methods:

Informed consent was obtained for a case presentation. IRB approval was waived.

Case Presentation

We present a case of a 16-year-old female with a history of hereditary multiple exostoses who initially presented with chronic right foot pain concerning for complex regional pain syndrome (CRPS). Symptoms began gradually without any known traumatic event. . She reported the initial onset of her pain was mild and localized to her second and third toes. Over several months her pain progressed until it encompassed her entire foot below the ankle. Severe pain rendered her unable to bear weight, resulting in bed-bound status. This pain was accompanied by allodynia to light touch such as wearing a sock. Mild swelling and color changes were noted in the affected foot. She reported she was unable to tolerate wearing shoes during this time and pain and decreased functional status resulted in absence from school. Initial management with over-the-counter NSAIDs and gabapentin yielded limited relief. X-ray imaging revealed osteochondromas without acute fractures. She was evaluated by pediatric orthopedic specialists who believed her symptoms were not caused by these osteochondromas and deemed no surgical intervention was needed. Following referral to our clinic for further evaluation, a clinical assessment aligned with CRPS Type 1 according to Budapest Criteria. On exam hyperesthesia, vasomotor, and pseudomotor changes were present. After thorough risk-benefit discussions, the patient decided to undergo a series of 5 right lumbar sympathetic blocks (LSB) at L3 over several weeks alongside intensive, immediate physical therapy. After the first block and physical therapy session, she was able to place her foot on the ground. One week later, she presented for a second LSB. She subsequently underwent physical therapy with mild continued improvement. She underwent a third LSB one week later. After this block, she reported moderate pain relief, and improved ability to participate in physical therapy exercises including weight shifts. Given the patient's continued improvement and ability to return to school, she was counseled further blocks could be deferred at this time. Continued physical therapy was advised. Patient was counseled to return to clinic if pain returns or improvement stalls for further evaluation and possible additional LSB injections.

Images:



Discussion

Complex Regional Pain Syndrome presents a formidable challenge in pediatric populations. Not only is this condition rare, but the importance of time plays a compounding factor on treatment and outcomes. Timely recognition of CRPS in children is paramount due to its potential to cause severe and persistent pain, functional impairment, and psychological distress if diagnosis is delayed. Early intervention not only reduces the progression of symptoms but also enhances the likelihood of successful outcomes especially when combined with multidisciplinary treatments and specialists. Delayed intervention may exacerbate symptoms and result in chronic disability which can have a major impact on the child’s development, psychological well-being, and overall quality of life.

Conclusion

It is imperative to facilitate timely access to multidisciplinary treatment modalities, including physical therapy, pharmacotherapy, and psychological support. Multidisciplinary treatment modalities, as attempted in this patient, have been shown to improve outcomes in the long term even without sympathetic blockade. Through this case, it was shown that by prioritizing early detection and intervention, as well as effective communication with caregivers and follow-up, healthcare professionals can optimize clinical outcomes and alleviate the burden of CRPS on pediatric patients and their families.

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