

Ultrasound Guided Regional Anesthesia: A Safe Approach to Treat Pediatric Complex Regional Pain Syndrome

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BACKGROUND

Complex regional pain syndrome (CRPS) is a debilitating condition that is often difficult to diagnose in children. This condition is characterized by chronic, spontaneous, and provoked pain in the distal extremities which can lead to chronic psychosocial dysfunction in children and adolescents. Regional interventional pain management under ultrasound guidance may be an effective treatment option for pediatric patients with treatment refractory CRPS. It has been well understood that peripheral sympathetic interruption after stellate ganglion block (SGB) is effective in treating CRPS of the upper extremities. However, the shift from using fluoroscopic guidance to ultrasound guidance has only begun to gain in popularity in past decade While there are currently few randomized controlled trails evaluating the safety profile of ultrasound guided SGB versus fluoroscopic guided and blind techniques, several observational studies have demonstrated that ultrasound guidance provides a distinctive advantage in soft tissue visualization and lack of radiation exposure that may be beneficial for pediatric patients. We present a case in which an ultrasound guided SGB was performed to significantly relieve pain in a treatment refractory pediatric patient with CRPS affecting the upper extremity.

CASE REPORT

A 15-year-old otherwise healthy female presented with a one-year history of 8/10 continuously stabbing left wrist and left forearm pain that failed conservative treatment. An initial left SGB under ultrasound guidance was performed which resulted in significant pain relief and functional improvement for 2 months with no complications. Subsequent injections were performed after her initial block for recurrence of pain which provided significant pain relief with increased interval between pain episodes, reduced pain intensity, and further increased functional status.

METHODS

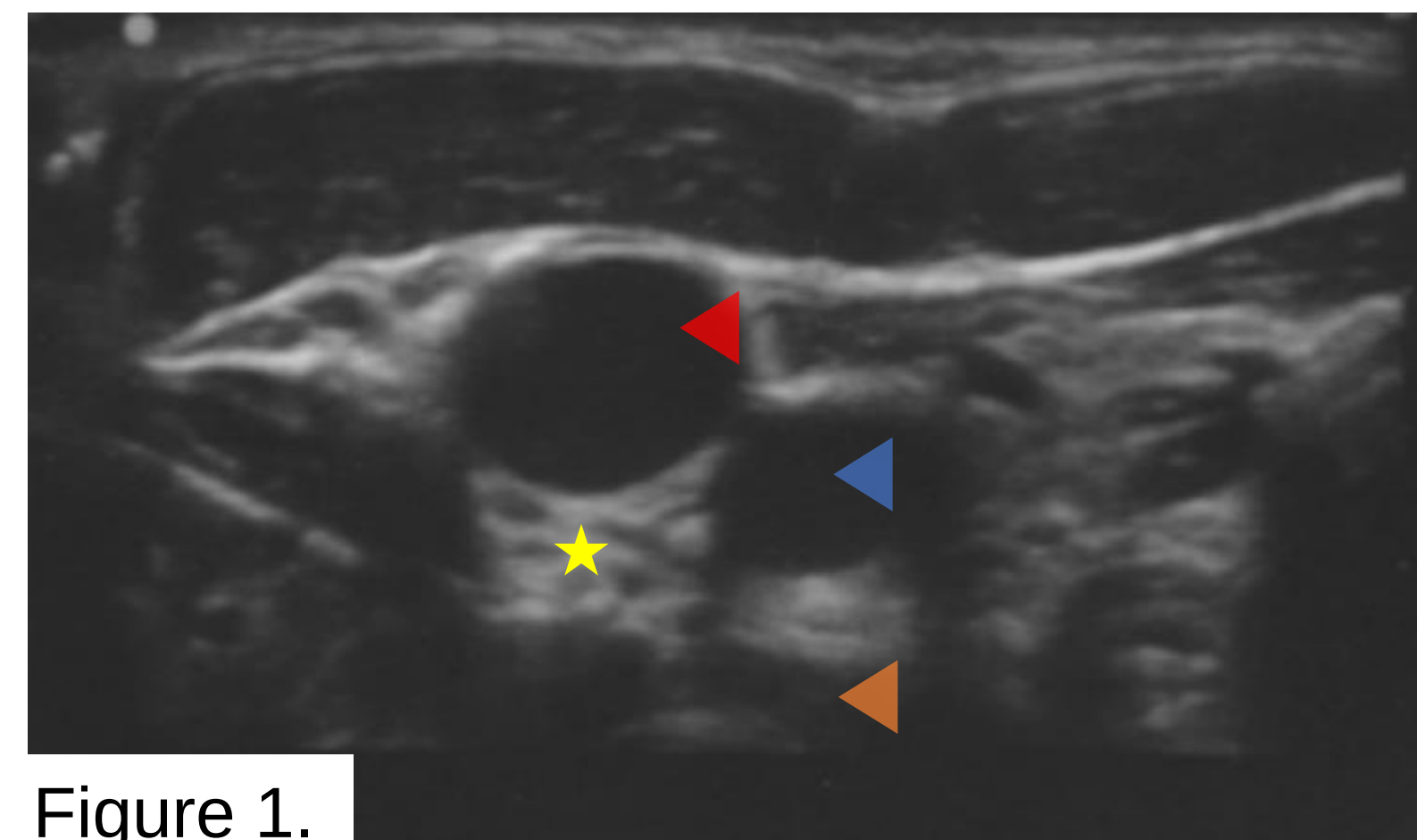


Figure 1.

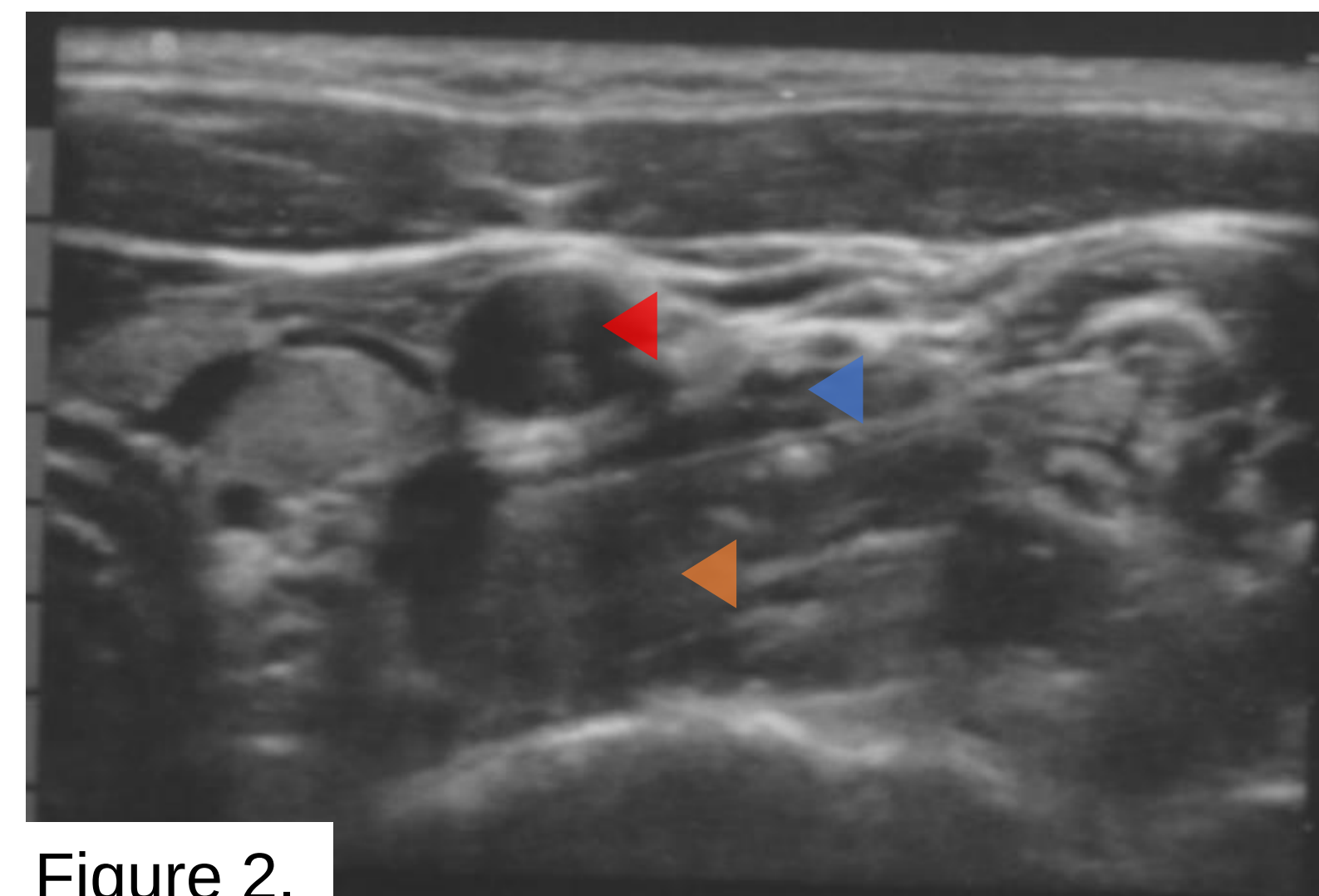


Figure 2.

An ultrasound probe was used to visualize the cervical spine and the cervical articular pillars were counted until a dropout was appreciated, effectively identifying C7. By transitioning the ultrasound probe up to the last appreciated cervical pillar, C6 could be isolated. The probe was transitioned anterior to visualize vital anatomy including the internal jugular vein, carotid artery, thyroid tissue, thyroid artery, and longus colli muscle.

DISCUSSION

This is the first case report on the usage of ultrasound guided stellate ganglion blockage to treat complex regional pain syndrome in a pediatric patient. The case reported significant reduction, with increased interval between pain episodes, of pain and improvement of function without any significant complications. We hope to highlight the importance and effectiveness of ultrasound guided interventional pain management in pediatric patients.

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