



Male Cyclist with Cervical Whiplash Treated with Platelet-Rich Plasma Injections using Ultrasound Guidance

Noah VanWingerden, MD, Ayan Ahmed, MD, Maitland Wiren, DO, & Brian Shiple, DO
Temple University Hospital, The Center for Sports Medicine and Wellness



Case Presentation

A 36-year old male cyclist presented to a sports medicine clinic after being involved in a head-on vehicle collision one month prior. He reported a gradual onset of left-sided neck pain radiating to his left interscapular area, neck stiffness, and ROM restriction. He reported no loss of sensation, weakness, or radicular symptoms.

Physical exam revealed hypertonic muscles in the paraspinal and trapezius muscles, active and passive restriction with left cervical rotation, and positive Kemp's test. Cervical X-rays showed straightening of the cervical lordosis. Using a high-frequency linear US transducer, cervical facet capsule damage, muscular tears, and fascial disruption were identified; symptoms were reproduced with sono-palpation.

Patient was treated with 7X LR-PRP injected under ultrasound guidance and at 8-week follow-up reported symptom relief of 80%. At six months, he reported 50% symptom relief and chose to repeat the injections, with follow up ultrasound showing decreased size of the longissimus muscle tear.

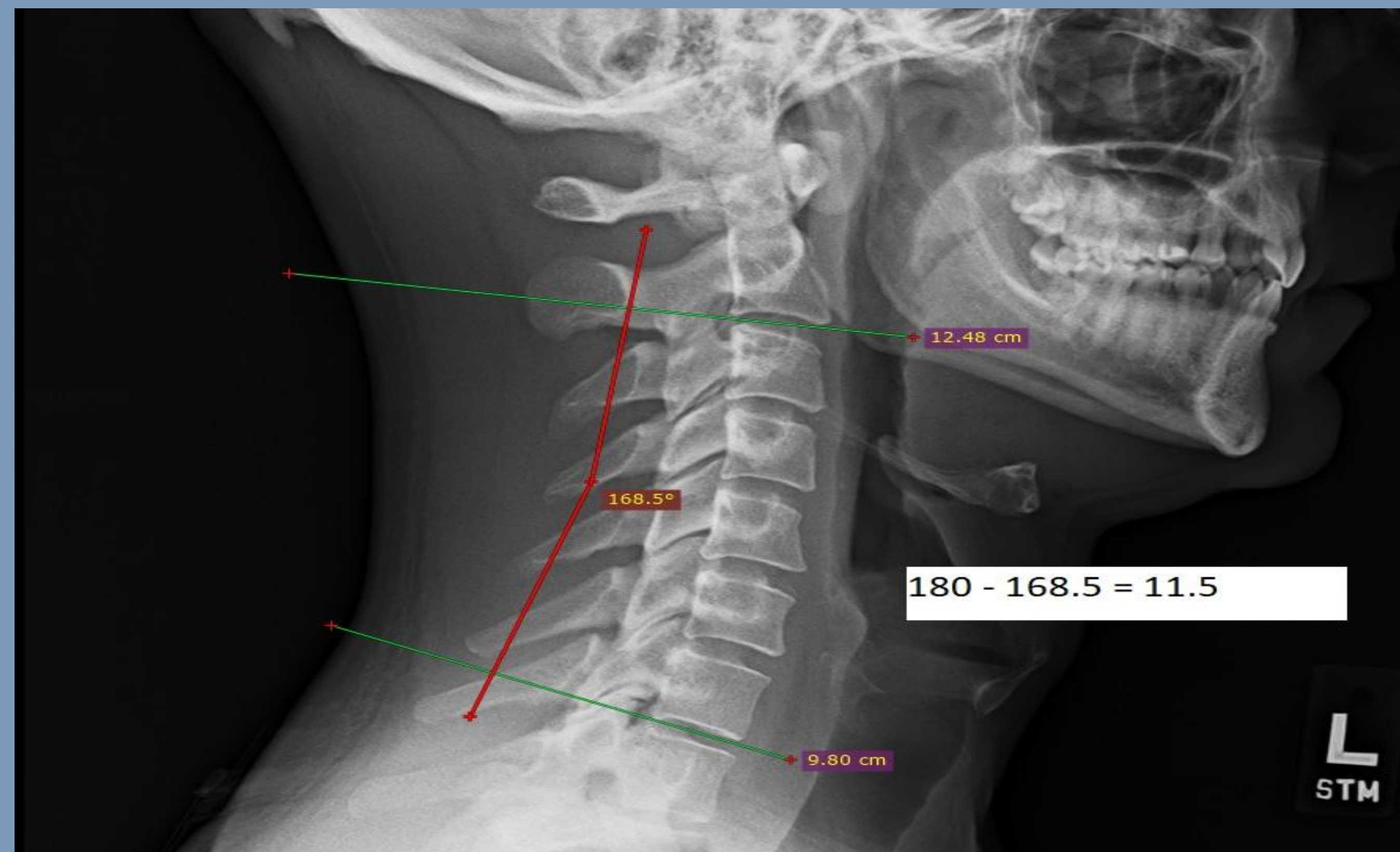


Fig 1. Straightening of the cervical lordosis: The Cobb method was used to measure lordosis resulting in an angle of 11.5° (normal 20° – 35°), indicating increased muscle tension in the cervical paraspinals.

Ultrasound Imaging

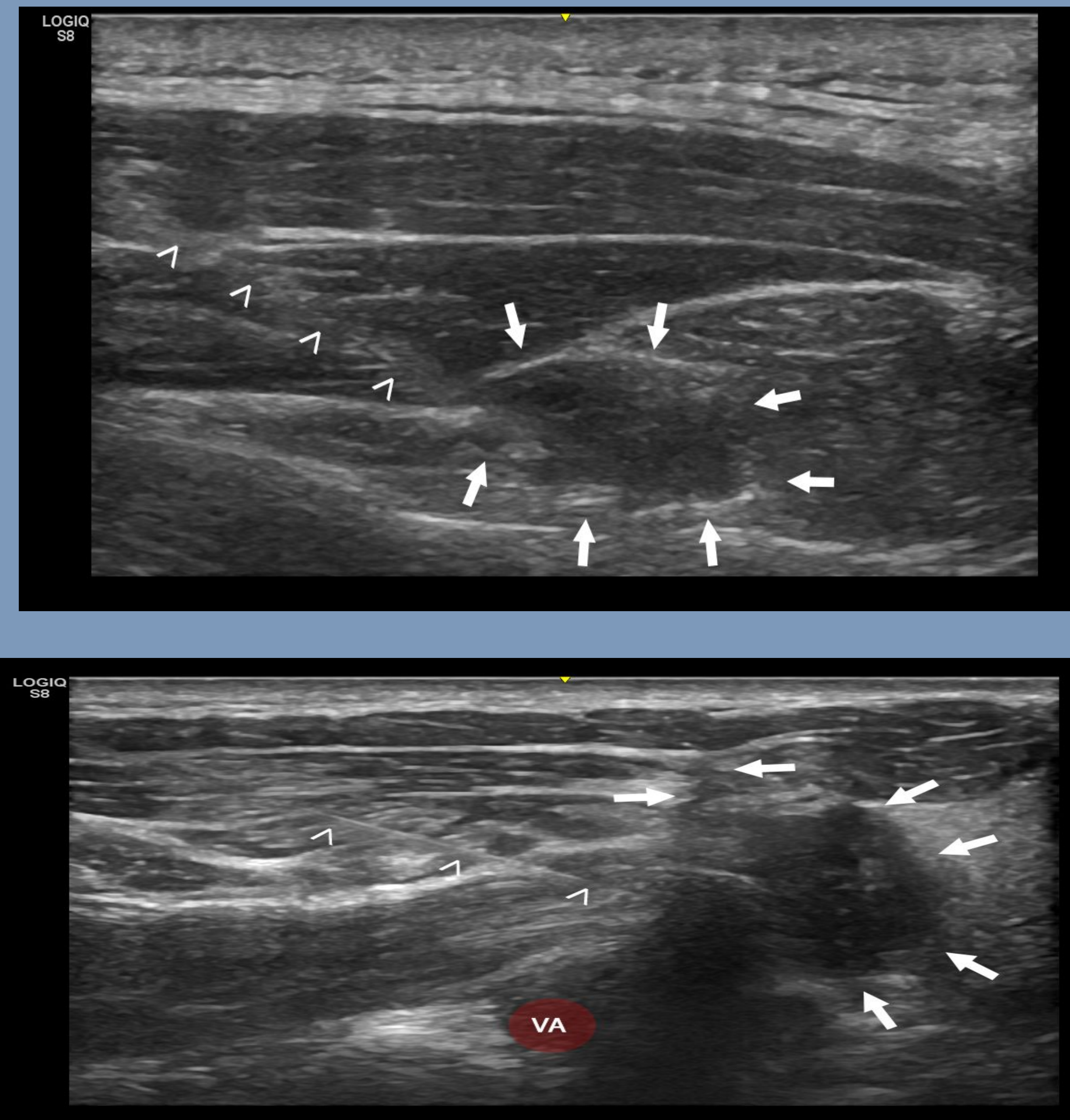


Fig 2.
A. Muscle tear (arrows) in the upper rhomboid apparent once injected with PRP. Needle indicated by arrowheads
B. Fascial disruption and tears extending into the deep cervical paraspinals (arrows), the extent of the tear apparent after injected with PRP and needle (arrowheads). VA vertebral artery.
All images were captured using a high-frequency linear transducer using a GE LogIQ S8 machine.

Discussion

Injuries to the cervical spine and upper thorax are some of the most encountered injuries in cyclists involved in collisions with vehicles.

Due to the sudden acceleration-deceleration mechanism of injury, soft tissue injuries of the cervical spine, called whiplash, manifests as neck stiffness and pain, arm pain and paresthesias, and can persist beyond a period in which recovery is normally expected. X-rays often show slight loss of the normal lordotic curve.

Platelet rich plasma (off-label) injections have been shown to improve symptoms in patients with whiplash injuries when injected into damaged soft tissue.

Conclusion

Whiplash injuries can result in prolonged pain and debility.

Precisely identifying damaged soft tissue remains challenging with physical exam and conventional imaging. With the adoption of high-frequency ultrasound, pinpointing areas has become reliable.

In our case, multiple areas of soft tissue damage were identified and treated with PRP Injections leading to a global reduction of symptoms and improved function.

References

