

HYDRODISSECTION OF THE MEDIAN NERVE AFTER COMMINUTED TRAUMA OF THE HAND USING PRP – A CASE STUDY

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Background

Post-traumatic carpal tunnel syndrome (CTS) is a notable concern following an injury to the wrist. Early identification and intervention are crucial to prevent long-term neurological deficits, which may lead to chronic pain, paresthesias, and muscle weakness, disrupting the function of the hand. Ultrasound-guided hydrodissection of the median nerve involves separating the median nerve from surrounding fibrous tissues, thereby promoting neural mobility. The application of platelet-rich plasma (PRP) in conjunction with hydrodissection has shown potential in augmenting tissue regeneration and reducing inflammation.

Case report

We present a clinical case of posttraumatic CTS after osteosynthesis of a comminuted dislocated fracture of the second metacarpal at the carpometacarpal (CMC) joint, later converted to arthrodesis of the second and third CMC joints, significantly disrupting the function of the affected hand. Due to the severity of the injury, the wrist mobility and analytic exercises were prioritized in the early rehabilitation. CTS then gradually developed because of fibrosis of the wrist caused by bony fragments. The rehabilitation was compromised due to pain and paresthesias in the median nerve distribution, and the development of paresis of the innervated muscles. The grip function was disrupted by progressive ulnar deviation of the wrist, accompanied by progressive resting adduction of the thumb. Therefore, the USG examination of the wrist was performed. After the diagnosis of CTS, the patient underwent USG-guided hydrodissection of the median nerve using PRP. The gradual regression of the paresthesia and pain was recorded after intervention, peaking at 6 weeks. The patient continues rehabilitation with significant progression of the grip strength, function, and fine motor skills.

Conclusion

The use of USG-guided hydrodissection with PRP presents a novel therapeutic approach for patients with posttraumatic CTS. The dual approach seems suitable for rehabilitation progression and has the potential to improve patient outcomes significantly. It should be considered individually to optimize treatment strategy.

Keywords: Hydrodissection, post-traumatic, CTS, PRP