

Platelet Rich Plasma Injection as A Treatment for Intercostal Neuralgia: A Case Report

BACKGROUND

Intercostal neuralgia is a symptom characterized by neuropathic pain along the dermatomes of intercostal nerves. Definitive treatment for intercostal neuralgia has not yet been established. Currently, several approaches have been reported to alleviate intercostal neuralgia such as systemic medication, cryoablation, prolotherapy, platelet-rich plasma (PRP) and surgical approach.² This case report will discuss the effect of PRP in patient with intercostal neuralgia refractory to systemic medication, cryoablation and prolotherapy.

CASE REPORT

A 52-year-old female presented to pain clinic due to chronic pain on left thoracal region. Patient had history of simple fracture on 10th left costae 10 months before. After undergoing conservative treatment, patient initially complained of sharp pain on left thoracal region and eventually turned into constant dull pain with time, with baseline NRS of 3-4. Patient had breakthrough pain three to five times per day with NRS >5. In the last one month, there was an increase in pain intensity accompanied with disturbance of sleep and daily activities. Cryoablation and prolotherapy had been attempted to treat the pain; however, the effect was insignificant. Patient then scheduled for PRP injection on left tenth thoracal intercostal nerve near the pain location. First injection of PRP managed to produce 50% pain relief, and complete pain relief was achieved after second injection two weeks thereafter.

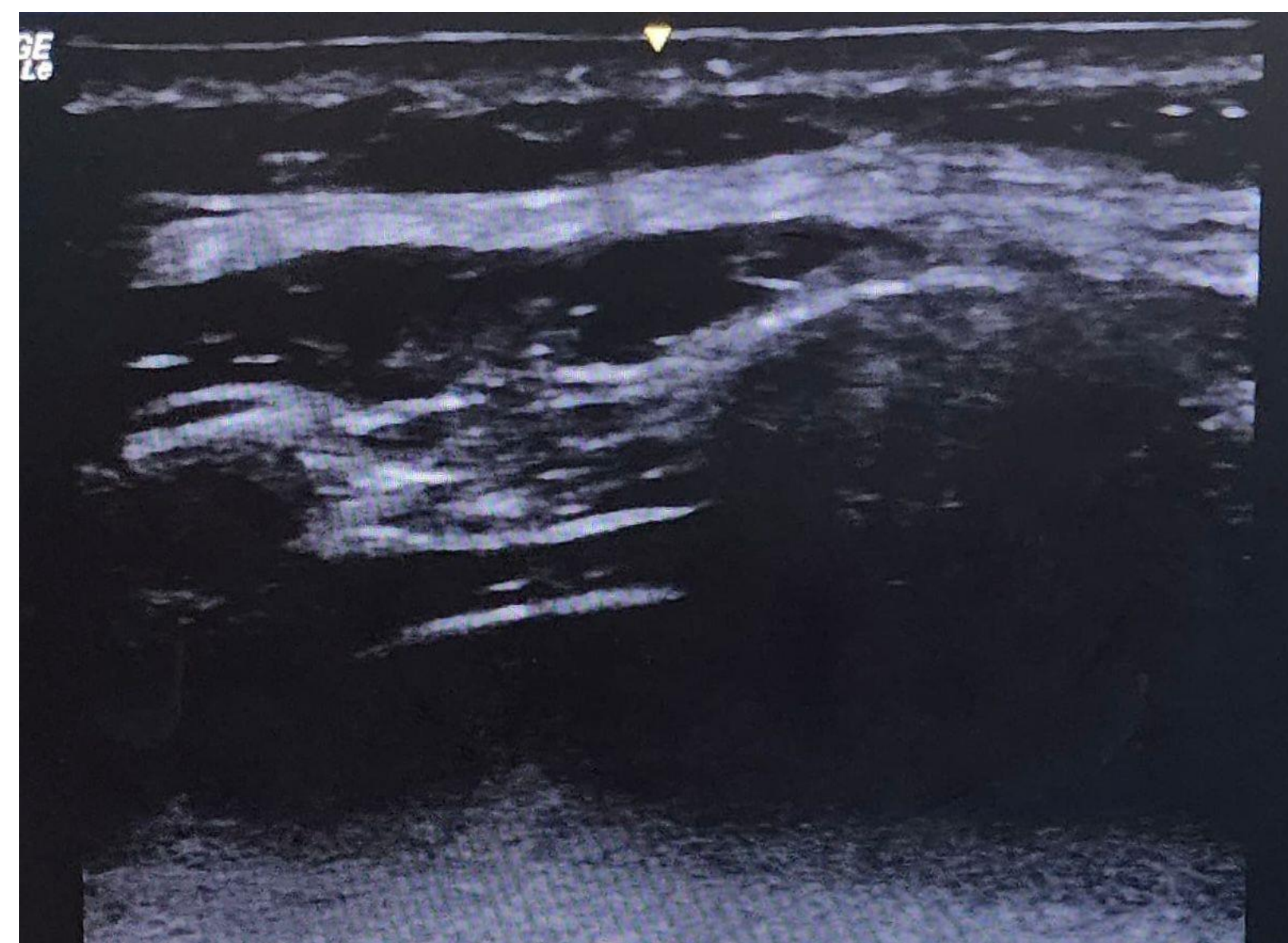


Figure 1. USG image showing the 10th left costae.

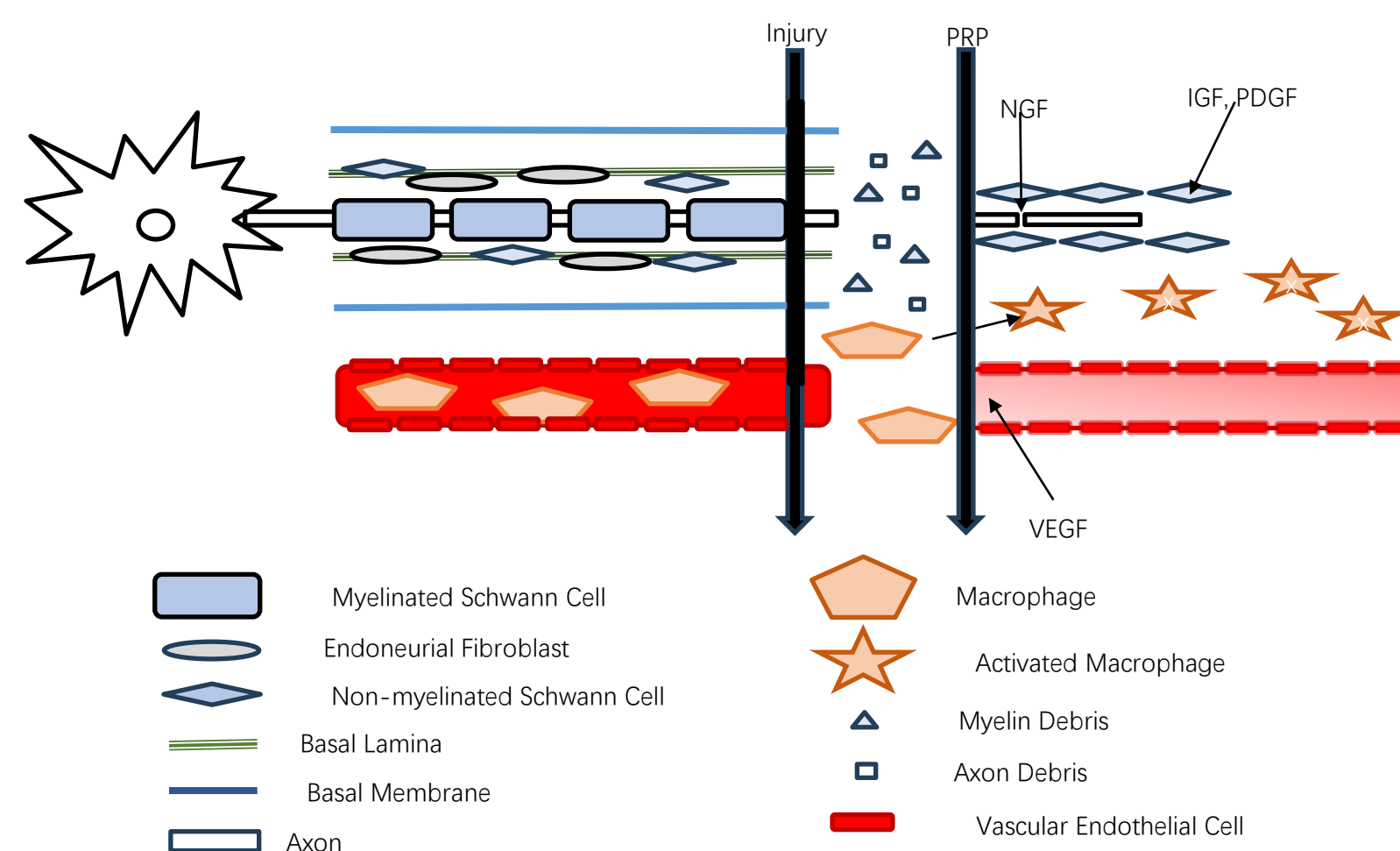


Figure 2. Nerve injury and effect of PRP in nerve regeneration.⁵

DISCUSSION

Neuropathic pain is believed to be derived from hyperexcitability of injured neuron due to incomplete healing process.^{2,3} PRP may retrigger inflammatory process and promote tissue repair.^{3,4} The goal is to recover normal membrane biophysical properties, thus resulting in relief of neuropathic pain.² PRP has advantage over systemic drugs and other techniques because it was originated from autologous blood, easily obtainable at low cost, with no known significant side effect.⁶

PRP may stimulate nerve regeneration process by Schwann cells proliferation, migration and stabilization, vascular regeneration, and promotion of axonal regeneration.^{4,5} Proliferation and migration of Schwann cells facilitate Büngner band formation and promote axonal growth.⁵ Schwann cells also contribute to axon membrane stabilization by differentiation into myelin sheath.⁵ PRP contains VEGF that promotes angiogenesis, resulting in increased vascularization, promoting axonal growth and thus the survival of the neuron.⁵

LEARNING POINT

PRP may be used to relieve neuropathic pain by facilitating Schwann cells migration and regeneration, revascularization and promoting axon growth. Limitations of studies using PRP in neuropathic pain include variety of PRP production process, usage of activating agent, and its dosage were still debatable.⁵ Further study is needed to determine specific characteristic for PRP used. Standardization of PRP quality and production process have to be established in order to discover its potential in various condition.

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