

Platelet Rich Plasma Injections for Treating Unilateral Vocal Cord Palsy: Through Regenerative Technique

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Unilateral vocal cord palsy is a common presentation at an otolaryngologist clinic usually occurring as a result of damage to recurrent laryngeal nerve due to some trauma, malignancy or during surgery. The patient presents with dysphonia, aspiration and shortness of breath. In spite of undergoing all necessary investigations 50% cases are labelled as idiopathic.

The approach to its treatment is usually conservative. OPD procedures have become more frequent in laryngology, being performed without the need for general anaesthesia and an operating room. Vocal cord rehabilitation with injecting dexamethasone, autologous fat, fascia and Teflon has been attempted in the past. Lately, platelet rich plasma has evolved as a novel biological material which is being tried and tested by numerous surgeons across the world. PRP along with its high platelet concentration contains a number of growth factors such as platelet-derived growth factor (PDGF), transforming growth factor alpha and beta (TGF- α and TGF- β), fibroblast and epidermal growth factor (FGF/EGF) and insulin-like growth factor along with white blood cells, phagocytic cells, fibrinogen, chemotactic and vasoactive agents. Along with the advantage of being highly safe due to its autologous property, it possesses many other advantages like having a shorter preparation time and boosting the deposition of platelets and growth factors in the healing area.

We conducted a comparative study to evaluate the therapeutic efficacy of dexamethasone and PRP injections in treating unilateral vocal cord palsy. A total of 50 patients were divided into two random groups. 25 patients of group 1 received injection

of dexamethasone 1ml (4mg/ml) in false vocal fold at weekly intervals for 12 weeks. And the remaining 25 patients in group 2 were treated by administering injection of platelet rich plasma 1ml in the same site at weekly intervals for 12 weeks.

Platelet rich plasma is a derivative of whole blood. Platelet rich plasma is a derivative of whole blood. The blood was withdrawn from the patient by venepuncture method right before injecting it into the false vocal folds. Dual spin centrifugation technique was used. The sample was centrifuged using a soft spin at 1500 RPM. The supernatant plasma containing the platelets were segregated and again centrifuged at a hard spin of 3000 RPM. The upper 2/3rd of the platelet concentrate was platelet-poor-plasma (PPP) which was discarded and the lower 1/3rd was platelet rich plasma (2-3mL) with 5-8 times the platelet concentration of whole blood.

The procedure was carried out by two operators. The skin over the anterior aspect of neck was anesthetized using injectable 2% lidocaine. 1ml of PRP was injected into the cricothyroid membrane near the inferior cornu of thyroid cartilage (Figure 1). After applying oral, nasal and laryngeal topical anaesthesia a flexible nasopharyngoscope was introduced transnasally to visualize the larynx. In patients of group 2, a direct rigid laryngoscopy was performed and PRP was injected transorally using 23-gauge lumbar puncture needle with a single bent connected to a 2ml syringe containing the PRP. Approximately 1 mL of PRP was injected into the mid-membranous vocal fold into its subepithelial plane (Figure 2). However due to slight leakage of PRP during injection, a minimum of 0.5 ml placement was compulsory. Similar procedure

was carried out in patients of group one using 1ml dexamethasone injection instead of PRP. These injections were repeated weekly and the outcome was assessed at intervals of 3 weeks, 6 weeks, and 3 months follow up. All the patients tolerated the injections very well with no adverse effects. None of the patients received supplementary drug therapy. The patients subjectively noted an improvement in their voice after approximately 4-5 PRP injections. Videoendoscopic evaluation of the larynx was carried out at each follow up and there was a statistically significant improvement in patients receiving PRP injections when compared to the other group receiving dexamethasone.

autologous property with no risk of chemical irritation at injection site. Moreover, researchers now are quite passionate to find new biological products to improve the efficacy of any treatment and it is safe to say platelet rich plasma in future could be a regenerative therapy of choice in treating unilateral vocal cord palsy. However, further studies with new experimental designs, larger sample size and long term follow up are required to draw a conclusion.

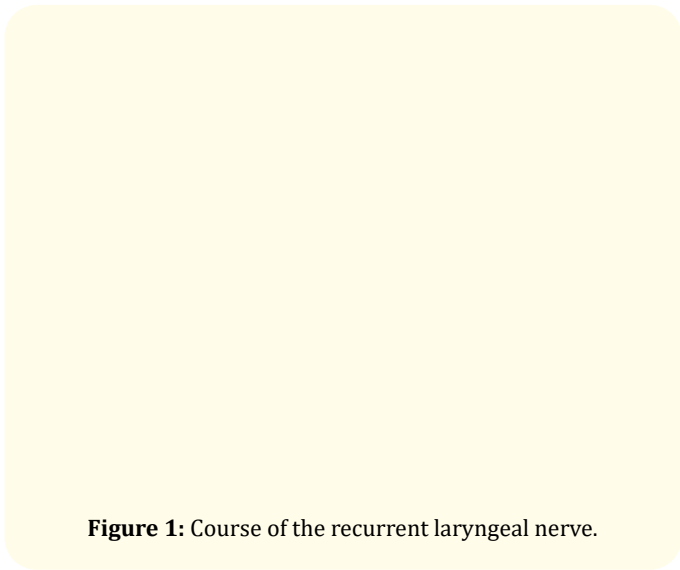


Figure 1: Course of the recurrent laryngeal nerve.

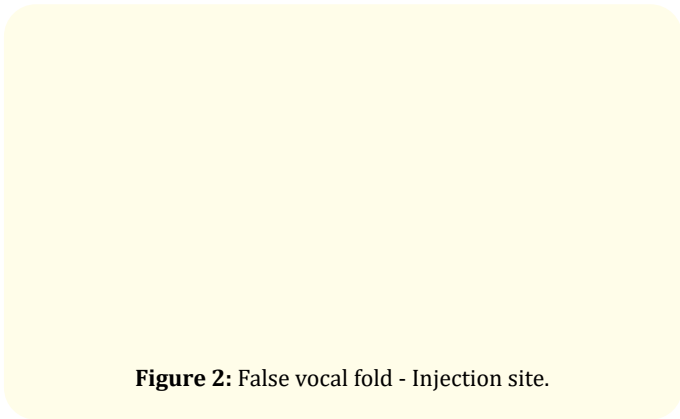


Figure 2: False vocal fold - Injection site.

We came to a conclusion that platelet rich plasma injections can be used safely in patients with known drug allergies and chronic illnesses with no adverse effects. It has an upper hand due to its