

TREATMENT FOR A REFRACTORY CHRONIC TENDOACHILLES TENDINITIS WITH PLATELET-RICH PLASMA INJECTIONS: A CASE REPORT

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ABSTRACT

To define the pain and functional improvement of the patient with chronic Achilles tendinitis treated with a single PRP (platelet-rich plasma) injection. Chronic Tendoachilles tendinitis is a severe cause for a decrease in physical activity and persistent pain. It arises secondary to an account of repetitive use or exaggerated overload. Platelet-rich plasma therapy is used to provide local regenerative healing of the tendon. This report describes a 50-year-old Active female who presented with continuous pain in bilateral Tendoachilles for Approximately 6 years duration. A single Platelet-rich plasma injection is given to the patient with chronic tendoachilles tendinitis to reduce pain and improve function and improved VAS (visual analogue score) score from 9 to 0 seen at 1-year follow-up. The patient has been pain-free for the past 2 years and is back to daily functional physical activity. A single injection of PRP in each tendoachilles distally has shown significant relief in pain and improvement in day-to-day physical activity and a rapid recovery from chronic TA tendinitis.

KEYWORDS: Chronic TA, PRP, Tendoachillies tendinitis.

INTRODUCTION

The pathology of tendoachillies tendinitis, affects the middle aspect of the tendon and this finding is very common amongst various group of the people who are actively participating in sports especially the marathon runners. It is seen to hamper their performance greatly with persistent pain for several years (1-2).

The chronic inflammation present is a sequelae to the degeneration of the hyaline and fatty tissues of the tendon. This results in weakness and even causes the accidental rupture of the Achilles tendon (3).

The long-term use of Non steroidal anti inflammatory drug (NSAID) drugs can likely lead to the occurrence of gastric ulcers, hence proven highly controversial on clinical practice. (4).

Where as platelet rich plasma (PRP) is blood rich in platelets and is derived from autologous whole blood by process of centrifugation. Platelet in massive concentration release of growth factor such as transforming growth factor-beta 1 (TGF- β 1), insulin-like growth factor (IGF), epidermal growth factor (EGF), and platelet-derived growth factor (PDGF). PRP initiates the restoration of wound site by stimulating vascular endothelial cell division, vascular proliferation, capillary growth, and collagen synthesis in the transplant area (5-6).

CASE REPORT

An active 50 yearsold female presented with persistent pain in both Ankles for approximately 6 years duration which was initially intermittent dull aching more in the night in right Achilles tendon insertion following day to day activity of household with no footwear. Later, the patient noticed morning stiffness which was soon followed by stiffness at the posterior aspect of the ankle at the insertion of tendoachilles. The symptoms were intermittent initially and depending on the physical activity of daily household work. After months patient started to visit a different medical practitioner for the pain and stiffness. During this period due to increased activity increase in pain and bilateral tendoachilles involvement was noticed the patient and left tendoachilles started having pain and stiffness, following her visit she has advised a topical anti-inflammatory from a physician, and physical therapy which had rest, therapeutic ultrasound, massage, calf stretching exercises. The patient went for physiotherapy for years and had temporary relief in symptoms with the advice of restricted activity, the slightest activity of household would increase the pain. After the treatment patient decreased her physical activity and continued physiotherapy sessions and oral pain medication which lessened the symptom.

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But after 4 years of medication and self-care, the patient still characterized the pain as stiff dull aching and aggravating on movement with morning stiffness more in the right ankle than the left ankle, with bilateral swelling over-insertion of tendoachilles. The patient had no past history of any foot or ankle trauma, no surgical history, no intake of any medication or supplement, and She did not consume tabacoo or alcohol, no history of any other comorbidities such as Diabetes mellitus and Hypertension.

Following clinical examination, the patient was diagnosed with Chronic bilateral Tendoachilles tendonitis more in the right side compared to the right. An MRI was done to confirm the diagnosis, tendon rupture was ruled out. Swelling around the insertion of tendoachillis was seen

The treatment plan was a Single PRP injection (Harvest Machine of Terumo BCT, USA) in each side of 2.5 ml. Patient had a Pre Treatment VAS score of 9. Pre PRP injection patient was strictly instructed to avoid NSAIDs for a week.

Harvest PRP with SmartPrep System Performance^{II}		
	Whole Blood	Harvest PRP
Platelets	$318 \times 10^3 / \mu\text{L}$	$1560 \times 10^3 / \mu\text{L}$
SDF-1 α pg/mL	1953	2663
PDGF ng/mL	59.4	398.3
TGF- β 1 ng/mL	85	319
VEGF pg/mL	116	600
WBC	$5.83 \times 10^3 / \mu\text{L}$	$21.09 \times 10^3 / \mu\text{L}$
Mononuclear	34.78%	75.54%
Granulocyte	65.22%	24.46%
CD34+ (total cells delivered)		171,571

Fig. 1: Comparison of whole Blood with Prepared PRP through Harvest Machine

30 ml of patient's blood was taken from the antecubital vein with proper sterile precautions, put in the 30 ml Harvest PRP kit and processed in the Harvest smart prep machine for about 15 minutes (double spin centrifugation), then 5 ml of PRP was harvested from the kit following all sterile precautions and put in a single 10 ml syringe and with a new 21G needle, ready for injection, the plan was to put 2.5 ml of PRP in each TA insertional area centrally, laterally and medially with some amount also in the substance of TA to optimise healing and control inflammation.

The patient was placed in prone position with ankle in a neutral position. After sterile area preparation and under proper sterile condition by betadine solution 10%, subdermal local anaesthetic injection of 1 ml of 1% lignocaine was given in midline about 2 cm from the TA insertion.

The prepared PRP injection was injected centrally, laterally and medially into the lesion area with nu-



Fig. 2: Clinical picture of patient with TA tendinitis



Fig. 3: Central Injection about 2 cm Proximal to TA Insertion

merous penetrations of the tendon.

After the injection, the patient was sent home with instruction on the limited use of the leg for 48 hours and cold compression advised on the injection site.

Post injection no NSAID drugs were given and eccentric exercises were advised after 1 week.

DISCUSSION



Fig. 4: Clinical Picture of Patient with TA Tendinitis Pre PRP Injection



Fig. 5: Lateral injection to TA insertion

OUTCOME OF TREATMENT

Patient has been under regular follow up for past 2 years, At time of 24 months follow up patient has a VAS (visual analog score) score of 0 with back to normal day to day activity with no morning stiffness.



Fig. 6: Post PRP injection 2 years follow up, The protuberance and Tendinitis is not visible at all

The finding of the case shows that patient of chronic tendoachilles tendinitis of bilateral side which had a visual analog score of 9, after single PRP injection at follow up after 1 year shows visual analog score of 0. Visual analog scale (VAS) is a valid and reliable way to measure for acute and chronic pain. Scores are recorded by making 10-cm horizontal line that represents “no pain” to “worst pain (19).” And clinical improvement in overall of symptom and physical activity and return to normal day to day household activity. The clinical improvement is significantly higher and this modality of treatment should be compared with other modality to compare the difference of improvement. Many phenomena have played a vital role for a satisfactory clinical report: (i) Stimulus given via dry needle for internal bleeding and thus boost the inflammatory response which may begin the process to repair the degenerated area of the tendon; (ii) The biological stimulus by platelet derived growth GF's targeting the gene expression of matrix molecules, formation of collagen and tendon cell proliferation; and (iii) The promotion of circulation-derived cells, Aggravated by Platelet Rich Plasma cells, which play a important role in the tissue repair process.[6]

This case report demonstrates that using PRP in chronic refractory TA tendinitis can lead to improvement in functional outcome and it safe and effective treatment.

A study by Monto et al.[10] proved the clinical result positively through aforementioned studies of a case series : were 30 patients suffering from chronic tendinopathy underwent treatment at least 6 months of non-surgical management. Every patient was injected with PRP under ultrasonic guidance. The clinical results were positive, with a significant improvement when compared to pre-injection status, and improvement significant till final follow-up at 24 months. There were sign of tendon healing on MRI/USG in 27 out of 29 patients. There was an improvement to occupational activity and sport activity which confirmed the trend displayed by clinical score and imaging appearance.

A larger controlled trail is needed to study the effectiveness of the treatment in larger population. And to compare the effectiveness of treatment to other treatment modalities.

CONCLUSIONS

Intra-tendinous injection of autologous PRP produced good result in treatment of chronic tendoachilles tendinitis with a long term improvement in follow up of symptoms and improvement in physical functional activity level.

Studies with higher sample size are required to see the

full potential for PRP as a treatment modality in chronic tendoachilles tendinitis.

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