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Comparison of steroid injection vs platelet rich plasma injection in the treatment of de-quervain tenosynovitis

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Abstract

Introduction: De Quervains disease is a chronic inflammation of tendons of abductor pollicis longus (APL) and the extensor pollicis brevis (EPB) as they pass through 1st dorsal extensor compartment of wrist. Aim of the study is to compare the functional outcome between PRP (Platelet rich plasma) vs Steroid injections in the management of this pathology.

Methods: This was a prospective study of 30 patients with de quervains tenosynovitis and study conducted between September 2021 to November 2021 for a period of 3 months follow up done. The present study included 30 patients of both sexes, different age groups associated with co-morbidities divided into two groups. Group I received CS injection, and group II received PRP injection.

Results: The average age of patients in Category I was 37 years and in category II was 37 years. A statistical difference was seen in VAS on comparing the baseline evaluation with the results after 1 month of injection administration. It was found that there was more depletion in VAS score in Category I (2.33%) after one month of injection whereas Category II showed an initial low depletion rate after one month (2.86%) followed by a steady decline rate after 3 months. A similar difference was reflected on using the Quick DASH score in which Category I projected a greater improvement after one month of injection use whereas Category II projected a steady improvement rate after 3 months of injection use.

Conclusion: PRP for De Quervains tenosynovitis can be used as a 2nd line of management instead of steroid as PRP has better functional outcome and lesser complications as compared to steroid therapy.

Keywords: De Quervains tenosynovitis, PRP, steroid, quick DASH score

Introduction

De Quervains disease is characterised by inflammation of 1st compartment tendons as they lie over the styloid process of the radius. When they pass through relatively a narrow canal which causes swelling and associated with formation of a fibrotic tendon nodule, which contributes to improper gliding of extensor tendons [1]. The edema in surrounding area is caused due to inflammatory changes and incarceration of the tendon blocking in its gliding in both directions. With disease progression, the retinaculum thickens prominently and there is fibrocartilaginous metaplasia [2, 3]. With further advancement of the disease there are signs of tendinous erosion, and an overall increase in the sheath's thickness. Incidence is more common in pregnant women, postpartum, Lactating women, malunited radius fracture, rheumatoid arthritis, recent trauma [4]. Treatment protocol starts immobilisation with thumb spica, NSAID's, UST therapy and steroid injection followed by surgical release of tendon sheath [5]. Steroid injection has been used as treatment for long time and proved effective and it has its own advantages like faster pain relief, and recovery from symptoms then disadvantages like skin hypopigmentation, and tendon rupture on repeated steroid injection [6]. Platelets and growth factors are integral to the normal wound healing process [7]. Studies suggest that a platelet-rich plasma (PRP), can be used to treat chronic injuries [8]. PRP is thought to improve healing in chronic degenerative tendon injuries [9]. As wound healing improves, pain and function can improve. PRP has shown greater efficacy in managing recurrent tendonitis and tendinosis than in managing other conditions.

Methods

Our study was conducted prospectively comprising of 30 patients with de Quervain's tenosynovitis and the study was conducted between September 2021 to November 2021 for a period of 3 months. The present study included 30 patients of both sexes, different age groups from 24 to 60 years associated with co-morbidities, and who have tried varied conservative management and subsequently failed. The patients were split up into two categories. Category I were administered with 2ml of CS injection, its constituents being 1 ml of triamcinolone acetonide 40mg and 1 ml of 0.5% lignocaine whereas Category II were administered with PRP injection. Patients under 18 years with preceding fracture history or those who have undergone surgical procedures on the concerned hand and wrist and those with past history of steroid injection usage, Arthritis, Pregnancy, Systemic diseases or infections along with patients taking anti-platelet drugs and oral steroids were omitted from the study. All the patients were mandated to withdraw from using NSAIDs 3 weeks prior to the procedure. In Category I, a 22-gauge needle linked to a 5cc syringe constituting 1 ml of Methylprednisolone (40mg/ml) plus 1 ml of 0.5% lignocaine was prepared and injected into the tendon sheath followed by a sterile dressing application. In Category II, around 30 ml of patient's blood was drawn and instilled into the pre-packed PRP kit along with 5 ml of. Subsequently, 3-4 ml was prepared and injected into the tendon sheath. Patients were mandated to keep away from any possible movement of the injected hand for the following 48 hours and were counselled to place ice packs over the wrist joint and to take NSAIDs. Prior to the beginning of the procedure and on follow-up, VAS and Quick DASH score were used for symptoms evaluation.

Results

The present study included 30 patients of both sexes belonging to different age groups associated with co-morbidities split up into two categories. Category I were administered with CS injection, and Category II were administered with PRP injection. The average age of patients in Category I was 37 years and in category II was 37 years. Category I had 12 male patients and 3 female patients while in the contrary 9 male patients and 6 female patients (fig 1) formed Category II, adding up to a total of 21 males (6.3%) and 9 females (2.7%).

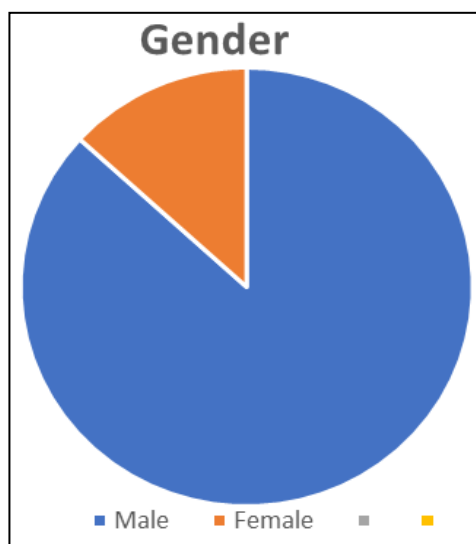


Fig 1: Gender distribution

A statistical difference was seen in VAS on comparing the baseline evaluation with the results after 1 month of injection administration. It was found that there was more depletion in VAS score in Category I (2.33%) after one month of injection whereas Category II showed an initial low depletion rate after one month (2.86%) followed by a steady decline rate after 3 months (Fig-2).

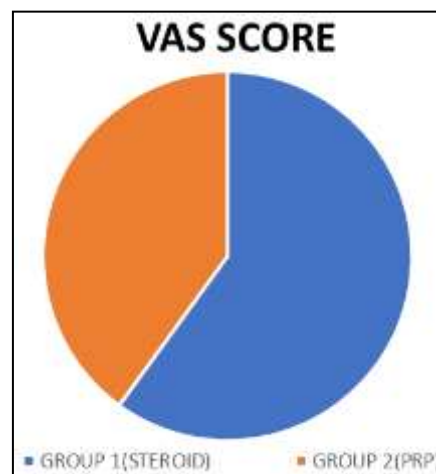


Fig 2: VAS score

A similar difference was reflected on using the Quick DASH score in which Category I projected a greater improvement after one month of injection use whereas Category II projected a steady improvement rate after 3 months of injection use. Not a bit of the patients involved in the study had grievances of any ill effects after PRP administration. No infections or any other impediments were noted at the end of 3 months. All patients in Category II exhibited a stable waning in symptoms while 2 female patients from Category I revealed commencing improvement following which they had repetition of symptoms though not as devitalising as in pre-procedure records.

Discussion

De Quervain's syndrome also referred to as the de Quervain's tenosynovitis and de Quervain's tendinitis are the terms used to describe the underpassing channel that shields the tendons that helps in the movement of the thumb^[10]. Tendinosis is a name given to tendons that show chronic degeneration and thickening, rather than an inflammation. Al-ardi *et al.* stated that De Quervain's syndrome comprises the symptoms which results from tendon degeneration, not inflammation^[11]. The tendons involved are the tendons of the extensor pollicis brevis and abductor pollicis longus muscles of the thumb. Six of the fibro-osseous tunnels displaying the dorsal compartments on the distal radius encompass the extensor tendons and play a major role in preventing extensor tendon's bowstringing. (12). Each of the compartment is overlined by a synovial sheath. These two muscles run shoulder to shoulder in their tunnel and both move the thumb away from the hand. The abductor pollicis longus (APL) and the extensor pollicis brevis (EPB) tendons travel along this compartment^[13]. The predominant role of the APL is to abduct the thumb and aid with radial deviation of the wrist^[14]. The EPB's role is to extend the metacarpophalangeal joint and to delicately abduct the thumb. The sole cause of de Quervain's syndrome is idiopathic. Prevalence is more apparent among pregnant women, those who are lactating and in patients with

malunited radius fracture, recent trauma and Rheumatoid arthritis [15]. Ours is a prospective study comprising of 30 patients with dequervains tenosynovitis. Our study was performed for a period of three month extending from September 2021 to November 2021 with follow up. for a period of 3 months. It comprised of patients belonging to both sexes and different age groups affiliated with co-morbidities split up into two categories. Category I were administered with CS injection whereas category II were administered with PRP injection. The average age of patients in Category I and II was 37 years. A statistical difference was seen in VAS on comparing the baseline evaluation with the results following 1 month of injection administration. It was found that there was more depletion in VAS score in Category I (2.33%) after one month of injection whereas Category II showed an initial low depletion rate after one month (2.86%) followed by a steady decline rate after 3 months (Fig-1). A similar difference was reflected on applying the Quick DASH score in which Category I projected a greater improvement after one month of injection use whereas Category II projected a steady improvement rate after 3 months of injection use.

Conclusion

PRP for de quervains tenosynovitis can be used as a 2nd line of management instead of steroid as PRP has better functional outcome and lesser complications as compared to steroid therapy

Conflict of Interest

Not available

Financial Support

Not available

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