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CASE REPORT

Treatment of calcific tendinitis of the rotator cuff with platelet-rich plasma injection: A case report

Rotator cuff kalsifik tendinitinin plateletten zengin plazma enjeksiyonu ile tedavisi: Olgu sunumu

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Summary

Rotator cuff calcific tendinitis is a common shoulder disorder that usually subsides spontaneously. Some patients, however, do not show any improvement in the pain after conservative treatment for an extended period of time. The aim of this report was to demonstrate the improvement in a patient with calcific tendinitis of infraspinatus following treatment with platelet-rich plasma (PRP). Although the efficacy of PRP therapy in this condition is uncertain, it can be an effective treatment option in refractory cases.

Keywords: Platelet-rich plasma; injections; tendinopathy; rotator cuff; case reports.

Özet

Rotator cuff kalsifik tendiniti çoğunlukla kendiliğinden geçen yaygın bir omuz rahatsızlığıdır. Ancak bazı hastalarda uzun süreli konservatif tedaviye rağmen ağrıda herhangi bir düzelme görülmez. Bizim bu makaledeki amacımız, infraspinatus kalsifik tendiniti olan bir hastada plateletten zengin plazma (PRP) tedavisi sonrası iyileşmeyi göstermek. PRP tedavisinin bu rahatsızlıktaki etkinliği kesin olmasa da, dirençli vakalarda etkin bir tedavi seçeneği olabilir.

Anahtar sözcükler: Plateletten zengin plazma; enjeksiyonlar; tendinopati; rotator manşet; olgu sunumları.

Introduction

Rotator cuff calcific tendinitis is an acute or chronic painful condition due to presence of calcific deposits within tendons, usually of the supraspinatus. However, calcium can also build up in the tendon of the infraspinatus and rarely in other parts of the rotator cuff.[3, 7, 10] Calcific tendinitis generally affects patients between the ages of 30 and 60 years. It is more often in women than in men. Also it is seen predominantly in the right shoulder.[14] It typically presents as severe, disabling pain that affects patients' independence, quality of life and mobility for daily tasks.[15]

The treatment may be conservative, minimally invasive or operative. Approximately 90% of patients with calcific tendinitis can be managed by non-operative interventions. Non-operative treatment options for calcific tendinitis include anti-inflammatory therapy, physiotherapy, extracorporeal shock-wave therapy (ESWT), needling (blindly or with radiological guidance) or puncture and lavage, local steroid injection (intralesional or into the subacromial space).[3, 7, 8, 14]

Platelet-rich plasma (PRP) is a portion of blood which is prepared by placing patient's own blood in a centrifuge, which separates out platelets. The increased platelets in PRP release several growth factors which play important roles in tissue repair processes. In recent years, PRP treatment has become a popular option for tendinopathy. In spite of its increasing use in clinical practice, only two randomized controlled trials have been published on the application of PRP for rotator cuff tendinopathy.[1, 11]

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Herein we report a case of calcific tendinitis of the infraspinatus that was treated with subacromial PRP injection.

Case Report

We present the case of a 52 years old woman who suffered from difficulty to move her right shoulder over a period of 6 months. She had a history of type 2 diabetes mellitus. At the time of her evaluation at our clinic, she had already been diagnosed with calcific tendinitis of the infraspinatus based on physical examination and imaging findings (Fig. 1). She was very painful despite treatment with NSAIDs, physical therapy and 2 subacromial injections with corticosteroid that were performed before evaluation at our clinic. The pain intensity in her right shoulder was 10/10 on the Visual Analog Scale (VAS). Her exam demonstrated painful limitations in right shoulder movements (flexion: 120°, abduction: 130°, internal rotation: 40°, external rotation: 30°). The patient's Constant score, a widely used scoring system for shoulder function, was 35/100 on the right shoulder.

First, the patient was treated with ESWT. But after the second session of ESWT, petechia over posterior aspect of the right shoulder was noted. Therefore, we gave up ESWT treatment. She was then treated with kinesiotaping, amitriptyline (10 mg per day, oral) and colchicine (0.5 mg twice a day,oral), with no improvement after two months of treatment. Subsequently, the risks and benefits for PRP injection were discussed with the patient, and she provided informed consent for this procedure. She received 3 injections of PRP into the subacromial space given at 3-week intervals. The patient tolerated the injections well. She noted a significant reduction in pain after second injection. At 3 weeks post injection, pain reduced to 2/10. The patient then underwent a rehabilitation program (including hot pack, progressive stretching exercises and delayed strengthening exercises).

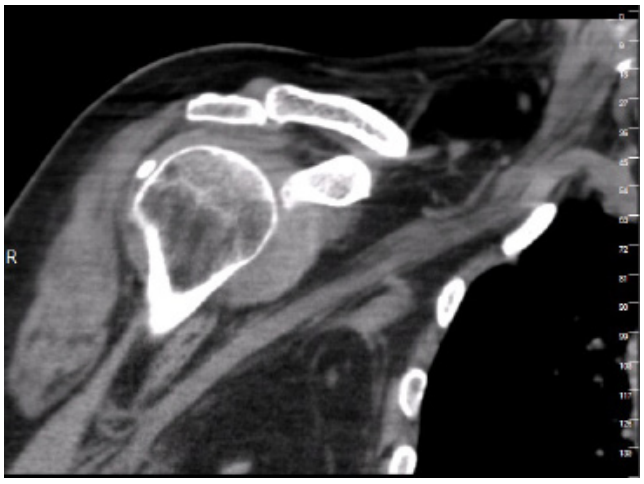

Figure 1. Computed tomography image of calcification in the area of insertion of the infraspinatus.

At the 6-month follow-up, pain intensity reduced to 1-2 on the VAS, functionality improved (Constant score: 67 on the right side), and she regained a satisfactory range of motion (flexion: 140°, abduction: 160°, internal rotation: 40°, external rotation: 50°).

At the 2-year follow up, she had no pain and no limitation in range of motion. Moreover, there was no calcification on the Magnetic Resonance images of the right shoulder (Fig. 2).

Discussion

In literature there are many different treatment options for rotator cuff calcific tendinitis. Conservative interventions should be the first-line of treatment. The success rate of conservative management reaches 80% in some studies and even 99% in others. During the acute phase, NSAIDs are used for pain relief and appropriate physiotherapy is applied to avoid stiffness of the shoulder.[7, 10] ESWT is a safe treatment method for rotator cuff calcific tendinitis. A systematic review[2] evaluating the efficacy of ESWT for the management of calcific and noncalcific tendinitis concluded that, high-energy ESWT is efficient in rotator cuff calcific tendinitis but

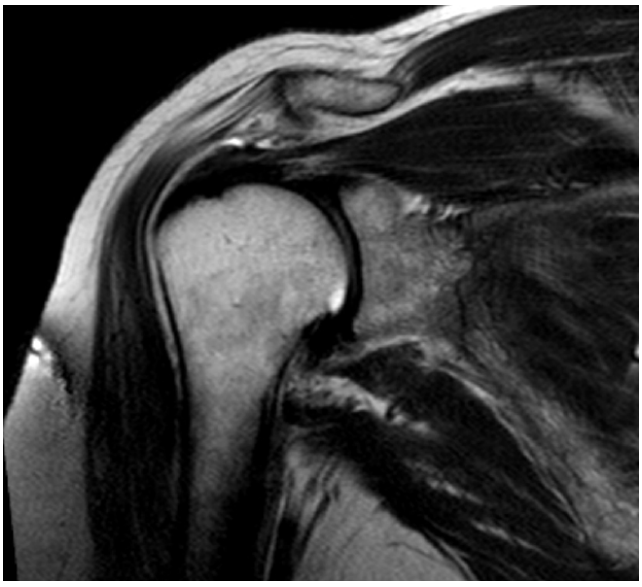

Figure 2. Magnetic resonance image of the infraspinatus.

not in noncalcific tendinitis. It improves pain and shoulder function and can provide complete resolution of calcifications. Ultrasound-guided needle lavage is a minimally invasive management option which is used for removal of calcium deposits. Del Castillo-Gonzalez et al.[5] published 2-year follow-up of 121 patients managed with ultrasonography-guided percutaneous needle lavage, reporting pain relief and reduction in the size of the calcification 3 months after the application. Vignesh et al.[15] systematically reviewed the literature to determine the efficacy of ultrasound-guided needle lavage in the treatment of calcific tendinitis; but due to the low quality of studies its efficacy could not be firmly established. In one study, Del Castillo-Gonzalez et al.[6] compared effectiveness of ESWT and ultrasound-guided percutaneous lavage (UGPL) in treating rotator cuff calcific tendinitis. It demonstrated a greater reduction in pain and calcification with UGPL therapy than ESWT. Subacromial steroid injection is another treatment which is inexpensive and relatively easy to perform.[3] De Witte et al.[4] observed the effects of ultrasound-guided needling (UGN) and lavage with subacromial corticosteroid injection versus isolated subacromial corticosteroid injection. Both treatment groups showed improvement at 1-year follow-up. However, the effect of UGN and lavage with subacromial corticosteroid injection was superior to subacromial corticosteroid injection alone. PRP injection is a novel approach for managing tendinopathy. Only two randomized controlled trials have been published on the treatment of rotator cuff tendinopathy with PRP.[1, 11] One study, conducted by Rha et al.,[12] found that the effects of PRP injection on shoulder pain and function exceeded those of dry needling in 6-month follow up. By contrast, Kesikburun et al.[9] compared PRP to placebo and found no significant difference between them in pain relief and functional improvement. Seijas et al.[13] presented a patient with calcific tendinitis of the supraspinatus who had no improvement after conservative therapy. Then she was treated with PRP injections 3 times at 2-week intervals. At 6 weeks post injection she had no complaint and at the 1-year follow-up she was still pain-free.

The efficacy of PRP therapy in rotator cuff calcific tendinitis is uncertain. In literature, there are only a few studies regarding PRP application in rotator cuff tendinopathy. Future studies will standardize the preparation and frequency of PRP injections in this condition. This case presentation suggests that PRP injection can be an effective treatment option especially in refractory cases of rotator cuff calcific tendinitis.

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