GAVIN PUBLISHERS

Academic Orthopedic Research and Rheumatology

Tsai J. Acad Orthop Res Rheum 1: 106.

DOI: 10.29021/2688-9560.100006

Case Report

Flare of Gout from Injection of Platelet-Rich Plasma

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Citation: Tsai J (2017) Flare of Gout from Injection of Platelet-Rich Plasma. Acad Orthop Res Rheum 1: 106. DOI: 10.29021/2688-9560.100006

Received Date: 06 November, 2017; **Accepted Date:** 11 November, 2017; **Published Date:** 17 November, 2017

Abstract

Platelet-rich Plasma (PRP) is a new treatment increasingly used for a variety of musculoskeletal disorders. With time long term data regarding efficacy and safety will be available. At present it is considered a safe procedure as PRP is derived autonomously from the patient without fear of rejection or disease transmission. In the interest of reporting all potential adverse effect of a new therapy this report suggests patients with gout may experience an undesirable flare when treated with PRP for indication such as osteoarthritis. Since it was first conceptualized in 1990s the use of platelet-rich plasma has become widely available and its use expanded to various musculoskeletal disorders such as tendon repairs and ligament healing [1]. It is considered a safe procedure, but long-term safety data is lacking for. Here the author reports an unexpected outcome of PRP injection initially intended for relief of knee osteoarthritis.

Methods

The patient was a 71 years old male presented to Emergency Department on the 19th December, 2011 with an acute monoarthritis of left knee after an 'Injection' by his local doctor for treatment of degenerative osteoarthritis. His background included tophaceous gout right total knee replacement type 2 diabetes mellitus and ischemic heart disease. On examination the left knee was hot swollen and tender with restricted range of movement. Joint aspiration showed very high white cells counts of 95,000 x 106/L with sodium urate (Gout) crystals and no organism seen on Gram stain. On further questioning patient reported that before the injection the local doctor collected a sample of patient's blood which was then centrifuged prior to injection. An injection with Platelet-Rich Plasma (PRP) was suspected and as there was no other evidence of septic arthritis on microscopy and culture patient was treated with intra-articular glucocorticoid injection for acute gout with good effect. At discharge he was advised against any further 'Blood injection' due to his background of poorly controlled gout.

Discussion

Gout is a type of inflammatory or crystal arthritis caused by the deposition of monosodium urate crystals. It is associated with hyperuricemia which is defined as a serum urate level of 6.8mg per decilitre (404micromol per liter) or more [2]. Gout is a common disease with self-Page reported prevalence in the United States recently estimated at 3.9% of adults (~8.3 million people) [3]. Patients with gout have a poor quality of life [4]. An acute attack is sudden, and the affected joint is red, warm, swollen and tender. The most important differential diagnosis is septic arthritis [5]. Treatment options for acute attack include nonsteroidal anti-inflammatory drugs, colchicines, glucocorticoids and possibly corticotrophin [2]. Other management approach includes addressing risk factors such as medication for example thiazides, insulin resistance, metabolic syndrome, obesity, renal insufficiency, alcohol, and surgery [2]. PRP is an emerging treatment for a variety of musculoskeletal disorders involving ligament bone joint and muscles. It had been studied in conditions such as cruciate liga-

ment injury Rotator cuff tendinopathy, Achilles tendinopathy, lateral epicondylitis, plantar fasciitis and osteoarthritis with variable results [6]. Although methods of preparation varied PRP therapy generally involved collection of patient's blood via venipuncture. The blood was then centrifuged and the portion of plasma containing concentrated platelet was isolated and injected to the tissue of interest [7]. It is believed PRP speeds tissue recovery due to the effects of concentrated platelets on healing and angiogenesis through the release of growth factors and cytokines [8]. A variety of growth factors and cytokines are released by platelets from its α-granules which included but not limited to transforming growth factor-β platelet-derived growth factor vascular endothelial growth factor adhesive proteins, clotting factors, protease and anti-proteases. Some of these bioactive molecules are pro-inflammatory and important in the process of healing [7]. Following PRP injection the cytokines and growth factors released by platelets may provoke an intense inflammatory response triggering an aggressive flare of gout. PRP was an attractive therapy as it used patient's own blood without fear of rejection disease transmission or cancer. It was easy to prepare with commercial kits available and it was minimally invasive that can be readily performed in the doctor's office. To date no significant adverse effects had been reported except what one would naturally expect with any injection such as infection injury to nerve or blood vessels or scar formation. Rarely development of antibodies to clotting factors leading to life threatening coagulopathy have been reported but otherwise there is no definitive evidence that PRP is associated with significant adverse effects [9]. To author's knowledge this is the first reported case of an inadvertent gout flare precipitated by the injection of PRP for osteoarthritis of knee. A sensitive search strategy using Medical Subject Headings (MeSH terms) for EMBASE (1947 to 2017 March 28) and MEDLINE (1946 to present) performed on 28 March 2017 showed there were 5,525 citations for platelet-rich plasma and 26,007 citations for gout. However, there was no citation for the combination of platelet-rich plasma and gout.

Conclusion

This case suggested it may be prudent to avoid the use of PRP in patients with history of crystal arthropathy such as gout in order to avoid precipitating an acute attack secondary to the pro-inflammatory property of PRP. More research is required looking at adverse effects and safety profile of PRP injection.

Written consent to publish was obtained.

Disclosure statement: The author declared no conflict of interest.

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