



## PRP –Platelet Rich Plasma Treatment in Temporo Mandibular Joint Disorders

Dr. Shaik Mobeen<sup>1</sup>, Dr. Veena Pabba <sup>2</sup>, Dr. Huda Fatima<sup>3</sup>, Dr. Nalluri Meghana<sup>4</sup>,Dr. Menda Shiva<sup>5</sup>, D. Sai Mahendra Varma<sup>6</sup>

<sup>1</sup>Assistant Professor, Department of Oral Medicine And Radiology, MNR Dental College and Hospital

<sup>2,3,4,5</sup> BDS, Department of Oral Medicine and Radiology, MNR Dental College and Hospital , Sangareddy

<sup>6</sup>UG Student, Department of Oral And Maxillofacial Surgery , MNR Dental College and Hospital , Sangareddy

\*Corresponding author: Dr. Shaik Mobeen

Assistant professor, Department of Oral Medicine and Radiology, MNR Dental College and Hospital

(Received: 11 June 2024

Revised: 16 July 2024

Accepted: 10 August 2024)

### KEYWORDS:

Platelet Rich Plasma  
Temporo  
mandibular Joint  
Pain Relief  
Inflammation

### ABSTRACT:

The potential regenerative qualities of PRP (Platelet-Rich Plasma) treatments have been investigated in a number of medical specialties, including sports medicine and orthopaedics. PRP therapy has recently been looked into as a possible treatment option for TMJ (Temporo mandibular joint) issues. Under the use of an injectable procedure called platelet rich plasma therapy, cartilage and ligament injury at the TMJ can be repaired more quickly by the body's endogenous inflammatory response. Through platelets, it may boost bone and soft tissue regeneration.

### Introduction:

Temporo mandibular joint disorders (TMJ disorders) are a group of diseases affecting the Temporo mandibular joint, masticatory (chewing) muscles, and related structures. Such illnesses can impair function and create pain in the jaw joint and surrounding tissues, making it difficult to open or close the mouth, chew, or talk [1,2]. The following are some typical manifestations and indications of TMJ disorders:

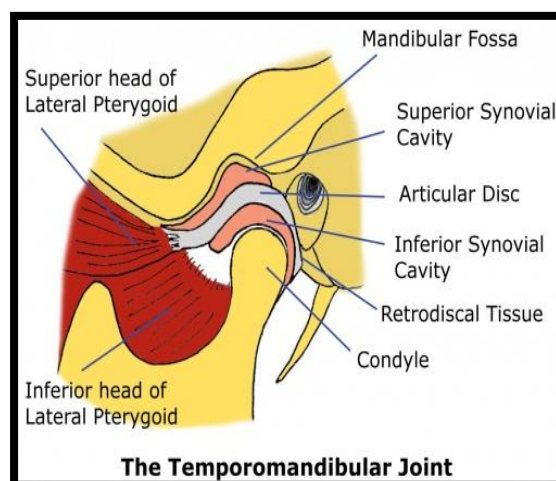
1. **Temporo mandibular Joint Dysfunction (TMD)** is a broad term that refers to a number of disorders that impact the TMJ. Trauma, arthritis, improper jaw alignment, and undue tension on the jaw muscles are a few conditions that can cause TMD[3].

2. **Myofacial Pain Syndrome:** This medical condition is marked by persistent jaw, face, and neck muscular soreness and pain. Stress, overuse, or muscle tightness are frequently the causes.

3. **Internal Derangement of the TMJ:** This term describes anatomical issues with the TMJ, such as

cartilage damage or articular disc relocation. Jaw movement limitation, popping or clicking sounds, and jaw tenderness are possible symptoms[4].

4. **Bruxism:** This is the habit of clenching or grinding your teeth. It can cause discomfort and dysfunction by placing too much strain on the muscles around your TMJ.





Typical signs of Temporomandibular Joint issues could be:

- Soreness or pain in the jaw
- Difficulty biting or chewing - Popping, clicking, or grating noises in the jaw joint
- Limited movement of the jaw or jaw locking
- Headaches or ear pain
- Weariness or facial pain
- Shoulder and neck aches

A thorough assessment by a medical practitioner is usually required for the diagnosis of TMJ issues. This evaluation may consist of a physical examination, imaging tests (such as CBCT, MRI, or X-rays), and potentially bite analysis or dental impressions.

**CASE REPORT:** A 33 year old woman presented to the Department Of Oral Medicine And Radiology with a history of Right sided Temporomandibular Joint Disorder. Symptoms presented as asymptomatic click, which became painful and progressively deteriorated eventually resulting in a sustained period where she was unable to attain full mouth opening. Various treatment options were discussed with the patient and she wanted and wished to proceed with PRP therapy. The PRP Injection procedure was performed by a chronic pain specialist, with the assistance of a physical therapist and the nurse. Sixty ml of whole blood was withdrawn from the ante brachial area. The Magellan centrifuge was used to obtain a total of 4 ml of PRP. Acetaminophen 100 mg and 50 mg of tramadol were provided as pre procedure and analgesics. The physical therapist present assisted in examination and localizing the site of injection. The skin and superficial tissues were anesthetised with 1% lidocaine. Ultrasound guidance was used to introduce the PRP into the center of the temporal fossa and distribute the PRP at angles centrally, posteriorly and anteriorly into the posterior ligament. A total of 3 ml of PRP was injected into the involved structures with 27 gauge, 1.5 inch needle. To maximize benefits, she was given advice about PRP Injection rehabilitation.

**OUTCOME AND FOLLOW UP:** She was followed up by a physical therapist at 3 weeks, 8

weeks where the patient had mouth opening of 42 mm, with opening occurring completely straight, normal excursions and normal protrusion. Accessory movement examination of the joint was completely normal, both under compression and in distraction.

### Various treatment options for TMJD'S:

Depending on the underlying reason and degree of symptoms, different treatments are given for TMJ issues. It could consist of: - Self-care activities including using ice packs or heat pads, eating soft foods, participating in relaxation exercises to ease tense muscles.

- Drugs that reduce pain and inflammation, such as muscle relaxants, anaesthetics and pain relievers.
- Physical treatment to strengthen muscles, ease tension in the jaw, and increase jaw movement.
- Dental procedures to alleviate erroneous bite patterns and lessen teeth grinding, such as occlusal splints or mouth guards.
- Corticosteroid or other drug injections into the TMJ to ease discomfort and minimize inflammation.
- In extreme circumstances, joint structural replacement or repair by surgery may be investigated.

In order to address the complex nature of these diseases and provide tailored treatment plans, management of TMJ disorders normally involves a multidisciplinary approach with input from dentists, oral surgeons, physical therapists, and other medical professionals [5,6,7].

### PRP Treatment:

Orthopaedics, sports medicine, dermatology, and, more recently, dentistry have all seen an increase in the use of platelet-rich plasma (PRP) therapy as a medical intervention.

### This is a Synopsis of PRP therapy in action:

1. Preparation: A small sample of the patient's blood is spun in a centrifuge to separate the platelets from other blood components in order to create platelet-rich plasma (PRP). Concentrated platelets, growth factors, and other bioactive proteins are present in the resultant PRP.



2.Application: Depending on the specific medical condition being treated, the PRP can be injected or applied to the affected area after it has been prepared. PRP can be implemented in dentistry for treatments like periodontal surgery, bone grafting, implant insertion, and diseases of the Temporo mandibular joint (TMJ).

3. Mechanism of Action: Growth factors and other signalling molecules found in platelets in platelet-rich plasma (PRP) are essential for tissue regeneration and repair. PRP has the ability to decrease inflammation, encourage tissue regeneration, and boost the body's natural healing processes when given to a wounded area.

4. Benefits: PRP therapy is frequently used due to its possible advantages, which include greater tissue regeneration, quicker healing, decreased pain and inflammation, and maybe better results in specific surgeries. PRP has been researched in dentistry to help with TMJ issues, hasten bone repair following oral surgery, and increase the success rate of dental implants.

5. Safety and Considerations: Because PRP therapy uses the patient's own blood, there is less chance of allergic responses or the spread of infectious diseases. As such, it is widely regarded as safe. But like with any medical procedure, there can be dangers and unintended consequences, like momentary discomfort or edema at the injection site.

6. Clinical Evidence: Although PRP therapy is gaining popularity and has many potential uses, the clinical data proving its effectiveness in treating a range of illnesses and dental disorders is still developing. To get a better understanding of the best practices, applications, and long-term results of platelet-rich plasma therapy, more research is required.

PRP therapy is a technique to tissue regeneration and repair in dentistry and other medical sectors that shows promise overall. To ascertain whether PRP therapy is suitable for a certain ailment, it is crucial to speak with a licensed healthcare provider. However, its application should be carefully

evaluated depending on individual patient characteristics[8,9].

Here's how PRP treatment may work in TMJ disorders:

1. Injection into the Joint: The patient's own blood is spun to concentrate platelets before being processed as platelet-rich plasma (PRP). These platelets may aid in tissue regeneration and repair because they contain growth factors and other bioactive materials. PRP injections into the afflicted joint can be used to treat TMJ issues by possibly promoting healing and lowering inflammation.

2. Reduction of Inflammation: Joint tissue inflammation is a common symptom of TMJ disorders, which can cause discomfort and dysfunction. Through the release of growth factors and anti-inflammatory cytokines from the platelets, PRP therapy may assist in reducing inflammation.

3. Stimulation of Tissue Repair: PRP includes growth factors that might encourage the regeneration of injured tissues in the TMJ, including vascular endothelial growth factor (VEGF), transforming growth factor-beta (TGF-beta), and platelet-derived growth factor (PDGF). This could lessen discomfort and enhance joint function.

4. Pain Relief: PRP therapy has the potential to reduce pain associated with TMJ issues by stimulating tissue regeneration and lowering inflammation. This can help patients regain normal jaw function and enhance their quality of life.

While PRP therapy shows promise as a safe and potential treatment for TMJ disorders, more research is needed to determine its effectiveness, optimal dosage, and long-term outcomes. Conservative therapy is very important as initial treatment of TMD; Arthrocentesis is advised as an easily performed alternative procedure to more invasive TMJ procedures[10]. It's also critical to remember that not every patient will benefit from PRP treatment, and the usage of this treatment should be carefully assessed based on a variety of specific criteria, including the patient's general health and the severity of their ailment. Detailed advice on whether PRP therapy is suitable in a particular situation can



be obtained by scheduling a consultation with an authorized healthcare provider who specializes in TMJ issues.

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