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MANAGEMENT OF CHONDROMALACIA PATELLA THROUGH MAGNETIC RESONANCE THERAPY A CASE STUDY

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ABSTRACT

Chondromalacia is an affliction of the hyaline cartilage coating of the articular surfaces of the bone. It results in the softening and subsequent tearing, fissuring, and erosion of hyaline cartilage. Most commonly, it is recognized as involving the extensor mechanism of the knee. In chondromalacia patella the cartilage of articular surface of patella particularly the medial facet is roughened and fibrillated. It is summarised that friction between the damaged area and corresponding femoral condyle is responsible for pain. The condition is distinct from osteoarthritis but osteo arthritis may be superimposed upon it in later years. In this present study magnetic resonance therapy was given to patient who was suffering from chondromalacia patella, who achieved a good result.

KEYWORDS: Magnetic Resonance Therapy, Chondromalacia patella.

INTRODUCTION

Chondromalacia is an affliction of the hyaline cartilage coating of the articular surfaces of the bone. It results in the softening and subsequent tearing, fissuring, and erosion of hyaline cartilage. Most commonly, it is recognized as involving the extensor mechanism of the knee.[1] In chondromalacia patella the cartilage of articular surface of patella particularly the medial facet is roughened and fibrillated. It is summarised that friction between the damaged area and corresponding femoral condyle is responsible for pain. The condition is distinct from osteoarthritis but osteo arthritis may be superimposed upon it in later years.[2] In 1906, for the first time, pathological changes in the patellar cartilage were reported by Budinger et al. Then, Kelly et al. described these pathological changes as chondromalacia patellar (CMP).[3] Originally, the word "chondromalacia" stemmed from Greek words. Chrondros means cartilage, and malakia means softening.[4] In general, chondromalacia (sick cartilage) is an affliction of the hyaline cartilage coating of the articular surfaces of the bone. Chondromalacia patella (CMP) is when the posterior articular surface of the patella starts losing its density when in a healthy state and becomes softer with subsequent tearing, fissuring, and erosion of the hyaline cartilage. It is commonly recognized as involving the extensor mechanism of the knee and, accordingly, is often referred to as chondromalacia of the patella, patellofemoral syndrome, or runner's knee. The undersurface of the patella is covered with hyaline cartilage that articulates with the hyaline cartilage-covered femoral groove (trochlear groove). Post-traumatic injuries, microtrauma wear and tear, and iatrogenic medication injections can lead to chondromalacia development. Chondromalacia occurs in any joint and is especially common in joints with trauma and deformities.[5]

Aetiology

There are several ways lead to the development of chondromalacia. Intra-articular injections of bupivacaine at high doses or frequent intra-articular injections of corticosteroid lead to softening and dysfunction of articular cartilage. Iatrogenic injection of chondrotoxic medication into a joint is one that patients can avoid. Chondromalacia is associated with abnormal (microtrauma) wear and tear of the hyaline cartilage of the patellofemoral joint. Lateral positioning of the patella in the patella-femoral joint is a frequent cause of chondromalacia. The abnormal Q angle causes tight lateral retinaculum or a lateral synovial plica may be implicated as the cause of this positioning.[6]

EPIDEMIOLOGY

Due to increased Q angles women are affected more than men. Active young adults who participate in running sports or workers who increase stress in their patellofemoral joint by repeated stair climbing or kneeling have a higher incidence of chondromalacia patella.[8]

CASE REPORT

A male patient aged about 60 years of age visited QRST clinic with the complaint of pain in the Rt knee joint typically at the patella region. He was feeling pain while bending his legs, and also while getting up from the chair. He was finding very difficult in driving car. This pain was lasting since 1 year for which he had visited many clinics and hospitals, there they suggested X Ray which showed OA Knee. Later in one of the hospital they suggested MRI which showed chondromalacia patella. There he was advised surgery, but pt was not willing. He had taken NSAID which helped him in reduction of pain temporally.

He was suffering from DM type 2 since few years. His blood pressure was under control; no other systemic abnormalities was present.

His vitals were all stable P/R 84 bpm, BP 130/80 mm of Hg, RR 21/min, temperature was 98.4^0F.

Family history: Not significant in present condition

PERSONAL HISTORY

- Diet : Mixed
- Appetite : Good
- Sleep : Disturbed
- Bowel : Regular
- Micturition : 5-6 times per day
- Habits : Tea 3 times per day
- Addiction : Alcohol and smoking

GENERAL EXAMINATION

- Built and nourishment: Moderate
- Pulse: 80bpm
- B. P: 130/80 mm of Hg
- Temperature: 98.6^0 F
- Respiratory rate: 21/ min
- Height: 180cm
- Weight: 86kg
- Pallor: Absent
- Icterus: Absent
- Cyanosis: Absent
- Clubbing: Absent
- Oedema: Absent
- Lymphadenopathy: Absent

SYSTEMIC EXAMINATION

- Central nervous system: Higher mental functions, Sensory, Motor, reflexes and Coordination intact.
- Cardiovascular system: S1 S2 heard, no added sounds.
- Respiratory system: Normal vesicular breathing sound heard, no added sounds.
- Per abdomen: Soft, non-tender

LOCAL EXAMINATION

Inspection

- Gait – Antalgic gait
- Localized swelling – Present

Palpation

- Temperature – Afebrile
- Tenderness – Positive (according VAS – 8)
- Abduction stress test – Normal
- Adduction stress test – Normal
- Anterior draw test – Normal
- Posterior draw test – Normal
- McMurry test – Negative

Restriction of movement

- Restriction of flection and extension is because of pain

Vascularity examination

- Popliteal pulse – Normal
- Posterior Tibial pulse – Normal
- Dorsalis pedis pulse – Normal

TREATMENT

- When patient visited our clinic thorough examination was done
- The subject was given physiotherapy treatment for 5 days
- The physiotherapy included 5 sessions of IFT therapy followed by Ultrasound Massage therapy
- Later the subject was treated with Magnetic Resonance Therapy for 1 hour daily continuously for 9 days.
- Before starting of the therapy, the subjects have to get hydrate well by drinking 250 to 300 ml of water.
- Post therapy the subject was advised to take rest, can perform their daily routine. But should not strain more.
- After completion of the 9 sessions of QRST therapy, the subject was taught with static isometric exercise for strengthening of thigh and leg muscles.
- The exercise should be done daily 2 times a day with 10 counts of each exercise for 2 reps.
- This exercise was carried out for 6 months.
- The repeat MRI was done after 1 year for the analysis.

MRI PHOTOS

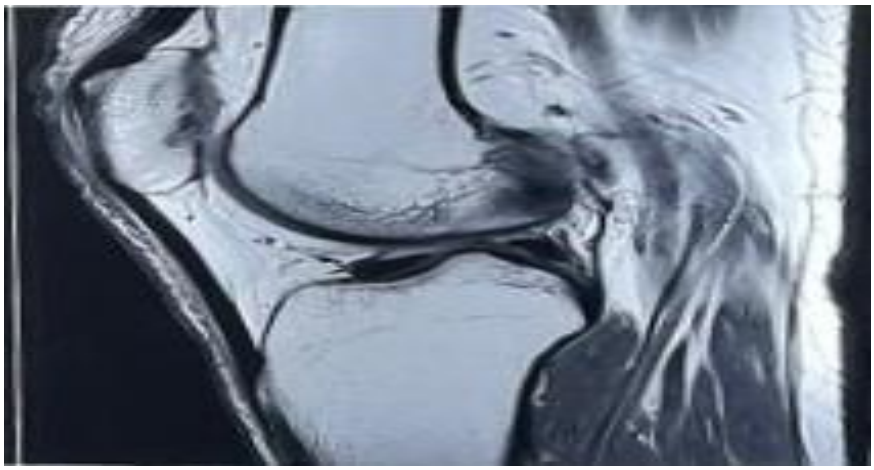

Fig. 1: Showing Mri Image of Before Treatment.
DATE 24/3/2023

FIG. 2: Showing The Mri of After Treatment.
DATE 08/09/2024

RESULTS

In this case there was a good improvement in the patient condition by following protocol – oriented procedure. When the patient visited our clinic, the MRI showed 4th degree chondromalacia patella. He experienced severe pain while getting up from chair, pain and crackling sound in knee walking. While taking treatment pt experienced minimal reduction pain. He had followed proper treatment protocol which was advised to him. He was following properly exercises. After 3 months the pain reduced by around 20%. Later on, as the days progressed when he came for repeated follow up after 6 months the pain had reduced by 40%. After 1 year follow up pain was reduced by 80%.

By the end of 1 year, he was able to drive car for quite a long distance, but his habit of exercise was not discontinued. Later repeat MRI was taken to assess the knee condition. Which showed that posterior surface of patella was smoothened.

DISCUSSION

The Magnetic Resonance Therapy is a non – invasive procedure which helps in regeneration of tissue. In this therapy weak intensity magnetic radiation helps in charging protons in tissue. In the treatment of chondromalacia patella this magnetic radiation helps in prevention of tissue degeneration and helps in strengthening the damaged cartilage cause by excessive strain. With regards to the improvement in patent condition there was increase in cartilage thickness. Even though it was a grade 4 chondromalacia patella the cartilage thickness had improved to a certain extent.

CONCLUSION

This case study shows that there is an effectiveness of the treatment in the management of chondromalacia patella through Magnetic resonance therapy. This single case study shows that, by following the stepwise protocol helps in attaining the maximum recovery, with complete range of movements, along with maximum pain reduction. Therefore, with proper protocol-oriented procedure including physiotherapy, exercises, and proper diet and nutrition helps to achieve a better result without surgical or invasive procedure.

Further it is an need for an hour to treat more cases of chondromalacia patella by adopting the treatment protocol for its scientific recognition. This single case study is an effective treatment in conservative management of chondromalacia patella, which can be carried out on OPD basis, which is more cost effective to patient as well as not effecting the daily routine.

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