Case report

**Medial meniscal tear**

Aachal Birelliwar, Simran Jaiswal, Om C. Wadhokar*, Chaitanya A. Kulkarni

Ravi Nair Physiotherapy College, Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India

**ABSTRACT**

Knee joint is type of hinge joint Knee joint consist of medial menisci and lateral menisci. Menisci plays an important role to maintain healthy cartilage. Medial meniscus commonly injured than lateral meniscus due to it is relatively lack of mobility. A case of 32 year female is presented in this report. Patient complaints of pain in medial side of right knee joint, inability to stand for longer time, restriction in daily activities. McMurray test was done and diagnosed medial meniscus tear. Physiotherapy treatment is mentioned in this report. The study conclude that there is significant improvement in range of motion , muscle strength , can able to perform activities of daily living with the help of physiotherapy treatment without any surgical approach.

**Keywords**: Knee injuries, Meniscal Tear, Physical Therapy.

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**Correspondence**: Om C. Wadhokar* om.wadhokar@dmimsu.edu.in

**INTRODUCTION**

Knee joint plays a role in stabilizing body in erect posture. Knee joint depends on its stability i.e.: static stability and dynamic stability [1]. The meniscus are wedge in shape in which this structure are located in between tibial plateau and femoral condyles. Meniscal tissue consist of type, collagen fibres and water [2]. Knee meniscus, which are functional in structure and protect articular cartilage by preventing stress and increasing joint congruity [3] Meniscal injuries are produced commonly by strains in knee while flexed as in kicking football. Medial meniscus is commonly injured. Trauma or squatting may also cause a tear or meniscus injury. Meniscus injuries can affect functional aspect of knee joint as it function to preserve shock absorption, prevent stability and to preserve nutrition. Most commonly injured meniscus is medial meniscus [1]. Meniscal tears or damaged was known as presence of any lateral or medial meniscal destruction, tearing. It is important to prevent further damage because it is risk factor for development of osteoarthritis [4]. Swelling, functional limitation, decrease range of motion are clinical features of meniscal injury [5] It is very important to reduce joint pain and improve knee function. Aim of physiotherapy is to improve flexibility and muscle strength. In this case report physical therapy management is describe

**Patient Information**

A 32 year female, housewife by occupation with right hand dominance visited to Physiotherapy department and stated that pain and swelling in medial side of right knee joint, unable to walk and stand for longer duration. On numerical pain rating scale (NPRS), the intensity of pain was 6/10.

**Observation**

The right Lower extremity was inspected, no scar was present over the medial side of right knee joint with no discoloration, and the skin type was dry with proper alignment. Swelling was present over medial side of right knee joint.

**Palpation**

On palpation the localised temperature was normal with tenderness of grade 1 present over medial side of knee joint.

**Range of motion**

The range of motion assessment was done through goniometer from base line. Both active and passive range of motion was examined and it has been shown in table no 1.

The muscle strength was examined according to medical research council grading of the affected side. For Hip flexors it was 2/5 and for knee flexors was 3/5.
Aim of physiotherapy to improve muscle strength, and to maintain mobility of joint. Exercise therapy has been shown very effective and improve joint function in patient with medial meniscus tear so patient was suggested for non-steroid, non-anti-inflammatory drugs [6]. Conservative treatment in medial meniscus tear also work in some situations [1]. Many studies conclude that conservative programs are very helpful in management of meniscal tear or injuries. And also suggested to take precautions to prevent recurrence of injury [1]. Conservative treatment for meniscus tear is invasive and will have better results [7].

Aim of physiotherapy to improve muscle strength, and to maintain mobility of joint. Exercise therapy has been shown very effective and improve joint function in patient with medial meniscus tear [8]. Conservative management include rest, ice, compression and elevation. Physiotherapy management includes ultrasound therapy which promotes good functional progress in treatment program and maintains mobility of joint. Exercise therapy has been shown very effective and improve joint function in patient with medial meniscus tear [8]. Conservative management include rest, ice, compression and elevation. Physiotherapy management includes ultrasound therapy which promotes good functional progress in treatment program and

### Muscle power

### Activities of daily living

Patient specific functional scale was used to measure functional outcome. 5 activities was selected and the score was 4/10.

#### Intervention

Treatment starts on the first day of the visit after filling consent form from the patient. On 1st day, cryotherapy or ice packs is given for 10 minutes to reduce swelling. Ultrasound therapy was given in the mode of continuous with 3MHz frequency for 10 minutes to increase the rate of tissue healing. Active range of motion of knee joint i.e. Knee flexion and extension, ankle plantar flexion and dorsiflexion for each 1 set of 10 repetitions. Straight leg raise for 10 repetitions of 1 set. Static quadriceps, static hamstrings, dynamic quadriceps was started for 10 repetitions with each 10 seconds hold. Duration of treatment was 1 hour. This protocol was followed for one week. Patient was advised to apply ice packs twice in a day at home and also to perform exercises twice a day. Precautions should be taken. Avoid squatting.

On 7th day, hydrocollateral pack was given for 15 minutes given to decrease pain and promote relaxation and continued till the terminal phase of treatment. Interferential therapy was set up in the treatment protocol. It increases local blood flow, relief pain. Application of Interferential therapy is for 10 minutes in four pole method and intensity depends on patient tolerance level. Previous exercises is followed and progress to each exercises 2 sets of 15 repetitions. Patient was advised to apply hot water bag at home for twice daily. This protocol was followed for another 7 days.

On 14th day of treatment, along with IFT and hydrocollateral pack, resistance training was started. Strengthening exercises with resistance like adding weight for Hip flexion and extension, hip abduction and adduction, knee flexion and extension for 5 sec hold with 20 repetition with 3 sets. Hamstring stretching and calf stretching was initiated. Patient was advised to perform self-hamstring stretching and calf stretching with the help of towel. This protocol was followed for 5 days.

On 20th day of treatment, progression in strengthening exercises was done by increasing intensity and duration. Patient was advised to perform bicycling. Exercises like mini squats, toe raises, knee flexion with one leg in standing. This protocol was continued for 5 days.

#### Table 1. Range of Motion Assessment on 1st Day of Treatment

<table>
<thead>
<tr>
<th></th>
<th>ACTIVE ROM</th>
<th>PASSIVE ROM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip Flexion</td>
<td>0-90°</td>
<td>0-100°</td>
</tr>
<tr>
<td>Hip Extension</td>
<td>0-10°</td>
<td>0-10°</td>
</tr>
<tr>
<td>Hip Abduction</td>
<td>0-40°</td>
<td>0-45°</td>
</tr>
<tr>
<td>Hip Adduction</td>
<td>0-45°</td>
<td>0-45°</td>
</tr>
<tr>
<td>External Rotation</td>
<td>0-40°</td>
<td>0-45°</td>
</tr>
<tr>
<td>Internal Rotation</td>
<td>0-25°</td>
<td>0-30°</td>
</tr>
<tr>
<td>Knee Flexion</td>
<td>0-110°</td>
<td>0-120°</td>
</tr>
<tr>
<td>Knee Extension</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ankle Dorsiflexion</td>
<td>0-20°</td>
<td>0-25°</td>
</tr>
<tr>
<td>Ankle Plantarflexion</td>
<td>0-40°</td>
<td>0-45°</td>
</tr>
</tbody>
</table>

#### Table 2: Range of Motion Assessment after Treatment

<table>
<thead>
<tr>
<th></th>
<th>ACTIVE ROM</th>
<th>PASSIVE ROM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip Flexion</td>
<td>0-110°</td>
<td>0-120°</td>
</tr>
<tr>
<td>Hip Extension</td>
<td>0-15°</td>
<td>0-20°</td>
</tr>
<tr>
<td>Hip Abduction</td>
<td>0-40°</td>
<td>0-45°</td>
</tr>
<tr>
<td>Hip Adduction</td>
<td>0-45°</td>
<td>0-45°</td>
</tr>
<tr>
<td>External Rotation</td>
<td>0-45°</td>
<td>0-50°</td>
</tr>
<tr>
<td>Internal Rotation</td>
<td>0-43°</td>
<td>0-50°</td>
</tr>
<tr>
<td>Knee Flexion</td>
<td>0-130°</td>
<td>0-135°</td>
</tr>
<tr>
<td>Knee Extension</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ankle Dorsiflexion</td>
<td>0-20°</td>
<td>0-25°</td>
</tr>
<tr>
<td>Ankle Plantarflexion</td>
<td>0-40°</td>
<td>0-45°</td>
</tr>
</tbody>
</table>

Patient was on regular follow up. At the 26th day of treatment, there was a significant improvement in following parameters. Pain intensity on NPRS is 2/10. Strength of the muscles was improved. No tenderness present. Range of motion was increased which is shown in table 2. Patient specific functional scale score was 7/10.

### DISCUSSION

In this case patient stated the pain over medial side of knee joint. He cannot walk for longer time, swelling, decrease range of motion, after clinical examination and radiographic findings it was medial meniscus tear so patient was suggested for non-steroid, non-anti-inflammatory drugs [8]. Conservative treatment in medial meniscus tear also work in some situations [1].
also accelerate inflammatory phase of healing. Hot fomentation will decrease pain and promote relaxation [9].

Exercises includes static quadriceps, static hamstrings, straight leg raise, dynamic quadriceps, ankle toe movements with initially 1 sets of 10 repetition then gradually progress to 3 sets of 20 repetitions. Toe raises, mini squats, hamstrings stretching, calf stretching was taught [1]. Progression to neuromuscular exercises were also performed by patient which functional stability of lower limb - single leg squats [8]. Close chain exercises like bridging are also performed. It is very important to educate the patient [10]. Patient was advised to perform straight leg raise, knee flexion with weight, bicycling [11].

Physiotherapy treatment is important part for any soft tissue injury [12]. Home program includes hot fomentation twice a day which relives pain. Partial squats, jogging should initiate. Prevention should be taken while doing other activities [13]. Ice packs should apply at home daily twice to reduce swelling [4]. It is important to attend physiotherapy session thrice a week and to perform exercises and stretching at home.

CONCLUSION
The present case is an example of medial meniscus tear. On 26th day of treatment there is significant improvement in muscle strength through strengthening exercises. Thermotherapy, ultrasound, Interferential therapy followed by stretching and play important role in increase range of motion and functional independent. This case report emphasizes to embellish the necessity of physical therapy.

Patient informed consent
Proper patient consent was taken from patient for waiting this case report.

Author’s contribution
All author made best contribution for the concept, assessment and evaluation, data acquisition and analysis and interpretation of all the data.

Conflict of interest
None

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REFERENCES

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