EFFECT OF CONTINUOUS PASSIVE MOTION THERAPY IN PELLIGRINI STIEDAS DISEASE- A SINGLE CASE STUDY

SENTHIL KUMAR N1, SENTHILKUMAR S2, SARAVANKUMAR J3, VIGNESH SRINIVASAN4
VIKRAM ADHITYA PS5, PREETHI S6

1, 4 Tutor, 2, 3 Assistant Professor, Saveetha College of Physiotherapy, Saveetha Institute of Medical and Technical Sciences (Deemed University), Thandalam, Chennai-602 105
5, 6 Undergraduate, Saveetha College of Physiotherapy, Saveetha Institute of Medical and Technical Sciences (Deemed University), Thandalam, Chennai-602 105

Corresponding Author: SENTHIL KUMAR N
Email id: senthilresearch1980@gmail.com

ABSTRACT

PURPOSE: Ossification and calcification around medial femoral condyle has been known as Pelligrinisieda’s disease for almost 100 years. In a cadaveric study 7 specimens were dissected to show the anatomical relations of the Tibial collateral ligament and the tendon of Ischio-condylar part of the adductor magnus in the medial femoral condyle. The anatomic study shows that tibial collateral ligament and adductor magnus tendon inserted different sites in the medial femoral condyle. The purpose of this study to determine the effect of continuous passive motion therapy in pelligrinisieda’s disease.

METHODS: The patient was a 51 years old male with left knee stiffness from 6 month duration who reported pain while walking and squatting. She rated the pain as a constant dull ache 8/10 with all activity. On examination she explained limited Range of Motion in knee region and difficulty in daily routine work and swelling around the joint line. Active and Passive Range of Motion is limited to an extent. The physiotherapist choose the Continuous Passive Motion therapy based on patient’s ability to complete 10 repetitions of the extension for half an hour maintaining 10s hold for each repetitions. The Continuous Passive Motion therapy has to be given 5 times a week for a 3 weeks period. All exercise was performed.

RESULT: After giving Continuous Passive Motion therapy exercise programme 5 times a week during 3 weeks period, the pain scale was reduced from 8 to 1. There is an increased Range Of Motion in knee joint.

CONCLUSION: Continuous passive motion therapy is a procedure which helps in improving the range of motion of knee joint and increases the functional activities in patient with pelligrinisieda’s disease.

KEYWORDS: Continuous Passive Motion, Ossification of Medial Collateral ligament, Pain, Pain scale rating, Pelligrini.

INTRODUCTION

It is the presence of radiological finding of calcification on the medial side of the knee as a consequence of trauma, plus clinical symptomatology of pain and diminished Range Of Motion. This calcium deposit developed between the attachment of Medial Collateral Ligament and medial condyle1-5. The radiographic finding of the lesion is termed pelligrinisieda’s disease lesion. PS lesion might not entail one entity but represent a spectrum of traumatic lesions resulting in an ossification on the medial side of the distal femur. The origin of calcification remains under debate but proposed origins are: deep medial or tibial collateral ligament, superficial medial/tibial collateral ligament, medialpatellofemoral ligament, medial gastronomies, adductor magnus, vastusmedialis. Although the medial collateral ligament was most often coined as the origin of the lesion (54% overall, 25% on MRI, and 57% during surgery), many cases remained undecided (50% on MRI) or no specific structure was found to be the origin (29% during surgery). Direct trauma or in a distant site (skull or spine), repetitive trauma, or after an overstretching injury to the medial collateral ligament and joint capsule can result in an avulsion of the medial femoral condyle or a tear of ligaments, tendons5-10. This injury develops a hematoma or inflammatory edema of soft tissue as a result of tearing and shredding fibres at their femoral attachment.10 The soft tissues degenerate and become affected and subsequent deposition of hydroxyapatite or calcium pyrophosphate produces the calcification in the month following the
trauma. Pain and local swelling in the medial aspect of the knee are the two first symptoms following an injury like traumatic synovitis. The pain and disability will increase after a few weeks or months. The knee will be stiff with the limitation of flexion–extension movements of the joint. The stiffness in the knee will mainly hamper the stretching of the knee but also twisting of the knee will be rather difficult. In addition to the limitation of motion, it is possible that a tender lump can be seen on the inside of the knee. The majority of patients are asymptomatic.

**OBJECTIVE OF THE STUDY**

To prove the effects of Continuous passive motion therapy to relieve pain in pellegrini-stieda’s disease and to determine the effect of Continuous passive motion therapy to improve the range of motion of knee joint with pellegrini-stieda’s disease

**METHODOLOGY**

In muscle length examination the patient was assessed for flexibility of the hamstrings with the 90-90 hamstring length test. The individual lacked 20° of knee extension. Hamstrings tightness was also objectively measured during a passive straight-leg raise in supine, and quadriceps length was assessed in prone. On examination, A 10-point Numerical Pain Rating Scale (NPRS), was used to measure pain. On the first day pain score was 8. Mobility and strength testing measurements of knee active range of motion (AROM) and passive range of motion (PROM) were assessed with a standard goniometer for flexion, extension, previously reported. The knee range of motion flexion on first day 0–40 deg. Extension 10.

**PROCEDURE**

For the continues passive motion (CPM) exercise program, patient visited the outpatient clinic 5 times a week during three weeks period. The physiotherapist was responsible for administering the rehabilitation protocol and he demonstrated all the exercises and made clinic-based decisions about the weekly progression of exercises. The physiotherapist chose the continuous passive motion therapy based on the patient’s ability to complete 10 repetitions of the extension for half an hour, maintaining 10 seconds hold for each repetition. All exercises were performed.

**RESULTS**

**Table No1**

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Pain</th>
<th>Movement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Flexion</td>
</tr>
<tr>
<td>Pre intervention</td>
<td>8.0</td>
<td>40</td>
</tr>
<tr>
<td>Post intervention</td>
<td>1.0</td>
<td>110</td>
</tr>
</tbody>
</table>

**DISCUSSION**

The patient diagnosed with Pellegrini-Stieda disease has undergone Continuous passive motion therapy 5 times a week during three week period. In pre-intervention phase The NPRS pain rating is said to be 8.0 and the ROM for flexion and extension is said to be 40 and 10 degrees respectively. After 21 days of continuous passive motion treatment. In post intervention phase, the NPRS pain rating is reduced to 1.0 and the range of motion is increased to 110 and 0 degrees for
flexion and extension respectively. Two Belgian authors De Vis JB, Kerseman P proved that continuous passive motion therapy is effective in pelligrinistieda’s disease.

RECOMMENDATION

It is a single case study only, in future recommendation to take the appropriate samples collected from orthopaedic department by using different types of manual techniques for effective treatment of pelligrinistieda’s disease.

ETHICAL CONSIDERATION

This single case study was approved by Research committee and Institutional Review board in the college University and study start-up at Saveetha Medical College. Great care will be taken to fully explain the study to the patient before fully inform consent is taken.

CONCLUSION

The calcified lesion formed in the medial collateral ligament is know as Pellegrini–Stieda disease. It causes pain and restriction movement of knee. Continuous passive motion therapy is a procedure which helps in improving the range of motion of knee joint. It would be difficult for the patient to complete the range of motion actively or passively without the help of continuous passive motion therapy and by the application of continuous passive motion therapy, the pain is reduced and the range of motion is increased subsequently. Hence this study concludes that continuous passive motion therapy was very effective in treating pelligrinistieda’s disease.

REFERENCE: