

Case Study with Two Years Follow Up on a Female Geriatric Subject Following Partial Meniscectomy.

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Abstract:

With bilateral Osteoarthritis of knee having under gone partial meniscectomy of right knee, this case study rehabilitation with weight reduction, improve muscular strength, mobilise involved joints and improved day to day functional activities of the subject improves quality of life as well, prevent the subject from undergoing knee arthroplastic surgeries.

Introduction:

The knee joint consists of tibiofemoral joint and Patellofemoral joint. The menisci-two cartilaginous pads separating and reducing friction between the femur and tibia and the ligaments keep the knee joint stable (Hopper and Grainger 2010). The menisci are divided into the medial meniscus which is U shaped and the lateral meniscus is c shaped; both consist of fibrous cartilage. They function as shock absorbers for impact on the knee joint, only one third of the menisci retain vascularity by adulthood, creating a challenging atmosphere for repair of damaged menisci as lack of blood supply discourages healing (Kurzweil and Friedman 2002). Knee injuries account for one quarter of all sporting injuries and take the longest time and effort to heal (Brown Education 2004). The most common knee injuries are torn ligaments and meniscal tears (Fadale and Hylstyn 2000). Medial meniscus tears are more common than the Medial Collateral Ligament, making it more robust, less flexible and less adaptable to rotation (Hopper and Grainger 2012). For most meniscal tears of the knee joint require corrective surgery to allow for full rehabilitation. A meniscectomy involves resecting, the damaged meniscus portion of the meniscus (Kurzweil and Friedman 2002). The recuperation per Meniscal tears are highly prevalent with imaging evidence of 35% of persons older than 50 years of age in U.S. meniscal damage is especially prevalent among persons with osteoarthritis (Englund et al 2008) and is frequently treated surgically with arthroscopic partial meniscectomy (Sowers et al 2001). In a fourteen year follow up following meniscectomy have reported higher evidence of knee osteoarthritis following excision of degenerated than traumatic meniscal tears (Englund et al 2001). Arthroscopic partial meniscectomy is the most common orthopaedic procedure performed in the U.S (Cullin 2009) with approximately 7, 00,000 annually performed with annual direct medical cost of \$4 billion. Disadvantages of the meniscectomies, such as the development of osteoarthritis defined as degeneration of the bone and cartilage in a joint due to excessive impact (Brown Education 2004). Osteoarthritis can only be accommodated through a high tibial osteotomy or a full knee replacement (Mauro and Bradley 2014).

Past Medical history: with known Osteoarthritis of both knee joints had under gone arthroscopy and partial meniscectomy in the right knee joint in July 2012 and underwent a course of Quantum Magnetic Resource Therapy in Bangalore on April 2013.

Mrs. XXXX aged 62 years, Mesomorph Married, mother of Two Female, a graduate in commerce and home maker.

Complaints:

She has been having continuous nagging pain of right knee which is increasing by getting aggravated by prolonged standing and walking. The left knee is also painful during movement. She has difficulty in rising from sitting posture, climbing up and down stairs. She complains of low back ache and unable to do floor level activities since 5 years. Her condition on day one of visiting the centre as on February 2016:

On Examination:

- Ambulant with Antalgic gait on examination.
- Blood Pressure: 130/80 mm/Hg
- Waist circumference: 93 Cms
- Height: 164 cm weight: 69 Kg
- BMI:29
- Left sacroiliac joint tender (Grade II)
- Bilateral Lower Extremities Vericosities
- Bilateral Genu Recurvatum and Genu valgum
- Motor power:

Right lower Extremity	Left Lower Extremity
Hip Joint:	
Flexors 3/5	3+/5
Abductors 3/5	3+/5
Extensors 3/5	3+/5
Knee: Extensors 3/5	3+5
Flexors 3/5	3/5
- Vastus Medialis Weakness of both legs positive
- Abdominal muscles grade II / V
- Lumbar spinal extensors III/ V
- Exagrated lumbar Lordosis
- Range of Motion
Left - 0-100 Active pain free range
Right - 0- 90
- Restricted inner range hip flexion of both legs more on right than left and restricted knee flexion in the inner ranges more on right knee.
- Pain - increasing on movements of knee joint mainly on right knee with Crepitus.
- Mild pre patellar effusion over right knee both patellar glides are painful and with Crepitus.
- Obliterated cervical lordosis and mild mobile upper dorsal Kyphosis.

Her Present Condition as on 02-03-2016

- Pain over knee joints on movements and during various daily activities have decreased.
- Left sacroiliac joint pain which was continuous earlier appears occasionally.
- Range of motion
- Active Rom in Prone Position
Left knee: 0-120°
Right Knee 0-105°

- Able to drive four wheeler, cook food, attend for social activities as reflected in the decreased WOOMAC score from 74% to 15%.

- Activities which were difficult and painful earlier such as ascending and descending stairs, walking have improved as she is walking for half an hour.
- She is able to sit on the floor for exercises.

Waist Circumference: 84Cm

Body Weight: 62 Kg

Provisional Diagnosis: Right knee partial menisectomy bilateral and osteoarthritis knee.

Treatment Given:

- i. Strengthening of core muscle.
- ii. Patella glides.
- iii. Alignment of lower extremities using pillows.
- iv. Use of Physioball to improve proprioceptive and facilitation techniques.
- v. Other involved joints and structures such as lumbar, cervical spine and sacroiliac joints are also treated along with.
- vi. Added home programme to be performed by the subject.
- vii. Subject was made to consciously follow the muscles, joints while performing exercises.
- viii. Select yoga postures such as veerasan, butterfly postures, cat and camel postures were used along with physiotherapy.
- ix. Most of the exercises were continued on floor using Physioball and manual resistance.
- x. Exercises were done in standing, sitting, supine, side and prone lying.

Duration:

Frequency & Home programme: weekly thrice in the first six month, then twice the next three months, and once a week for 3 month, is attending the centre bi monthly. For the last one year, to sustain the progress apart from home programme of specific exercises taught to her along with walking daily for half an hour.

Discussion:

- Injuries affect the quality of life of the injured individual, knee injuries can directly affect the ability to participate in sports, daily activities and employment requirements (Louw et al 2008). Knee injuries reduce mobility, psychological and social aspects of a human being such as individual's independence (Lu et al 2013). The economic costs of knee injuries are for too high, resulting in poorer quality of psycho social health in the injured and unable to receive corrective surgeries. However rehabilitation following menisectomy of this study subject has improved psycho social outcome of this two year case study follow up with a marked reduction in the subjects functional Woomac score from the 74% to 15% a major outcome of this study.
- Moffet et al 19935 recorded that physical therapy consisting of a home exercise programme combined with supervised treatment promotes faster recovery following menisectomy. Middle aged patients with degenerative meniscal lesions usually present pain and disability and have impairments in quadriceps muscle strength and lower extremity performance (Stensrud and Risberg et al 2012). An exercise regime has shown to be effective in improving, the quality of cartilage after menisectomy (Stensrud and Roos 2012). This case study subject recorded an improved strength of core and lower extremity muscles decreases pain and an increased active range of motion of knee joint as along with an enhanced physical functioning.

- The increased intra articular contact stresses within the knee after meniscectomy are thought to over load the articular cartilage, with associated biochemical changes, including loss of proteoglycan, disaggregation of proteoglycan and an increase in hydration (Lanzer et al 1990). Performing physical therapy plus home exercise was better than performing only home exercise (Relin et al 2009). Presently the subject is attending the centre bimonthly along with her regular home programme in line with the above study to sustain the improvements.
- Roos et al 1998 have recorded in 107 subjects using radio graphical evidence 21 year after. Meniscectomy more risk for tibiofemoral osteoarthritis. Hosser et al 2001 in an eight year follow up following partial meniscectomy only 62% of the patients rated their knees as good. Stein et al 2010 in a 8 year follow after meniscectomy reported only 44% of the patients partial reached the pre injury level. In a long term follow up of patients with meniscectomy demonstrated a correlation between a high BMI and a lower percentage of results (Scheller et al 2001). In this study subject has a weight loss by 10% and a decrease in waist circumference by 9%, with two year follow up from 2014 till today including physiotherapy, yoga core strengthening and home programme has shown a grater functional recovery.
- The tibiofemoral angle between the mid needually lines of femur and tibia is meniscectomy patients from 10-20 years; (A Allen et al 1984) found that those with abnormal leg alignment should significantly more degenerative changes in the knee. This study subject had bilateral genu recurvatum and genu valgum, with alignment corrective weak muscles based on the initial evaluation both valgum and recurvatum have decreased, considerably.
- However approximately 7 in the normal leg (Burks et al 1997). In a review after Two studies following meniscectomy among women with poor recovery more pain and limitation of function in sport and recreation than men (Johnson et al 1974 Roos et al 2001). The outcome of this study case study negates the above two reports as pain and functional recovery are remarkable in this female subject.

Conclusion:

As there is a lack of scientific evidence about the efficacy of the rehabilitation protocols and more studies are necessary (Longer Stedt et al 2010). This case study report on a two year follow up following partial meniscectomy with various physiotherapy techniques like yoga, Physioball, proprioceptive techniques, core strengthening, manual therapy along with home programme has aided in the subjects greater functional outcome, also prevented her from undergoing knee athroplastic surgery. However larger sample sizes, longer duration follow up to further validate the findings of this case study.

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