Three Year Follow Up after Single Total Knee Arthroplasty Subject with Physiotherapy, Yoga and Physioball Exercises.

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Abstract:
This case study subject following left knee replacement after the surgery within 8 weeks, was rehabilitated and was attending his daily activates but after an year has started complaining of pain limiting mobility and function at the un-operated right knee, hence this follow up study gets significant of conservative management with weight reduction, strengthening of muscles, posture and alignment therapy to promote pain and physical function, thus to prevent and postpone replacement surgery of the non operated (Right) knee.

Keywords: *TKA – Total Knee Arthroplasty Refers To Total Knee Joint Replacement; OA – Osteoarthritis*

Introduction:

Knee osteoarthritis (OA) is a common disability condition and 12% of adults above 60 years have symptomatic knee osteoarthritis, Total joint replacement for the hip and knee are among the most common surgical procedures in the United States. Rehabilitation is essential to minimize disability after surgery, most patients can be discharged home in 5 days if they are medically stable and have completed a post-operative rehabilitation program (Weingarten etal 1994), with estimated direct cost of $4100 per person in 2006 (Gabriel etal 1997). Almost 5, 00,000 TK As were performed in the U.S at a cost exceeding $11 billion (NCUP Net 2005). TKA helps to reduce pain, restore function, and mobility for arthritis pain sufferers (AOA 2013). Since age and obesity are important osteoarthritis risk factors, the prevalence of knee osteoarthritis is rising rapidly in the US due to both increased life expectancy and growing obesity epidemic (Elders 2000).outcomes after TKA are not uniformly excellent, with peri operative complications, post-operative functional impairment levels, prosthesis failure rates and procedure costs (Katz etal 2004). Patient dissatisfaction after knee replacement is between 10-20%, leading indicator is pain (Bourne etal 2010) and 25% of patients have anterior knee pain (Parivzi etal 2012).this case study with a three year follow up of knee arthroplasty subject, developing pain and osteoarthritis changes of non operated leg and conservative management with physiotherapy yoga and Physioball exercises are the core of this study.

Mr. XXX, Aged 77 Years

Endomorph, retired as an executive from a leading Nationalised Insurance company, Father of two adult, with history of Hypertensive, on tablet Amlong for 20 years, was complaining of left knee pain with difficulty in moving around, has subsequently undergone TKA in a leading orthopaedic hospital in Chennai, on March 2013 his present complains are pain in the right knee with difficulty in walking.

His Condition as on:

- Crepitus increases on movements of knee.
- Patellar movements are painful and restricted on right.

Range of Motion:

- Active Knee ROM – Right 10 – 90, Left 10-80 in prone position.
  Hip: Restricted inner range flexion, extreme extension hip restricted and painful other peripheral joints full and free.
- Motor Power
  Hip

	Right	Left
Flexion	3+/5	3+/5
Extensors	3+/5	3+/5
Abdomen	3+/5	3+/5

Knee

	Right	Left
Flexion	3+/5	3+/5
Extensors	3+/5	3+/5

- Spine: Extensors Weakness.
- Abdomen: Anterior Pelvic Tilt, Exagrated lumbar lordosis.
- Ambulant with Antalgic gait unaided with laterally rotated hip and knee.
- Posture: Mobile Thoracic Kyphosis.
- Extensor lags at both knee joints.
- Pain: Medial Joint Line of knee (Right), Sacroiliac and Lumbosacral region.
- Crepitus: Genu Varum on right knee, Crepitus increasing on active knee movements.
- Tenderness: Medial Joint Line Tender on right knee.
- Height: 165cm Weight: 83kg Waist Circumference: 96 cms
- BP: 133/78mm/hg Heart Rate: 96/mt BMI: 33 kg / m^2
- Into rotated knee, hip extensors

Provisional Diagnosis:

Present Condition as on 05-05-2016 as below:

1. Active ROM Right Knee: 0-120 Left Knees: 0-105 in prone position.
2. Hip extension and knee extension have improved
3. Decreased hamstring tightness bilaterally.
4. Left knee pain has decreased, Crepitus has decreased on knee movements.
5. Woomac score has decreased from 85% To 28%.
6. Posture has improved (Presently became erect at dorsal spine)
7. Able to drive, Lye down on floor, walk for hour an hour.
8. Alignment of knee (Geru varum) has improved.
9. Motor power of abdominal muscles, spine, bilateral hip abductor, extensors have adequately improved.

Table:

Major	Pre	Post	Prognosis in %
BMI	33 Kg/ m^2	28 Kg / m^2	15 Decreased
Height, Body Weight	165 cm, 83 kg	76 Kg	8 Decrease in body weight
Woomac Score	85%	28%	57 Decreased
Waist Circumference	103	96cm	7 Decreased

10: Range of motion of hips, spine and knee has improved as well motor power.

Treatment given:

I. Hamstring stretching.
II. Strengthening of quadriceps, hips and spine muscles.
III. Core strengthening.
IV. Physioball exercises for weight reduction and to improve propriception.
V. Posture and alignment therapy.

Duration:

Each session lasts for 25 -30 minutes subject was attending twice a week for exercises at the centre, home programme was taught to the subject with a set of exercises along with regular walking for 20-30 minutes daily unaided.

Discussion:

1. BMI >35 kg/m^2 was associated with greater self-reported pain following TKR (Nunez etal 2007). A Canadian prospective study of 520 knee arthroplasty subjects found that severe obesity is an independent factor for slow recovery over three years following TKA (Jones etal 2012). **With a reduction of 5 kg/m^2 BMI in 3 years this study subject's physical function has improved as reflective of Woomac score has decreased by 57%.**
2. 8 years follow up with TKA, improvements in physical function score were smaller in patients who were obese (Naal etal 2009). The majority of in subjective scores is achieved by 6 months after TKA, showing a marked improvement from the preoperative condition (Ethgen etal 2004) with incremental increases over the next 1 to 2 years (Konig etal 1997) followed by a slow and steady decline overtime, this functional decline is associated with greater assistance device use and diminished stair climbing and walking ability (Ritter etal 2004). **This study subject has started complaining of pain in non – operated knee while walking and daily activities since 2 years.** Three quarters of patients with TKA report difficulty in negotiating stairs (Noble etal 2005) and the average stair climbing speed is only half as fast compared to healthy counter parts (Walsh etal 1998).

3. Recent studies report that average knee flexion ROM after TKA ranges from 105^0 to 113^0 (Gill etal 2001).**This case study subjects active range of motion in the TKA knee (Left) is at 0-105 of knee flexion concurs with the above study report.**
4. ROM should provide adequate mobility to perform the majority of tasks of daily living (Rave etal 2000). TKA recipients are strongly continued to avoid even the lowest level impact recreational and athletic activities until quadriceps and hamstrings are adequately rehabilitated (Healy etal 2000). **With the existing knee flexion of 105^0 the subject is able to drive car and he performs most of his professional and daily activities.**

5. The disability associated with osteoarthritis knee where weakness of quadriceps is one of the single most important predictors of disability (Mc Alindon etal 1993). Surgical procedures used in TKA involve trauma to the extensor mechanism and pre-operative quadriceps weakness is dramatically compounded in early post-operative assessments (Stevens 2003). **Vastus Medialis weakness was recorded both during pre and post-operative evaluation with this subject and took nearly 6 months to improve with intense exercises.**
6. Hamstring deficits have been reports after TKA surgery (Whiney Possi etal 2006). **Hamstring tightness of this case subject was recorded with nearly 10^0 restriction of knee extension in both knee joints following TKA in line with the above study.**
7. 40% of patients with unilateral TKA progress to a TKA in their non operative lower extremity in 10 years MC Mohan etal 2003. Hence the non- operative knee should probably not be considered a typically healthy or un impaired joint. In concurrence with above study, **This case study subject has complained of pain with restriction of mobility in the non operative knee with in an year of TKA.**

Conclusion:

Being obese and having osteoarthritis of knee increases the chances to undergo replacement surgery are well documented. Weight reduction measures with physiotherapy, strength of weak muscles, dietry measures, regular home programme helps the subject. **From not undergoing replacement of remaining knee, This non pharmacological, conservative physical means of physical therapy should be intensively given a**

chance to the subject from surgery at this age of 77 years with continued follow up is the key findings of this study.

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