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OSTEOARTHROSIS HIP – CONSERVATIVE PHYSIOTHERAPY?

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ABSTRACT
Osteoarthrosis of hip joint among Indian are less researched endomorph post menopausal women with X- ray revealing OA hip (Right) Grade III was treated with reasonable clinical improvements in 10 sessions, with core strengthening exercises. As she develops OA knee (Left) biomechanical reasons, an improved OAKHQOL and lowering of obesity were recorded. With evidence and role of physiotherapy were discussed.

KEYWORDS: QOL – Quality of Life, VAS – Visual Analogue Scale, BMI – Body Mass Index, OAKPQOL – OA Knee Hip QOL.

INTRODUCTION
Osteoarthrosis the hip joint in India are less reported and under researched. Following developmental abnormalities, trauma, obesity could lead to the development of osteoarthrosis of hip joint. Next to knee joint, hip joint which transmits upper body weight tarsus plays a vital role in weight bearing during many of our daily physical activities.

Systemic conditions such as rheumatoid arthritis, ankylosing spondylitis, complications of fractures around hip joint may lead to changes of degeneration in the hip joint. This research where a 55 years old female diagnosed using X ray hip (Right) revealing grade III OA, adviced to undergo hip arthroplasty, endomorph, ambulant unaided with antalgic gait was treated with exercises, her clinical prognosis were recorded and discussed. Further she develops degenerative changes of the contralateral knee with physical exertions at home, these were again discussed with evidence.

1. Fransen etal 2011 have recorded OA to be the 4th leading cause of disability is associated with ageing and heavy physical activities.
2. Developmental abnormalities such as coxa profunda (Gekeler etal 1978) retroversion (Reynold etal 1999) or sub clinic clinical epiphyseal slip (Goodman etal 1997).
3. Femoro acetabular impingement it was major cause of OA hip especially in adults (Ganz etal 2003).
4. Abnormal anatomic relationship between femoral head and neck as a possible cause (Tonnil etal 1999).
5. Sing etal 2002 have recorded that prevalence of atherosclerosis risk factors is high in subjects with OA and Chan etal 2011, whose hypothesis of smoking which is strongly associated with endothelial dysfunction.
6. Obesity is associated with OA hip (Tepper and Hoch berg 1993, Van Saase etal 1988).
7. Increased loading of the joint with obesity cause OA hip by over loading of joint, LG and structural supports (Zhang etal 2010).
8. Arokaski etal 2002 have recorded lower hip muscle strength, with low torque and high VAS to be related to OA hip.
9. Mei etal 2002 have recorded among 120 hip arthroplasty subjects had higher CRF and WC and BMI.

Aims & Objectives of this Research were
1. Does obesity reduction influences OA hip.
2. Physical activity restrictions, is it necessary in OA hip?.

MATERIALS AND METHODOLOGY
Subjects with 10 sessions of specific physiotherapy exercises including weight reduction, core strengthening the subject had clinically shown an improved gait, better hip range of motion and walking for 30 minutes along with reduction of waist circumferences by 6 Cms during the period from December 2019 to January 2020.

Subsequently she was attending yoga sessions elsewhere with weight bearing nature, she has reported again to the author for contra lateral knee pain, which on examination has revealed early OA knee changes, these details were discussed here with clinical reasoning and evidence.

55 year old endomorph female, with antalgic gait c/o right hip pain since 2 years X- ray reveals OA hip changes
BMI – 32 kg/m^2 Waist Circumferences -114 Cm.

CLINICAL PROGNOSIS & RESULT

Her Physical Conditions as on	Treatment means RX	Outcome as on
Balance and transfer she was independant but right side lying was painful and is avoiding	Pelvic stabilisation exercises and done	She is able to turn to right and sleep painless on that side
Pain over right lateral, posterior hip increasing on prolonged sitting and walking VAS – 7/10	Hip and knee flexors were stretched Cat and camel exercises Strengthening of gluteal muscles	Moderate reduction in pain with walking and gait has improved VAS – 3/10 Decreased by 57%
ROM Hip Knee Spine	Restricted inner range hip flexion, abduction and extension 0^0-95^0 active knee flexion Forward flexion restricted Hip and knee mobilisation Weight reduction exercises in sitting, prone plank exercises	Moderate improvement in range of hip recorded
Contralateral Leg: Mild Crepitus (Left Knee) and pre patellar effusion, pain increasing with walking and weight bearing activities such as transfer, long standing for cooking	Proprioceptive exercises to right knee Vastus Medialis strengthening	Moderate reduction in pain and oedema where is early OA knee changes were recorded on contra lateral knee following left hip OA
Upper extremities – ROM full and free with no neuromuscular deficit		
ADL – independant		
Gait – Antalgic gait due to left OA hip and right OA knee changes	With mild improvement of left OA hip, where as right knee has shown little benefits clinically	Her gait has shown little impact only
Exercise tolerance has moderate exercises tolerance	Added with regular walking and after 10 sessions her exercise levels have as an improved	
OAKH QOL	67%	36%, Decreased by 47%
Waist Circumference	114 Cm	108, Decreased by 5%
BMI	32 kg/m^2	32 kg/m^2, Decreased by 6%

KEY FINDINGS

1. Core strengthening, Proprioceptive training, along with stretching and strengthening are effective in OA hip (Right).
2. Waist reduction has clinical benefits.
3. An improved gait, posture and walking duration were recorded.
4. Subject later developing left OA knee changes following repetitive exertional activities in standing.
5. Biomechanical reasons.
6. Further continued weight loss and follow up with physiotherapy with due analysis based therapy could provide clinical benefits.

DISCUSSION

Critical research questions

1. Does obesity influences OA hip

- Various clinical conditions such as RA, AS, developmental abnormalities, trauma involving hip and pelvis were excluded in this research subject
- She being an endomorph, having developed OA hip grade III as diagnosed using X- ray, was treated using core strengthening and weight reduction exercises in 6 weeks has a reduction of obesity an improved gait and functional activities as shown in clinical prognosis with reduction of WC by 5%
- **With research showing obesity could predispose for OA hip, the reverse also should be true any reduction in body weight, an increment for reduction in body weight, an increment for reduction in pain and improved QOL** as explained by (Lementowski etal 2008) have with an increased BMI among 551 OA hip subjects. Also Zhang etal 2010 who have recorded that an increased BMI, causes an over loading of joint and LG, conversely a reduction of obesity there occurs lesser strain an joints and LG of right hip, and other joints. **This could lead and be the clinical causes of reduction in pain and improved QOL as reported by this research subject as shown in results table with an improved QOL by 47%.**
- Murphy etal 2016 have recorded a higher prevalence OA hip among women after the age of 50 Years
- Bartels etal 2016 have advocated strengthening exercises to hip to be beneficial
- Jakici etal 2003 have recorded exercises along with weight reduction can unload joint which can slower cartilage loss and decrease joint impact

2. What could be the research for contra lateral knee degeneration changes

Bierma – Zeinstra etal 2007 have recorded that an anterior pelvic tilt causes an increased in Acetabular coverage on the femoral head, thus increasing the load bearing surface area, increasing the risk of OA hip. Boulay etal 2006 have recorded hypolordotic spine related to thoracic kyphosis. Lohmander etal 2009 have among 551 OA hip subjects reported more association of BMI with OA knee than hip in both sex. Obesity increases risk of OA hip with x- rays (Heliovara etal 1993) and an increased BMI at 18 years was associated strongly with increased risk of TKR (Karlson etal 2003). Collaghan etal 2002 have categorised on strength, hip extensors, flexors, abductors, abductors and medical rotators in order among OA hip subjects. Costa etal 2010 among 250 OA knee subjects to have lowered peak torque of hip muscles. Jungman etal 2016 have contralateral knee pain, stiffness and lowered functional scores. Sharoor etal 2003 have reported among advanced unilateral hip OA can develop asymmetric knee loading. Sayre etal 2010 have recorded that degeneration of one larger joints to be associated with degenerative changes of other larger joints. Umeda etal 2008 in a 10 year follow up among unilateral THR to develop OA knee of contralateral side can be related to biomechanical and neuro muscular factors (Willson etal 2011) and muscular weakness (Bennel etal 2005). Metcalfe etal 2013 have recorded subjects with OA knee are likely to develop contralateral OA hip with an increase in adduction moment. Lin etal 2001 have identified with altered gait patterns of OA hip subjects can develop quadriceps weakness which can lead to OA knee (Glass etal 2013). Hence it is evident that subjects with OA hip are likely to develop OA knee are seen in this subject however with strengthening and weight reduction, this subject has shown reasonable functional improvement

Limitations of this research was only physiotherapeutic exercises with core strengthening, Proprioceptive training were used but no pharmacological, electrotherapy or qualitative tools to measure outcome measures were used in this research.

CONCLUSION

Biomechanical aspects of treating osteoarthritis, along with waist reduction may shown clinical benefits, but sustaining them and preserving other joints are less researched and under reported

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