



Post-Operative Physiotherapy Rehabilitation of Bilateral Direct Anterior Approach (DAA) - Total Hip Replacement (THR): A Case Report

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Abstract

A 25-year-old male patient came to the clinic on 8th day post-surgery for his Physiotherapy Rehabilitation. He was operated with bilateral DAA (Direct Anterior Approach) for THR (Total Hip Replacement) on 19/04/2024. He had complaints of Pain and Swelling in and around the operated area, Mild Limp in both legs, restricted movements of both hip and knee. The complaints of left lower extremity were more than Right lower extremity. He had pre-operative history of bilateral Avascular Necrosis (AVN) of Femur - Grade III on right side and Grade II/III on his left side.

Keywords: Post-operative; Physiotherapy; Rehabilitation; DAA for THR; DAA for THR; AVN

Case Presentation

On Observation

- **Gait:** Bilateral Waddling Gait.
- **Swelling:** Mild present around the dressing bilaterally.
- **Built and posture:** Normal.

On Examination: Day 1 in our Physiotherapy Clinic - 27/04/2024 (2nd day post discharge)

Date of Surgery: 19/04/2024, Date of Discharge 25/04/2024.

- SLR - Right Hip - 30°
- Left Hip - 15° was painful
- Hip Abduction (Supine)- Bilateral - 40° - 45° asymptomatic.
- FAbER- bilaterally restricted at initial range, was not able to perform.

- Could not assess MMT due to the fresh sutures and dressing.
- No tenderness around the operative site.
- Sensations were intact.
- No deformities were seen.

Radiography: Pre-operative MRI Scan - Both hip with pelvis (dated - 03/04/2024) revealed AVN of bilateral femoral head right more than left.

Diagnosis

Post - operative status of bilateral hip joint, DAA-THR. Post - operative Physiotherapy Rehab.

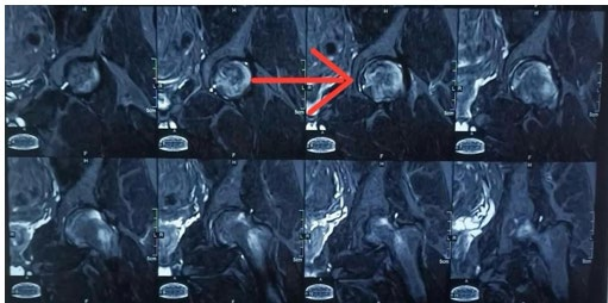


Figure 1: MRI-Pre-operative left hip.



Figure 4: SLR Right Leg.

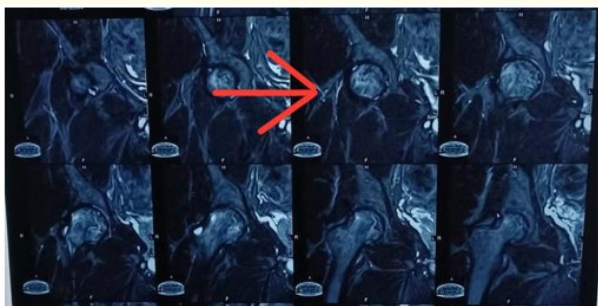


Figure 2: MRI-Pre- operative right.



Figure 5: SLR Left Leg.



Figure 3: Xray - Post- Operative bilateral hip (DAA-THR).



Figure 6

Post-operative status pics on 17th day in clinic

Physiotherapy rehab program included

- Quadriceps/VMO development exercises.
- Core muscles stability exercises.
- Hip Joint muscle development exercises.
- Range Of Motion exercises for hip and knee joint.
- Balance and Gait training.

Equipment's Used

- **For Strengthening of the hip muscles:** Loop Band and Therraband, Thigh Master.
- **For Balance training:** Bosu Ball and Physioball.
- **For Gait training:** Treadmill.



Figure 7: Bosu ball Balance Training.



Figure 9: Treadmill Gait Training.



Figure 10: Floor Core Training.



Figure 8: Physio ball Balance Training.

Post Operative Status- on 5th week in clinic (Dated 03/06/2024)



Figure 11: SLR Right Leg.



Figure 12: SLR Left Leg.



Figure 15: FAbEr-Right Leg.



Figure 13: Hip Knee Flexion Right Leg.



Figure 16: FAbEr Left Leg.



Figure 14: Hip Knee Flexion Left Leg.



Figure 17

Discussion

Substantial evidence underscores the correlation between quadriceps femoris strength and functional outcomes [1], emphasizing its pivotal role in daily task performance [2,3]. Both concentric and eccentric knee extensor strength and power have been linked to enhanced execution of fundamental movements like transitioning from sitting to standing [4]. Adequate muscle activity is indispensable for tasks such as ambulation, rising from seated positions, and negotiating stairs [5], while muscle weakness correlates with diminished gait speed and heightened fall risk [6].

Core stability epitomizes the nuanced muscular orchestration essential for maintaining functional stability in the lumbopelvic-hip region. Renowned as the fulcrum of the kinetic chain, the core functions as a muscular scaffold, facilitating seamless coordination between body and spine during static and dynamic movements. It serves as the linchpin for limb mobility, channeling kinetic energy from the core to the extremities [7].

Sustaining muscular equilibrium between the operated and non-operated sides postoperatively is paramount for prosthetic longevity. Investigations reveal a discernible strength asymmetry, with hip muscle potency on the operated side typically exhibiting a 10-18% deficit compared to its counterpart one-year post-total hip arthroplasty (THA) [8]. Similar investigations revealed strength asymmetry of 11-21% deficit on the operated side than the non-operated side, one year post-total hip arthroplasty (THA) [9]. This imbalance imperils prosthesis stability, potentially instigating loosening and curtailing its lifespan [10].

Adequate range of motion (ROM) in the hip joint constitutes a cornerstone for executing daily activities with fluidity and ease. Essential for tasks ranging from stair climbing to donning footwear and assuming seated positions, these activities necessitate requisite 120 degree hip flexion, 20 degree abduction and external rotation, and full hip extension. Insufficient ROM poses a hindrance, impeding functional independence [11,12].

Despite undergoing total hip replacement, patients may grapple with residual deficits vis-à-vis their healthy counterparts. While proprioceptive deficits are less prevalent, augmented sensory input and delayed motor responses are frequently observed. Altered gait dynamics and dynamic balance underscore the need for adaptive

strategies, underscoring the imperative of postural rehabilitation encompassing targeted interventions in balance, gait, and activities of daily living [13].

Lingering impairments in balance and proprioception post-total hip arthroplasty (THA) underscore an augmented fall risk extending up to five years post-surgery. Nevertheless, targeted balance training represents a promising avenue for ameliorating these deficits. Addressing prevailing lacunae in assessment and rehabilitation protocols is imperative to optimize postoperative outcomes and enhance patient quality of life [14].

Conclusion

In DAA for THA post operative Physiotherapy, Quadriceps/VMO development exercises, Core muscles stability exercises, Hip joint muscles exercises, Range of Motion exercises, Balance and Gait training enhances optimal functional recovery and helps increase in range of motion which is required for executing daily living tasks thus preventing from any residual long-term tightness of the muscles or tissues.

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