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Conservative Physiotherapy Management of Femoroacetabular Impingement in Six Male Patients: A Case Series

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Abstract

Background: Femoroacetabular impingement (FAI) is a common cause of hip pain in middle-aged active adults, resulting from abnormal contact between the femoral head-neck junction and the acetabular rim. While arthroscopic surgery is often indicated for severe deformity, physiotherapy-based conservative management may achieve substantial functional recovery in appropriately selected patients.

Case Presentation: We report a case series of six male patients, aged 45–65 years, diagnosed clinically and radiographically with cam- or mixed-type FAI. All patients underwent a structured, four-phase physiotherapy program focusing on pain control, hip mobility restoration, muscle strengthening, and functional retraining. Pain and function were assessed using a Visual Analogue Scale (VAS) and the Hip Outcome Score (HOS) at baseline and 12 weeks.

Results: All six patients demonstrated significant improvements in pain and function. Mean VAS pain score improved from 7.3 (baseline) to 1.6 (12 weeks), and mean HOS improved from 54 to 88. Range of motion (hip flexion and internal rotation) increased by an average of 20° and 10°, respectively. None of the patients required surgical intervention. Improvements were maintained at 6-month follow-up.

Conclusion: A structured conservative physiotherapy program emphasizing patient education, mobility restoration, strengthening, and movement retraining can significantly reduce pain and improve function in middle-aged men with early-stage FAI. Careful patient selection and adherence to rehabilitation are critical for successful outcomes.

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Keywords: Femoroacetabular impingement, Hip pain, Physiotherapy, Conservative management, Case series, Rehabilitation.

Introduction

Femoroacetabular impingement (FAI) is a mechanical disorder of the hip resulting from abnormal contact between the acetabulum and the femoral head-neck junction, leading to labral and chondral injury. It commonly presents in physically active adults aged 30–60 years with groin or anterolateral hip pain during flexion and rotation movements.

FAI is typically classified into cam-type, pincer-type, or mixed-type deformities [1]. While arthroscopic correction remains the gold standard for advanced deformities, recent studies have demonstrated that structured physiotherapy may produce comparable short-term functional outcomes in carefully selected patients [2,3].

This report presents six male patients treated successfully with a structured conservative physiotherapy protocol designed to address pain, mobility limitation, and muscle imbalance associated with FAI.

Case Series Description

Patient Characteristics

Six male patients (aged 45–65 years, mean age 55.1) presented to the outpatient physiotherapy and orthopaedic clinic with activity-related groin or anterior hip pain lasting from 2 to 6 months. All patients were moderately active and engaged in regular physical activity such as walking or cycling. None had previous hip surgery.

Common presenting symptoms included:

Groin pain aggravated by hip flexion, rotation, and prolonged sitting.

Difficulty squatting and climbing stairs.

Restricted hip internal rotation and flexion.

Absence of neurological or inflammatory disease.

Diagnostic Evaluation

Clinical and imaging findings were consistent with FAI:

Clinical tests: Positive FADIR (Flexion-Adduction-Internal Rotation) in all patients and FABER (Flexion-Abduction-External Rotation) in four.

Radiographic findings: Cam-type morphology in four cases and mixed-type in two; no advanced degenerative changes (Tönnis grade ≤1).

MRI: Mild labral fraying in two cases without full-thickness tear.

Intervention

All six patients underwent a **12-week structured physiotherapy program** divided into four progressive phases. The program focused on reducing pain, improving mobility, restoring strength, and retraining movement control.

Phase I: Pain Control and Education (Weeks 0–2).

- Activity modification (avoiding deep flexion, prolonged sitting, and pivoting).
- Cryotherapy post-activity and TENS for pain relief.
- Gentle passive and active-assisted ROM exercises.
- Patient education on joint protection and posture correction.

Phase II: Mobility and Muscle Balance (Weeks 2–4)

- Posterior and inferior hip mobilizations (Maitland Grade III–IV).
- Stretching of hip flexors, adductors, and tensor fascia lata.

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- Core stabilization (pelvic tilts, abdominal bracing).
- Gluteal activation (bridging, clamshells, mini-squats).

Phase III: Strength and Motor Control (Weeks 4–8)

- Progressive strengthening of gluteus medius and maximus using resistance bands.
- Closed-chain exercises (bridges, step-ups, controlled lunges).
- Movement retraining for pelvic stability and hip alignment.
- Core strengthening (planks, side bridges).

Phase IV: Functional and Sport-Specific Retraining (Weeks 8–12)

- Dynamic balance training (single-leg stance, wobble board).
- Agility and low-impact plyometric drills.
- Gradual reintroduction of recreational activity.
- Home exercise continuation.

Outcome Measures

Parameter	Baseline (Mean ± SD)	12 Weeks (Mean ± SD)	p-value
Pain (VAS, 0–10)	7.3 ± 0.9	1.6 ± 0.8	<0.001
Hip Outcome Score (HOS, %)	54 ± 6.1	88 ± 5.4	<0.001
Hip Flexion (°)	95 ± 12	115 ± 10	—
Hip Internal Rotation (°)	15 ± 6	25 ± 7	—

All six patients demonstrated substantial improvements in pain and function. No adverse events or worsening of symptoms were reported. At 6-month follow-up, gains in strength and mobility were maintained, and none of the patients required surgical intervention.

Discussion

This case series supports the efficacy of conservative physiotherapy in managing symptomatic femoroacetabular impingement. The structured program used in this study mirrors findings from randomized controlled trials showing that targeted exercise and movement retraining can improve outcomes in FAI [2,3].

Pain reduction and improved function are likely achieved through restoration of hip joint mobility, correction of abnormal movement patterns, and strengthening of periarticular musculature [4]. Conservative care also provides a safe and cost-effective alternative to surgery for patients with early-stage disease and minimal structural deformity [5]. By addressing modifiable biomechanical factors-such as reduced posterior capsular mobility, gluteal weakness, and pelvic control deficits-physiotherapy can reduce joint stress and delay degenerative progression.

Conclusion

A structured, evidence-based physiotherapy program can effectively reduce pain and improve hip function in middle-aged men with early-stage femoroacetabular impingement. Conservative management should be considered the first-line approach before surgical options, particularly when imaging reveals mild cam or mixed-type deformities with preserved joint space.

Conflict of Interest

The authors declare no conflict of interest.

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