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Conservative Physiotherapy Management of Post-TOT Musculoskeletal Pain in a Woman with Stress Urinary Incontinence: A Case Report

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ABSTRACT

Stress urinary incontinence (SUI) is commonly treated with transobturator tape (TOT) procedures; however, postoperative complications such as groin and perineal pain may occur and significantly affect function and quality of life. Early conservative management is essential to prevent chronic pain and avoid invasive interventions. A 36-year-old woman underwent surgical removal of uterine fibroids with concurrent TOT placement for SUI. Several weeks postoperatively, she developed persistent perineal and groin pain aggravated by prolonged sitting and physical activity. Clinical examination revealed hip adductor tightness, myofascial trigger points in the groin region, and reduced core strength, leading to functional limitations in activities of daily living (ADLs). The patient received a structured physiotherapy program consisting of electrotherapy (TENS with hot pack), manual trigger point release targeting adductor and vastus medialis obliquus muscles, and progressive therapeutic exercises including adductor stretching, mobility exercises, and core strengthening. Following two weeks of intervention, the patient demonstrated significant improvement in pain (VAS reduced from 8/10 to 2/10), functional disability (Pelvic Girdle Questionnaire score improved from 62/75 to 18/75), quality of life (I-QOL increased from

48/100 to 82/100), muscle flexibility, and tolerance to ADLs. No further surgical intervention was required. This case highlights the effectiveness of early, multimodal physiotherapy in managing post-TOT musculoskeletal pain and restoring function. Conservative physiotherapy should be considered a first-line approach for sling-related groin and perineal pain, potentially reducing the need for reoperation and improving long-term outcomes in women with SUI.

INTRODUCTION

Stress urinary incontinence (SUI) is defined as the involuntary leakage of urine during activities that increase intra-abdominal pressure, such as coughing, sneezing, laughing, or physical exertion[1]. It is one of the most prevalent lower urinary tract disorders affecting women worldwide. Epidemiological data indicate that approximately 62% of women experience some form of urinary incontinence, of which 37.5% have stress urinary incontinence and 31% present with mixed urinary incontinence. Among women, SUI remains the most common subtype, with prevalence increasing with age[2]. Urinary continence is maintained through the coordinated function of the sympathetic and parasympathetic nervous systems, motor fibers of the pudendal nerve, and the structural integrity of pelvic floor tissues. Disruption in any of these components may impair the urethral closure mechanism, rendering it unable to adequately counter even minor increases in intra-abdominal pressure, ultimately resulting in urinary leakage[3]. Several anatomical and physiological risk factors contribute to the development of SUI, including aging, obesity, smoking, pregnancy, childbirth, and chronic constipation. These risk factors may be categorized as modifiable (e.g., obesity, smoking, constipation) and non-modifiable (e.g., female sex, Caucasian race). Regardless of aetiology, the final common pathway involves the inability of the urinary continence mechanism to withstand previously tolerated pressure loads[4]. The pathophysiology of SUI is multifactorial. Loss of pelvic floor support due to factors such as obesity, pregnancy, vaginal delivery, pelvic or genitourinary surgery, or neuromuscular damage leads to compromised urethral stability. Intrinsic sphincter deficiency is a major cause of severe SUI and can occur in both sexes. It may result from trauma, neuropathy, spinal pathology, sphincteric neuromuscular dysfunction, or damage from prior pelvic procedures. Emerging evidence also suggests an association between elevated heavy metal exposure and SUI in younger and middle-aged women, while higher high-density lipoprotein (HDL) cholesterol levels appear to confer a protective effect[5]. Furthermore, SUI is strongly associated with pelvic organ prolapse, commonly occurring after childbirth or menopause. Surgical correction of

prolapse may unmask latent urethral dysfunction, leading to subsequent presentation of stress urinary incontinence[6].

Management strategies for SUI range from conservative to surgical interventions, depending on symptom severity, patient preference, and overall health status. Conservative approaches include lifestyle modifications, bladder training, pelvic floor muscle training (PFMT), Kegel exercises, physical therapy, biofeedback, and electrostimulation. Pharmacological treatments and mechanical support devices may also be employed in selected cases[7].

HISTORY OF PRESENT ILLNESS

A 36-year-old woman presented to the Department of Obstetrics and Gynaecology with complaints of severe abdominal pain associated with clot passage and abnormal uterine bleeding. She also reported progressively worsening involuntary urine leakage during coughing, sneezing, and physical activities, which significantly interfered with her activities of daily living and quality of life. Based on clinical evaluation, she was diagnosed with uterine fibroids and stress urinary incontinence (SUI). Following detailed counselling regarding both conservative and surgical treatment options, the patient elected to undergo surgical removal of uterine fibroids along with transobturator tape (TOT) placement for management of SUI. Several weeks postoperatively, the patient developed persistent pain in the perineal region, accompanied by discomfort around the tape insertion site. The pain was constant in nature, exacerbated by prolonged sitting, and not associated with any identifiable relieving factors. On clinical examination, localized tenderness was noted in the perineal region and along the medial aspect of the thigh. Additionally, increased tightness of the hip adductor muscles was observed.

PHYSIOTHERAPY PROTOCOL

The physiotherapy management protocol comprised TENS, manual therapy (MFR), and therapeutic exercises with the primary goals of pain reduction, muscle relaxation, restoration of mobility, and improvement in functional capacity. Transcutaneous Electrical Nerve Stimulation (TENS) was administered in combination with a hot pack for a duration of 15 minutes. This intervention aimed to reduce pain, promote muscle relaxation, and enhance local circulation in the perineal and adjacent areas.

Manual Therapy: **-Trigger point release techniques were applied to the medial thigh musculature, primarily targeting the hip adductors and vastus medialis obliquus (VMO). Manual therapy was intended to alleviate localized tenderness, reduce muscle tightness, and improve tissue flexibility.**

Exercise Therapy: **-The exercise protocol included stretching, mobility, and core strengthening exercises to address muscle tightness, improve pelvic and hip mobility, and enhance overall functional stability.**

Stretching Exercises:

- **Butterfly Stretch:** The patient was instructed to sit with the soles of her feet together and gently apply downward pressure on the knees toward the floor, within a pain-free range, to stretch the hip adductor muscles. (Fig.1)
- **Hip Mobility Exercises: -**It included controlled hip abduction–adduction and circular movements actively by the patient.

(Fig.1). Butterfly Strech

(Fig.2). Hip Mobility Exercise

Strengthening Exercises

- **Bridging** - patient was asked to lie on her back with her knees bent. She was then asked to lift her pelvis upwards and holding it for 10 seconds. (Fig.3)

- **Abdominal strengthening** - For this, patient was asked to lie on her back with knees bent and then lift her head and shoulder trying to touch the knees. (Fig.4)

(Fig.3). Bridging

(Fig.4). Abdominal Strengthening

VMO (Vastus Medialis Oblique) Strengthening with Pillow Press - Patient was asked to lie on her back with knees bent, pressing a pillow between the knees. (Fig.5)

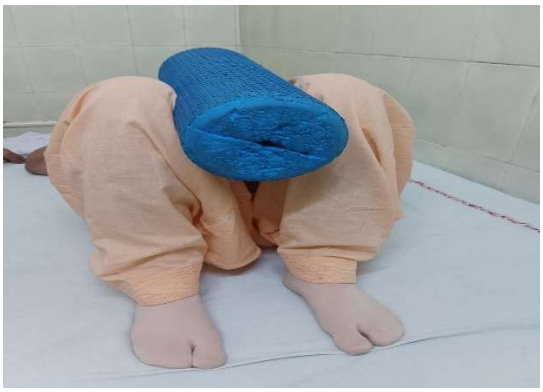

Fig.5. VMO strengthening

Progression

After a period of two weeks the exercise protocol was modified with addition of elbow planks, TheraBand resisted hip abduction and adduction. To perform this, patient was asked to lie prone on her elbows and toes. She was then asked to lift off her body by pushing via forearms and toes, simultaneously contracting her abdomen.

Results

Following two weeks of structured physiotherapy intervention, the patient demonstrated marked improvement across all assessed parameters. Pain intensity, measured using the Visual Analogue Scale (VAS), reduced significantly from 8/10 to 2/10. Functional disability related to pelvic girdle symptoms, assessed using the Pelvic Girdle Questionnaire (PGQ), showed substantial improvement. Quality of life scores also improved notably, reflecting reduced symptom burden and enhanced daily functioning. Clinically observed hip adductor tightness and trigger point tenderness were significantly reduced, contributing to improved tolerance to prolonged sitting and restoration of activities of daily living.

Table 1.1. Pre and post assessment of VAS, Pelvic Girdle Questionnaire, Quality of Life and Activity of Daily living by using paired t test.

Variable	**Pre treatment**	**Post treatment**	**t-value**	**p-value**
VAS	8/10	2/10	8.49	<0.001*
Pelvic Girdle Questionnaire (PGQ)	62/75	18/75	7.96	<0.001*
QOL	48/100	82/100	−6.87	<0.001*
ADLs	65/100	95/100	6.12	<0.001*
** Highly significant (p<0.05)				

DISCUSSION

This case report highlights a middle-aged woman who presented with persistent perineal and groin pain following surgical management for stress urinary incontinence. Clinical examination revealed hip adductor muscle tightness, reduced core strength, and the presence of myofascial trigger points in the groin region.

Transobturator tape (TOT) procedures are widely accepted as an effective surgical intervention for stress urinary incontinence; however, they are associated with postoperative complications, including groin and perineal pain, reported in up to 9.7% of cases. Other commonly reported sequelae include adductor muscle tightness, obturator nerve irritation, and tenderness at the tape insertion site[8]. These complications may arise due to surgical trauma, mesh entrapment, or inadvertent puncture of the pelvic sidewall[9]. In the present case, the patient's persistent pain—aggravated by prolonged sitting and associated with trigger points in the adductor and vastus medialis obliquus muscles, along with core instability—corresponds

with previously documented TOT-related musculoskeletal complications. While most postoperative pain resolves with routine care, conservative management is reported to fail in approximately 4–8% of cases, occasionally necessitating tape excision[10]. The physiotherapy protocol implemented in this case followed a multimodal and progressive approach. Initial pain management using transcutaneous electrical nerve stimulation (TENS) and hot packs facilitated analgesia and improved local circulation[11]. This was followed by manual trigger point release to reduce myofascial tension, and a structured exercise program incorporating adductor stretching (including butterfly stretch and hip abduction), mobility exercises, and progressive strengthening of the core musculature. Exercises such as bridging, abdominal crunches, pillow presses, and later progression to planks and resistance band training addressed underlying biomechanical and neuromuscular impairments[12]. This holistic approach resulted in significant pain reduction and functional improvement within two weeks.

Existing literature supports the use of multimodal physiotherapy in the postoperative management of sling-related complications. Pelvic floor muscle training (PFMT), particularly when combined with adjunctive modalities such as electrotherapy, has been shown to achieve improvement or cure rates ranging from 73% to 97% in women with stress urinary incontinence by enhancing urethral support and neuromuscular control[13]. Additionally, manual therapy techniques are effective in reducing myofascial pain associated with groin and pelvic complications following sling procedures. Targeted adductor interventions, as applied in this case, are particularly relevant in addressing hip and pelvic muscle imbalances commonly observed after TOT surgery, thereby reducing the risk of chronic disability, altered gait patterns, and prolonged functional limitations.[14]

Despite the favorable outcome, this case report has certain limitations. Objective outcome measures such as pain intensity scores (VAS), muscle strength assessment using dynamometry, or standardized incontinence questionnaires (e.g., ICIQ-SF) were not documented pre- and post-intervention. Nevertheless, the observed clinical improvements align with existing evidence advocating early physiotherapy intervention as an effective, conservative approach for pain-dominant postoperative complications following TOT procedures.

CONCLUSION

This case highlights the critical role of physiotherapy in managing post–transobturator tape (TOT)–related groin and perineal pain, restoring daily function, and improving quality of life while preventing progression to invasive interventions such as tape excision. Adductor tightness and perineal tenderness

responded effectively to a conservative, multimodal physiotherapy program. A structured protocol incorporating electrotherapy, manual trigger point release, and progressive therapeutic exercises proved to be a safe and effective first-line strategy, consistent with current recommendations favouring non-surgical management of sling-related musculoskeletal complications. Early multidisciplinary intervention improved continence, mobility, and patient satisfaction while reducing the risk of chronic pain, obturator nerve injury, and reoperation.

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