# Rehabilitation Challenges in *Klippel-Trenaunay Syndrome* Following Acute Illness and Distal Fibula Fracture

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## Introduction

*Klippel-Trenaunay syndrome* (KTS) is a rare congenital vascular malformation disorder associated with venous and lymphatic abnormalities, limb overgrowth, chronic edema, pain and elevated thromboembolic risk. Acute illness and musculoskeletal injury may further worsen mobility and functional outcomes in affected patient. [1] [2]

## Materials and Methods

As the case report is devoid of patient identifiable information, it is exempt from IRB review requirements as per (West Gables Rehabilitation Hospital) policy.

## Measurements Comparison

- Tibial circumference
  Right Lower Extremity: **53cm**
  Left Lower Extremity: 44cm

- Foot circumference
  Right Lower Extremity: **28.5cm**
  Left Lower Extremity: 27.5cm

## Case Presentation

64-year-old woman with Klippel-Trenaunay syndrome (KTS) and longstanding right lower-extremity pain and swelling, worsened after pregnancies and during menses, was admitted for a second inpatient rehabilitation course following prolonged hospitalization for acute hypoxic respiratory failure secondary to infectious complications. Her history included prior DVT on apixaban, obesity, recent right distal fibula fracture, and Meniere disease. Before her acute illness, she was modified independent with a walker for household and community ambulation, transfers, bed mobility, and self-care.

Examination revealed marked non-pitting right lower-extremity edema with chronic vascular skin changes, tenderness, and significant limb asymmetry. Strength was 3/5 proximally and 4/5 distally, with intact sensation. At rehabilitation admission, chronic limb enlargement and pain, fracture-related limitations, deconditioning, and vertigo significantly impaired balance, endurance, and mobility, requiring total assistance for functional mobility and maximal assistance for activities of daily living. She participated in intensive multidisciplinary rehabilitation focused on gait, transfers, balance, endurance, wheelchair mobility, and self-care. She remained weight bearing as tolerated in a CAM boot. Due to unavailable appropriately sized compression stockings, ACE bandages were applied from the foot to the thigh. She progressed to ambulating 40 feet with a rolling walker and minimal assistance and was discharged home with home health services.

**40 feet** with use of a rolling walker **minimal assistance** level



Figure 1. anterior view



Figure 2. right lateral view

## Discussion

This case highlights the compounded rehabilitation challenges in a patient with KTS and prior lower-extremity DVT after acute respiratory infection, urinary infection, and fracture. Coordinated management of anticoagulation, edema, skin integrity, infection risk, vertigo, and functional rehabilitation supported clinical stability and gradual functional recovery. Multidisciplinary inpatient rehabilitation can support functional recovery in patients with KTS who may necessitate an extended inpatient rehabilitation program.

## References

1. National Library of Medicine. (n.d.). Klippel-Trenaunay syndrome. MedlinePlus Genetics. https://medlineplus.gov/genetics/condition/klippel-trenaunay-syndrome/
2. Harnarayan, P., & Harnanan, D. (2022). The Klippel-Trénaunay syndrome in 2022: Unravelling its genetic and molecular profile and its link to the limb overgrowth syndromes. Vascular Health and Risk Management, 18, 201–209. https://doi.org/10.2147/VHRM.S358849

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