

Silent Intracardiac Migration of a Complete Iliac Vein Stent: A Rare Case and Updated Literature Review

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Abstract

Case Report

Background: Venous stent migration into the heart is an exceptionally rare and potentially serious complication. While most reports concern inferior vena cava filters or fragmented stents, complete intracardiac migration of a full-length iliac stent is extremely unusual. **Case Presentation:** We report the case of a 71-year-old man with a history of left iliac vein stenting in 2021 for post-thrombotic syndrome. He presented with unilateral lower limb edema. Doppler ultrasound failed to visualize the stent, prompting CT angiography, which unexpectedly revealed a complete 80 mm stent within the right ventricle. Transthoracic echocardiography (TTE) showed no valvular dysfunction or intracardiac complications. Serial chest radiographs over three months showed no further migration or complications. **Discussion:** This case is remarkable for its complete stent migration without symptoms or cardiac sequelae. We provide a review of older and recent literature on venous stent migration, mechanisms, diagnostic pitfalls, and management strategies. **Conclusion:** Complete intracardiac migration of an iliac vein stent, although extremely rare, should be suspected in patients with unexplained stent disappearance. Management should be tailored to symptoms and multidisciplinary evaluation.

Keywords: Venous stent migration, Iliac vein, Right ventricle, Intravascular foreign body, Case report, Conservative management.

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INTRODUCTION

Venous stenting is a common treatment for chronic venous outflow obstruction, especially in patients with post-thrombotic syndrome or non-thrombotic iliac vein lesions (NIVL). Despite improvements in technique and device design, complications such as stent fracture, thrombosis, or migration remain a concern [1, 6]. Stent migration is rare, particularly into the heart, and is often described in the context of IVC filters [1, 2, 3].

CASE REPORT

A 71-year-old man, ex-smoker, with a known history of left iliac venous stenting in 2021 for post-phlebotic syndrome under oral anticoagulation (VKA), presented with recurrence of left leg edema. Doppler ultrasound did not demonstrate deep venous thrombosis (DVT), but failed to visualize the previously implanted

stent. Given this, a thoraco-abdominopelvic CT scan (CT TAP) was performed and showed the entire 80 mm stent lodged in the right ventricle [Figure 1,2].

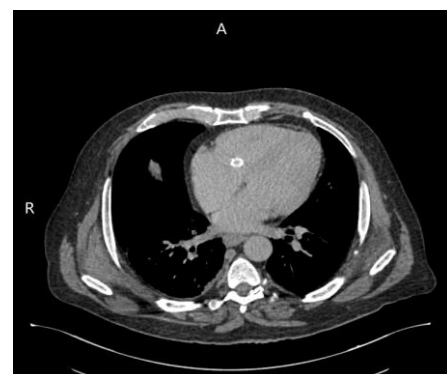


Figure 1: Axial CT image (venous phase) showing a metallic structure compatible with a migrated venous stent located within the right ventricular cavity

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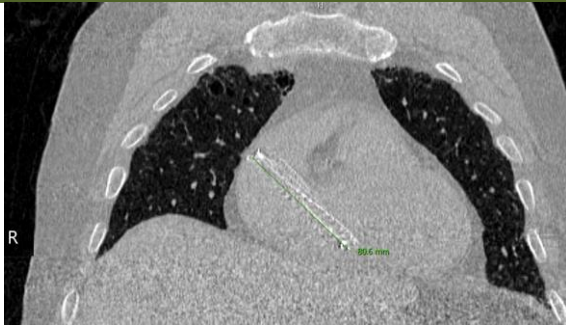


Figure 2: Cranial slice of the thoracic CT demonstrating the proximal extent of the stent within the right cardiac chambers, without evidence of pericardial effusion or cardiac tamponade

Transthoracic echocardiography confirmed the presence of the stent but showed no valvular abnormality or intracardiac damage. The patient remained asymptomatic. Standard chest radiographs at 24 hours, 72 hours, one week, one month, and three months showed stable positioning without migration.

DISCUSSION

Complete migration of an iliac venous stent to the heart is exceedingly rare. Most published reports involve partial stent displacement or filter fragments [1–4, 8]. The largest single-center series of IVC filter complications noted that symptomatic cardiac involvement occurred in less than 1% of patients [4].

A systematic review by Sayed *et al.*, (2022) covering 54 migration events showed most involved stents ≤ 60 mm, with successful recovery in 85% of cases using endovascular (65%) or surgical methods (35%) [12]. Our case is unique in that a complete 80 mm stent migrated into the right ventricle, yet caused no symptoms.

Mechanisms of migration include undersizing of the stent, lack of proper wall apposition, changes in venous anatomy over time, and insufficient post-dilatation. Recent recommendations support using intravascular ultrasound (IVUS) to optimize deployment and reduce risk [13].

Recent case reports underscore the importance of imaging follow-up. Pokhriyal *et al.*, (2023) reported a silent right atrial migration, while Waack *et al.*, (2022) described dual chamber migration (right ventricle and pulmonary artery). In 2024, Chen *et al.*, reported a dialysis stent migrated to the RV requiring surgical removal [14–16].

To better contextualize our case, we conducted a focused review of the literature on intravascular stent migration to the heart, excluding IVC filters when possible. The table below summarizes relevant case reports and case series

Table: Summary of Reported Cases of Intravascular Stent (or Filter) Migration to the Heart

Author(s)	Year	Device type	Migration Site	Symptoms	Management	Outcome
Marcy <i>et al.</i> , [5]	2001	Strecker stent	Pulmonary artery	Asymptomatic	Observation	No progression; stable on long-term follow-up
Rehman <i>et al.</i> , [7]	2008	Subclavian vein stent	Tricuspid valve	Severe regurgitation	Surgical removal	Improved valvular function after surgery
Sharma <i>et al.</i> , [8]	2002	Metallic stent	Pulmonary artery	Asymptomatic	Observation	Stable over time; no complications reported
Slonim <i>et al.</i> , [11]	1999	Various venous stents	Cardiac/pulmonary sites	Variable	Endovascular /surgical	Favorable if early intervention; variable based on location and access
Pokhriyal <i>et al.</i> , [13]	2023	Iliac vein stent	Right atrium	Asymptomatic	Endovascular retrieval	Successful extraction; no recurrence
Present case (ours)	2025	Iliac vein stent	Right ventricle	Asymptomatic	Clinical and radiographic follow-up	No migration over 3 months; patient remains asymptomatic

Management strategies must be individualized. While symptomatic patients or those with mechanical complications require retrieval, asymptomatic cases with no cardiac dysfunction may be managed conservatively with serial imaging [5, 7, 10, 11, 15].

Medico-legal considerations also arise when device documentation is missing, and patients are unaware of the device status. Comprehensive follow-up

protocols and patient education are essential after stent implantation.

CONCLUSION

This case highlights an exceptional and silent migration of a complete iliac vein stent into the right ventricle. In the absence of symptoms or cardiac dysfunction, conservative follow-up is a reasonable

approach. Nonetheless, close imaging surveillance is mandatory.

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