CASE REPORT PEER REVIEWED | OPEN ACCESS

A case report of May–Thurner syndrome after kidney transplantation

Farhad Ahmadi

ABSTRACT

May–Thurner syndrome is a rare anatomical disorder in which patients develop deep vein thrombosis in the iliac and femoral veins due to venous obstruction. This syndrome causes blockage of the large veins in the iliac and femoral regions of the legs, leading to serious complications such as pain, swelling, and risk of pulmonary embolism. More specifically, May–Thurner syndrome is an anatomical variation characterized by venous obstruction and thrombosis in the deep veins of the lower extremities. It is often considered an uncommon diagnosis in patients presenting with deep vein thrombosis. In this case report, we introduce a patient with Autosomal Dominant Polycystic Kidney Disease (ADPKD) who suffered from recurrent thromboses of the external iliac vein and common iliac vein after kidney transplantation, and we were diagnosed with May–Thurner syndrome retrogradely.

Keywords: Iliac vein, Kidney transplantation, May–Thurner syndrome

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INTRODUCTION

May–Thurner syndrome (MTS), also called iliac vein compression syndrome, is a condition in which the left common iliac vein is compressed by the overlying right common iliac artery against the lumbar spine [1]. This anatomical compression slows venous blood flow from the left leg, causing blood stasis that predisposes to symptoms such as leg swelling, pain, numbness, and can lead to iliofemoral deep vein thrombosis (DVT) [2]. Although it mostly affects the left iliac vein, variants can involve the right side [1]. The syndrome is more commonly diagnosed in younger females, though it can affect anyone at any age [3]. May–Thurner syndrome may initially be asymptomatic but can progress to chronic venous insufficiency, varicose veins, and serious complications like DVT and pulmonary embolism if untreated [4, 5].

As is known, venous thrombosis is one of the vascular complications after kidney transplantation. Due to the increased venous blood flow of the transplanted kidney to the external iliac vein, it can be explained that kidney transplantation has become a risk factor for the symptoms of this syndrome [3, 6]. In this case report, we have introduced one case of this syndrome after kidney transplantation.

CASE REPORT

A 64-year-old male patient with ADPKD developed end-stage renal disease (ESRD) six months ago and was a candidate for kidney transplantation. In 2023, the patient underwent left nephrectomy. On April 13, 2025, he received a left kidney transplant from a living donor, and the transplanted kidney was placed in the left lower quadrant (LLQ). On the day of the surgery, color Doppler ultrasound was normal. Due to the inadequacy of the patient's right pelvic vessels resulting from the placement of a right femoral catheter for dialysis, a transplant was performed on the left side. The donor was a 30-year-old man who donated his left kidney. The patient's creatinine was decreasing. Urine output was normal.

One week after the transplant, the patient was admitted due to left lower limb swelling. Ultrasound revealed thrombosis of the external and internal and renal veins (Figure 1). The patient was taken to the operating room, and thrombectomy was performed. He was treated with heparin infusion at 800 units per hour. One week later, thrombosis recurred in the same veins, and a second thrombectomy was carried out.

Ultimately, with the diagnosis of May–Thurner syndrome confirmed by computed tomography (CT) venography (Figure 2), a stent was placed in the left external and common iliac veins as the venous flow in the external iliac vein increased after kidney transplantation (Figure 3A and B), which unmasked the syndrome.

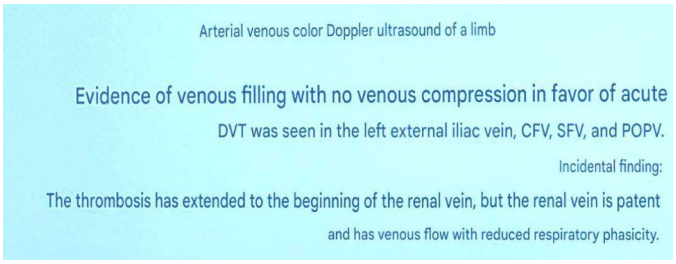

Figure 1: Color Doppler ultrasound showing venous thrombosis.

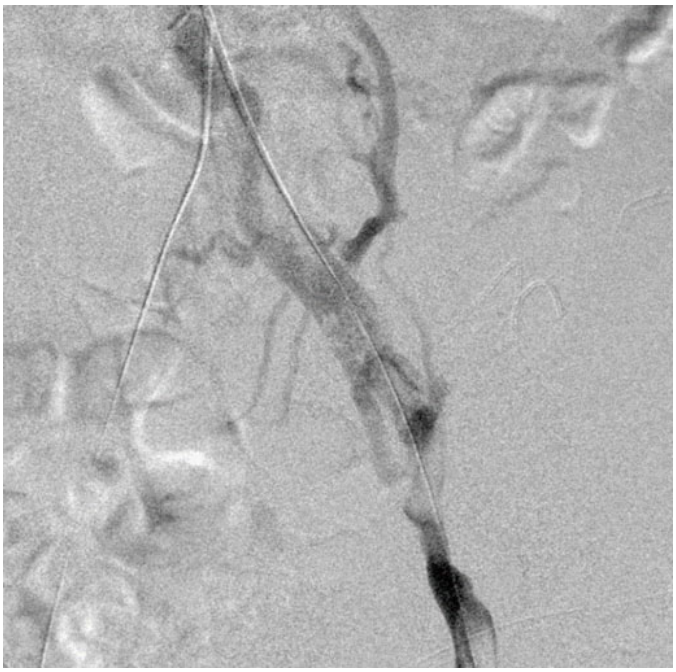

Figure 2: CT venography performed on the patient.

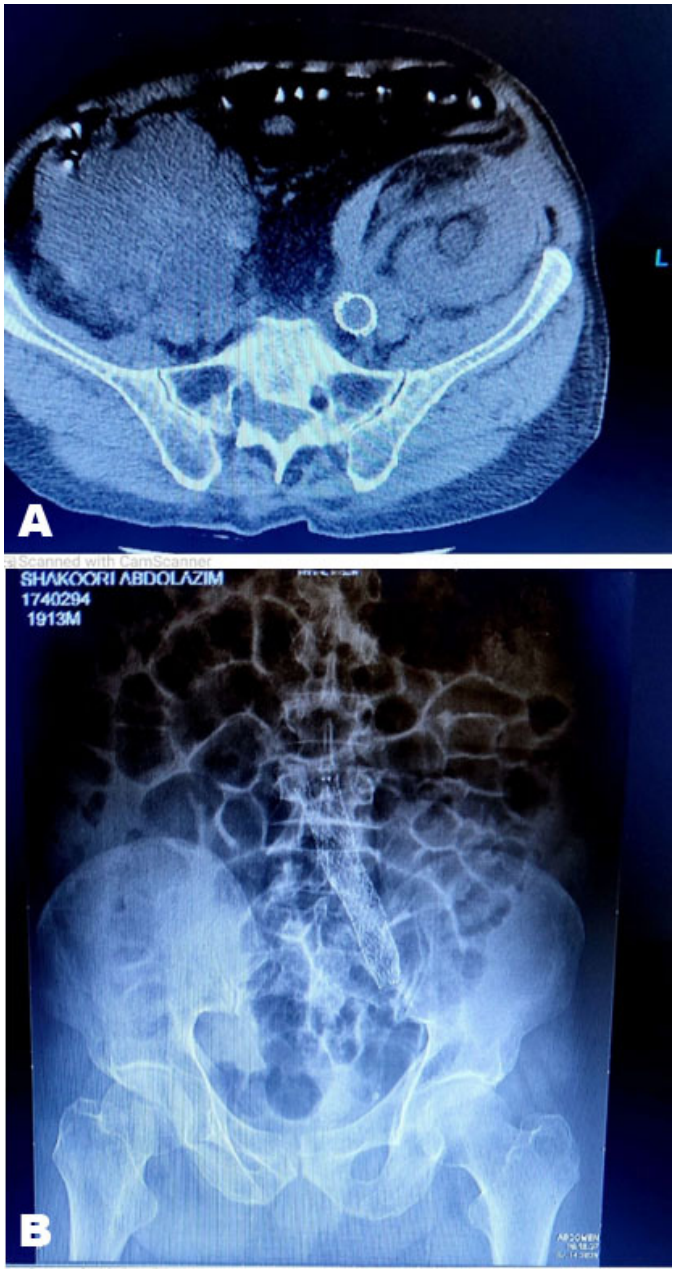

Figure 3: (A) Axial cross-section of a stent implanted in a vein. (B) Coronal section of a stent implanted in a vein.

DISCUSSION

May–Thurner syndrome is caused by arterial pressure (usually the right iliac artery) on the left iliac vein, which causes blockage or narrowing of the vein and the formation of blood clots in the vein [7, 8]. This condition is important in kidney transplant patients, especially when the transplant is performed on the left side, as it can lead to impaired blood flow from the transplanted kidney and cause transplant failure or loss [9]. Common symptoms of this syndrome include lower extremity inflammation and decreased renal function, which requires prompt diagnosis and effective treatment. The first article (2008), *A rare case of May–Thurner syndrome in an adolescent patient,* reported a kidney transplant recipient who initially suffered from lymphocele due to compression of the iliac vein, but then the left leg swelling (opposite to the transplant side) due to May–Thurner syndrome. The patient remained stable without the development of thrombosis and with a conservative management including Plavix or clopidogrel,

compression socks and leg lifts, and the transplant function was stable for about 18 months. The adult case needs emergency treatment such as thrombectomy and stenting to maintain the transplant, especially when the obstruction poses an immediate threat to the transplant. The case of adolescents was not without thrombosis; conservative treatment and prevention of flocculation were selected to prevent possible complications that led to stability of the transplant function. This indicates the importance of early diagnosis and accurate assessment of each patient based on imaging symptoms and findings. May–Thurner syndrome, which may be asymptomatic in most general patients, has a high potential for kidney transplant patients to cause serious complications that often require an accurate diagnosis. Treatment should be specific based on the severity and type of vascular injury, and in threatening cases, the treatment changed from medicine to obstructive intervention (such as stenting). Experience shows that successful management of these complications can maintain transplantation and improve the quality of life of patients [2]. Article 2 (2010) reported that May–Thurner syndrome can cause transplanted renal thrombosis in left kidney transplants, which poses a serious threat to maintaining transplant function. Despite the lack of previous coagulation disorders, the patient developed iliac vein thrombosis and renal vein thrombosis after transplantation, which were treated with thrombectomy and stenting and the transplant was saved. Further care is needed with anticoagulants [1]. The third study (2024) showed that timely diagnosis of MTS thrombosis, even within a few months after transplantation, and treatment by thrombolytic drugs and endovascular stenting can lead to maintaining transplant function. This emphasizes the importance of rapid diagnosis and less invasive treatment in these patients [3]. The second study (Konnopa et al.) examines a complex case with thrombosis-induced agraffectomy and chronic MTS stress, stressing that thrombosis in kidney transplantation may occur in asymptomatic conditions of MTS and with other risk factors such as thrombophilia and successful treatment requires successful diagnosis [2]. Accurate knowledge of these risk combinations is essential. Both studies also point to the diagnostic limitations of MTS, especially since Doppler ultrasound examination is not normally able to detect non-obstructive and unusual iliac vein pressures and requires the use of more advanced imaging techniques such as ultrasound and vein. It has a painting. Finally, these articles highlight the importance of recognizing May–Thurner syndrome as a hidden and potentially dangerous factor in patients after kidney transplantation, and suggest that careful evaluation and follow-up in patients with concomitant risk factors such as anatomical pressures, coagulation disorders, and a history of thrombosis in other parts of the body can cause failure. May–Thurner syndrome (MTS) is a rare and complex condition that causes obstruction and disruption of venous blood flow due to the compression of the external iliac vein by the surrounding structures.

The fourth study (2025) describes a specific case of May–Thurner syndrome, in which two months after the kidney transplant from the deceased donor, has symptoms of left lower limb swelling and transplant dysfunction. The findings of this study show the importance of paying attention to this syndrome in ADPKD patients. One of the important points of this article is the rapid diagnosis through Doppler ultrasound and the detection of venous thrombosis, which is accompanied by a severe limitation of venous flow due to compression by polycystic and transplanted kidneys. The selected treatment was nephrectomy surgery (removal of the left kidney), which led to a rapid improvement in the symptoms of swelling and stabilization of transplanted kidney function. This positive clinical response indicates the importance of preventive surgical management in patients with ADPKD with large kidneys in order to prevent vascular complications after transplantation [4]. From a scientific and clinical point of view, this study refers to the first report of May–Thurner syndrome after kidney transplantation and plays a prominent role in increasing the awareness of transplant and nephrologists about this rare complication and its potential consequences. Also, the need for adjusted care after transplantation and assessment of the risks of intravenous compression in patients with unusual anatomy is raised. Finally, this article suggests that in order to prevent such complications, patients with very large kidneys should be considered preventively in order to prevent the reduction of transplanted kidney function, lower extremity edema, and the risk of venous thrombosis.

CONCLUSION

May–Thurner syndrome is an important and treatable cause of deep vein thrombosis. Early recognition requires high clinical suspicion and appropriate imaging studies. Advances in endovascular therapies have greatly improved patient outcomes, enabling effective symptom control and prevention of serious complications. Timely diagnosis and management are key to successful treatment of this syndrome. Strong clinical suspicion led to timely and rapid diagnosis of the disease as well as effective endovascular treatment in this case, leading to preservation of the transplanted kidney.

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Author Contributions

Farhad Ahmadi – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Guarantor of Submission

The corresponding author is the guarantor of submission.

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Consent Statement

Written informed consent was obtained from the patient for publication of this article.

Conflict of Interest

Author declares no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.