



Case Report

# Acute scrotal pain: An uncommon manifestation of renal vein thrombosis

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## Abstract

The clinical manifestation of renal vein thrombosis varies with the speed and degree of venous occlusion. Such patients may be asymptomatic, have minor nonspecific symptoms such as nausea or weakness, or have more specific symptoms such as upper abdominal pain, flank pain, or hematuria. Acute scrotal pain is a very uncommon clinical expression of renal vein thrombosis. Here, we report a case of membranous glomerulonephritis-induced renal vein thrombosis presented with the symptom of acute scrotal pain caused by thrombosis-induced varicocele. This case report suggests that renal vein thrombosis should be considered in the diagnosis of acute scrotal pain; it also emphasizes that an investigation of retroperitoneum should be performed for adult patients with the sudden onset of varicocele.

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*Keywords:* glomerulonephritis; thrombosis; varicocele

## 1. Introduction

The clinical manifestations of renal vein thrombosis (RVT) in adult patients vary with the rapidity and degree of venous occlusion. The patients may be asymptomatic, have minor nonspecific symptoms such as nausea or weakness, or have more specific symptoms such as upper abdominal pain, flank pain, or hematuria.<sup>1</sup> Here, we report a case of RVT presented with the uncommon feature of acute scrotal pain caused by thrombosis-induced varicocele.

## 2. Case report

A 55-year-old male visited our hospital because of a sudden onset of left scrotal pain for hours. He was known to have a left inguinal hernia that had not bothered him for

approximately 6 months. He denied any trauma history in recent years. Upon physical examination, the inguinal hernia was found reducible. The left testis was normal in size and shape, with Grade II varicocele. There was no flank knocking pain or palpable flank mass. The urine analysis revealed microscopic hematuria and proteinuria. The other laboratory data, including complete blood count, biochemistry and coagulation profiles, were normal. Symptomatic treatment was given and elective hernioplasty was arranged, but the patient visited our emergency department in the evening of the same day because of intractable pain. Inguinal exploration was performed on the next day, showing indirect inguinal hernia with several engorged spermatic veins in the spermatic cord. The engorged veins were ligated, and hernioplasty was performed. The scrotal pain subsided immediately after the operation. Abdominal contrast medium-enhanced computerized tomography (CT) was arranged to investigate the acute onset of varicocele in this adult to exclude retroperitoneal lesion. The abdominal CT revealed no kidney or retroperitoneal mass lesion, and thrombus filling the entire left renal vein was noted (Fig. 1). The patient was referred to our nephrology department, where a renal biopsy was performed, and the histopathological studies showed diffuse membranous

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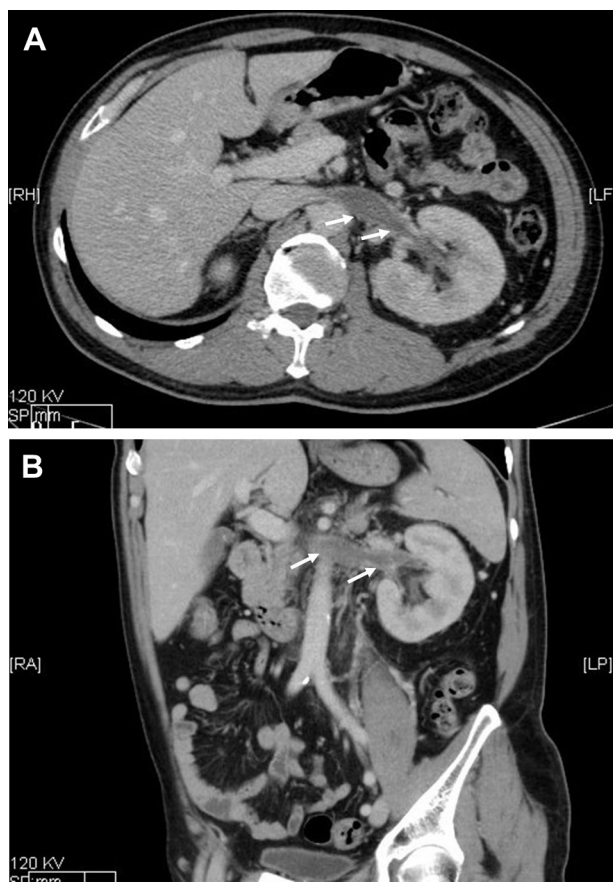


Fig. 1. Abdominal computed tomography revealed a thrombus in the left renal vein (arrows).

glomerulonephritis. The patient then received anticoagulant and steroid treatment for 3 months. His serum creatinine and glomerular filtration rate remained normal after 2 years' follow-up. Periodic ultrasound studies also revealed no morphologic change in the affected kidney.

### 3. Discussion

RVT is an uncommon disease that can be associated with various medical conditions and occurs most commonly in patients with nephrotic syndrome. Nephrotic syndrome is associated with a hypercoagulable state that leads to a high incidence of thromboembolic complications.<sup>2</sup> Venous thromboembolic complications in nephrotic syndrome include pulmonary embolism, deep venous thrombosis, and most commonly, RVT. Why the renal vein is susceptible to thrombosis has not yet been determined. Many etiologies of nephrotic syndrome can be associated with RVT, while patients with membranous glomerulopathy are particularly vulnerable.<sup>3</sup> The clinical presentation of RVT depends on the rate, extent, and completeness of the thrombus formation, which includes nausea, vomiting, fever, flank pain, gross hematuria, and palpably enlarged kidneys.<sup>4</sup> To the best of our knowledge, acute scrotal pain as the main manifestation of RVT has never been reported before.

There is no specific laboratory test that can diagnose RVT, and image study plays an important role in the diagnosis. Intravenous urogram findings are generally nonspecific and may reveal an enlarged kidney, distorted collecting renal pelvis, notching of the ureter or poor excretion of contrast medium.<sup>5</sup> Venography allowing for the visualization of the filling defect of the renal vein has been the standard diagnostic method for RVT in the past. The major drawback is that it is more invasive and time consuming.<sup>6</sup> CT angiography is currently the imaging modality of choice for diagnosing RVT as it is noninvasive and has high sensitivity and specificity.<sup>7</sup>

The treatment of RVT has shifted from surgical treatment with thrombectomy over the past several decades to medical anticoagulant therapy in recent practice. Anticoagulation therapy may dissolve the thrombus and reduces the incidence of recurrent thromboembolic complications. However, anticoagulant treatment for asymptomatic patients with unilateral RVT, especially in patients with nephrotic syndrome, is controversial.<sup>8</sup> In symptomatic patients, early anticoagulant therapy is suggested to prevent extension and spreading of thrombus.<sup>9</sup> The mortality rate for RVT has been high in the past, but has improved in recent decades owing to better diagnostic and treatment modality.<sup>10</sup> The prognosis of patients with RVT varies and depends on the baseline renal function at onset, status of the contralateral kidney, severity and speed of onset of the RVT, development of adequate collateral venous drainage, and adequacy of management. The prognosis of patients with membranous glomerulonephritis is more favorable as they are less likely to develop renal failure.<sup>11</sup>

Varicocele usually occurs in adolescence and rarely occurs in adults. Retroperitoneal pathology, such as tumors or lymphadenopathy, may cause vein obstruction and lead to varicocele formation.<sup>12</sup> This case report implies that RVT should be considered in the differential diagnosis of acute scrotal pain; it also emphasizes that investigation of retroperitoneum should be performed for adult patients with a sudden onset of varicocele.

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