Thrombolytic Therapy in a Patient with Chronic Renal Vein Thrombosis

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Dear Sir,

Renal vein thrombosis occurs in 15–20% of patients with the nephrotic syndrome and up to 50 % of those with associated membranous glomerulonephritis [1]. Anticoagulant therapy with heparin and warfarin apparently halts the natural progression of the disease by blocking further thrombosis and allowing for slow recovery by recanalization of occluded vessels. Recently, thrombolytic agents, urokinase and streptokinase have been used successfully in the management of acute renal vein thrombosis [2–5]. We describe herein 1 patient with chronic right renal vein thrombosis with inferior vena cava and common iliac vein thrombosis who was managed with success by systemic administration of streptokinase.

A 47-year-old female presented in March 1989 to a district hospital with acute onset of pain and swelling of the right lower limb. She was diagnosed as having deep vein thrombosis of the right lower limb and was anticoagulated with heparin for 2 weeks followed by warfarin for 3 months. In June 1989 she presented with a 2 weeks' history of pain over the right loin. On examination she was found to have edema of both lower limbs and tenderness of the right loin. Computed tomographic scan of the kidneys suggested the presence of right renal vein thrombosis. She was anticoagulated with heparin for 2 weeks and then with warfarin until November 1989.

On November 1989, she presented with '2 weeks' history of bilateral lower limb edema associated with ascites. She was then referred to us for further management. Her hemoglobin was 10.9 g/dl, urea was 3.8 mmol/l, creatinine was 79 μ mol/l, random blood sugar was 6.3 mmol/l, albumin was 21 g/l, globulin was 27 g/l, serum complements were normal, Hbs Ag was negative, antidouble-stranded DNA was negative and the 24-hour urine protein excretion

Fig. 1. Inferior vena cavogram demonstrating thrombosis of inferior vena cava and common iliac veins with collateral drainage from the leg via ascending lumbar veins and vertebral venous plexus.

ranged from 2.6 to 8.6 g. Inferior venocavogram demonstrated thrombosis of both common iliac veins, inferior vena cava and right renal vein. Renal biopsy showed features of membranous glomerulonephritis. She was anticoagulated with heparin followed by warfarin. Repeat inferior venocavogram (fig. 1), ultrasound and computed tomographic scan of the abdomen showed no resolution of the thrombus.

Thrombolytic Therapy for Renal Vein Thrombosis

Thrombolytic therapy has mainly been used for acute renal vein thrombosis with good response [2–5]. Although theoretical consideration would suggest that thrombolytic therapy may not be of value in the more chronic form of renal vein thrombosis, uncertainty regarding the age of the thrombus and the continued risk of pulmonary emboli [6] make thrombolytic therapy a reasonable approach for these patients, so long as contraindications to treatment were absent. Thus, the patient described herein demonstrate the feasibility of lysis of renal as well as inferior vena cava and common iliac vein thrombosis with thrombolytic treatment. Prospective studies to evaluate thrombolytic agents in the management of chronic renal vein thrombosis would be useful.

Fig. 2. Computed tomographic scan at renal vein level performed after administration of streptokinase showing patent right renal vein (arrow) with established collaterals.

In view of the lack of response to anticoagulation as well as the extensive nature of the thrombus, streptokinase therapy was instituted on April 3, 1990. Warfarin was stopped for 3 days. A bolus of 250,000 IU of streptokinase was given intravenously over 1 h and was followed by a continuous infusion of 100,000 IU hourly by peripheral vein. Streptokinase infusion was stopped after 61 h in view of vaginal bleeding and left subconjunctival hemorrhage. Both resolved on discontinuation of streptokinase. After the streptokinase was withdrawn, warfarin therapy was continued. One week after discontinuation of the streptokinase infusion, a repeat computed tomographic renal scan (fig. 2) showed resolution of the thrombus in the right renal vein, inferior vena cava and common iliac veins. Three months after discharge, the 24-hour urinary protein excretion was 4 g/l, the serum albumin was 36 g/l, and the serum creatinine was 77 $\mu\text{mol/l}$ and the patient was edema-free.

This patient initially presented with symptoms and signs of deep vein thrombosis of the right lower limb followed 4 months later by right renal vein thrombosis and nephrotic syndrome and 9 months later by right renal vein, inferior vena cava and common iliac vein thrombosis. Renal biopsy performed during the latter presentation demonstrated membranous glomerulonephritis. She had been on anticoagulant therapy for 1 year without any response. In April 1990, in view of her persistent symptoms and radiologic investigation indicating extensive thrombosis with the attendant danger of pulmonary embolus, systemic streptokinase was administered. This resulted in resolution of the venous thrombosis.

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