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Respiratory Medicine Case Reports

journal homepage: www.elsevier.com/locate/rmcr

Case Report

Pulmonary embolism and left renal vein thrombosis extending into the inferior vena cava associated with nephrotic syndrome: A case report

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ARTICLE INFO

Handling Editor: DR AC Amit Chopra

ABSTRACT

Nephrotic syndrome (NS) had serious complications due to hypercoagulable state in both various venous and arteries which could lead thromboembolic events. we described a case of a 41-year-old man who presented with pulmonary artery thrombosis and was diagnosed with NS. Early diagnosis and management of nephrotic syndrome may prevent the occurrence of venous thromboembolism (VTE).

To the Editor

Nephrotic syndrome (NS) had serious complications due to hypercoagulable state in both various venous and arteries which could lead thromboembolic events. we described a case of a 41-year-old man who presented with pulmonary artery thrombosis and was diagnosed with NS. Early diagnosis and management of nephrotic syndrome may prevent the occurrence of venous thromboembolism (VTE).

A 41-year-old man had no prior illness or cardiovascular risk factors, came to the emergency department with a complaint of chest pain for 6 hours. His blood pressure was 110/70 mmHg, heart rate 87 beats/minute, and oxygen saturation by pulse oximetry 98 % at rest on ambient air.

Electrocardiogram indicates a sinus rhythm with nonspecific ST segment and T wave abnormalities. Laboratories test revealed markedly elevated cardiac troponin T (538 ng/L vs. normal <40ng/L) and N-terminal pro-brain natriuretic peptide (1074 pg/ml vs. normal <300pg/ml). Coronary angiography was performed and excluded obstructive atheromatous disease in the major epicardial vessels.

Other laboratory testing results were as follows: sodium 139 mmol/L (reference range 137–147), potassium 3.8 mmol/L (3.5–5.3), chloride 102 mmol/L (99–110), blood urea nitrogen 5.26 mmol/L (3.1–8), serum creatinine 76μmol/L (57–104), total protein 43.4 g/L (65–85), albumin 19.7 g/L (40–55). Total cholesterol 8.62mmol/L (3.1–5.9). HBV, HCV, HIV, and RF were all in the normal range or negative. The D-dimer (>20 μg/ml) and 24h urinary protein excretion (4.6 g) were positive.

Computed tomography (CT) angiography of the chest and abdomen revealed thrombus at both right and left pulmonary arteries, and left renal vein thrombosis extending into the inferior vena cava (Fig. 1A,B and 1C). The patient was diagnosis for nephrotic syndrome complicated with pulmonary embolism and left renal vein with inferior vena cava thrombosis, and treated with subcutaneous low molecular weight heparin, which was then transitioned to warfarin therapy.

Nephrotic syndrome (NS) was first described in 1827 as the presence of proteinuria of $\geq 3.5\text{g}/24\text{h}$, hypoalbuminemia $< 3.0\text{g}/\text{dl}$, peripheral edema, hyperlipidemia [1]. Nephrotic syndrome had serious complications due to hypercoagulable state in both various

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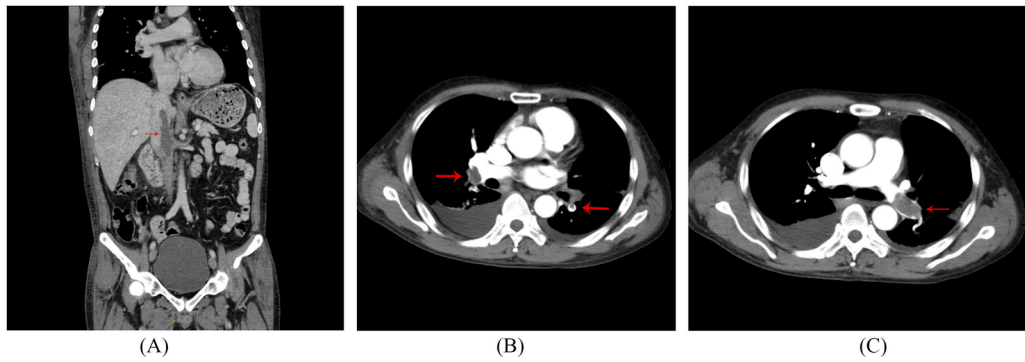


Fig. 1. Computed tomography angiography of the chest and abdomen revealed thrombus at both right and left pulmonary arteries (B,C), and left renal vein thrombosis extending into the inferior vena cava(A).

venous and arteries which could lead thromboembolic events [2]. The pathophysiology of hypercoagulability in the nephrotic syndrome was due to an imbalance of prothrombotic and antithrombotic factors, as well as impaired thrombolytic activities. Some of the important changes included decreased antithrombin III and protein C, which had anticoagulant effects, whereas some of the procoagulant factors such as fibrinogen, factor V and factor VIII were prominently increased [3]. The appropriate treatment and the prophylaxis for pulmonary artery thrombosis with NS were still under discussion because of the lack of large, prospective randomized trials.

In summary, we described a case of a 41-year-old man who presented with pulmonary artery thrombosis and was diagnosed with NS. The possible occurrence of pulmonary embolism in a patient with nephrotic syndrome should not be missed. Early diagnosis and management of nephrotic syndrome may prevent the occurrence of venous thromboembolism (VTE).

Declaration of patient consent

The authors certify that a signed patient consent form was obtained. In the form, the patient has given consent for his clinical information to be published in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal her identify, but anonymity cannot be guaranteed.

Financial support and sponsorship

This report was supported by grants from Zhongshan Municipal Bureau of Science and Technology (NO. 2021B1068, NO. 2020B1126).

Declaration of competing interest

There are no conflicts of interest.

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