

Pulmonary Thromboembolism: A Rare but Serious Complication of Nephrotic Syndrome

A 3-year-old boy was diagnosed with nephrotic syndrome (NS) 1½ months before presentation. Laboratory investigations at the time of diagnosis were urine protein dipstick 4+, urine protein of 64 mg/m²/h, serum albumin of 1.8 g/dl, and serum cholesterol 356 mg/dl. He was on prednisolone at 2 mg/kg/day for the initial 6 weeks, and the child went into remission on the 3rd week. The child was in remission when he presented with sudden onset respiratory distress, in the form of tachypnea 12 h before admission. The child had no history of fever or swelling of body. His vital signs on arrival to emergency were a heart rate of 158/min, respiratory rate of 54/min, oxygen saturation of 84% on room air, and blood pressure of 104/70 mmHg. Other cardiac and respiratory examinations were unremarkable. As there were no clinical signs suggestive of any infection, a possibility of pulmonary thromboembolism was considered and computed tomography (CT) angiography was done. CT angiography was suggestive of large saddle thrombus at bifurcation of main pulmonary artery with its extension into the right and left pulmonary artery along with dilatation of the right atrium and right ventricle [Figure 1]. Bedside echo done demonstrated severe right ventricular dysfunction. Thrombosis of lower limbs and renal veins was excluded with Doppler sonography. Cardiothoracic and vascular surgery consultation was taken, and embolectomy was planned. However, the patient died within 2 h of hospital stay.

NS is a hypercoagulable state, with an estimated risk of thromboembolic events up to 1.8%–5%.^[1] Abnormalities of coagulation cascade with increased hepatic synthesis of clotting factors (factors I, II, V, VII, VIII, X, and XIII) and loss of coagulation inhibitors such as antithrombin III in urine occurs, along with increased platelet aggregability, hyperviscosity, and hyperlipidemia. Hypofibrinogenemia, prolonged immobilization, and diuretic use are the major contributing factors for increased risk of thromboembolic events.^[2] Higher incidence of thromboembolic complications is seen in the secondary forms of NS compared to idiopathic NS.

This case highlights the fact that thromboembolic events do occur in childhood NS, though rarely. As the child was in remission at the time of presentation, the limitation that we have is that the workup of the case was not complete. However, pulmonary embolism is an important known complication of NS and can be fatal if not recognized early. Acute management includes initial heparin infusion

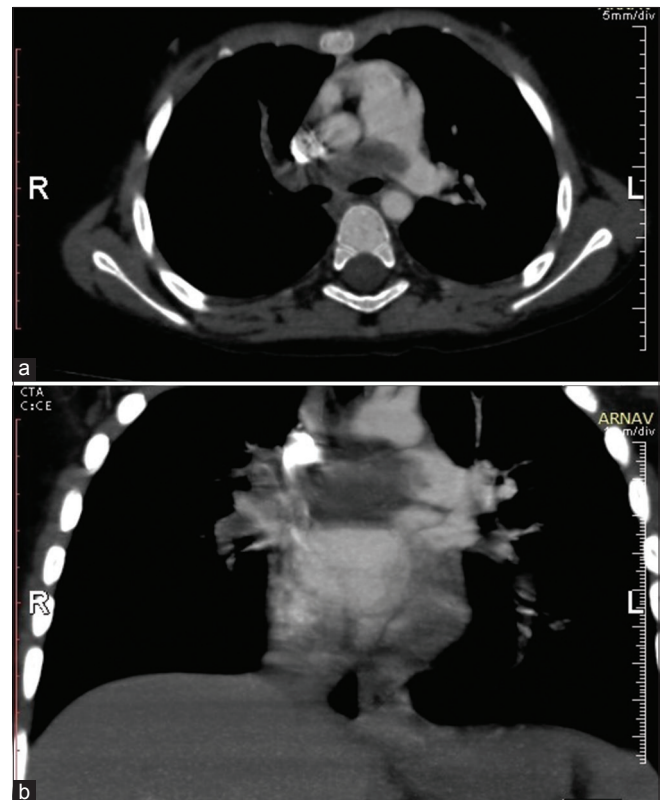


Figure 1: Computed tomography pulmonary angiogram (a) axial view and (b) coronal view: filling defect both at the bifurcation and in the pulmonary arteries suggestive of large saddle thrombus involving main pulmonary artery and its branches right and left pulmonary artery

or low-molecular-weight heparin, and in cases with large thrombus, thromboembolectomy may be needed.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

**S. Sandal, K. Tiewsoh, N. Hansdak,
B. Parajuli**

*Department of Pediatrics, Advanced Pediatrics Center, Postgraduate
Institute of Medical Education and Research, Chandigarh, India*

Address for correspondence:

*Dr. K. Tiewsoh,
Department of Pediatrics, Advanced Pediatrics Center, Postgraduate
Institute of Medical Education and Research, Chandigarh, India.
E-mail: karalanglin@rediffmail.com*

References

1. Citak A, Emre S, Sâirin A, Bilge I, Nayir A. Hemostatic problems and thromboembolic complications in nephrotic children. *Pediatr Nephrol* 2000;14:138-42.
2. Lilova MI, Velkovski IG, Topalov IB. Thromboembolic complications in children with nephrotic syndrome in Bulgaria (1974-1996). *Pediatr Nephrol* 2000;15:74-8.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online	
Quick Response Code: 	Website: www.indianjnephrol.org
	DOI: 10.4103/ijn.IJN_284_17

How to cite this article: Sandal S, Tiewsoh K, Hansdak N, Parajuli B. Pulmonary thromboembolism: A rare but serious complication of nephrotic syndrome. *Indian J Nephrol* 2018;28:247-8.