

Patient Voice

1431 Dialysis, Transplantation, and Work: Honoring Original Intent

Stephen Z. Fadem

See related article on page 1506.

Editorials

1433 Palliative Care for Hemodialysis Patients?

Frank Brennan and Mark A. Brown

See related article on page 1495.

1436 Resistant Hypertension in Chronic Kidney Disease: A Burden unto Itself

Rachel Shulman and Jordana B. Cohen

See related article on page 1457.

1439 Reducing Racial Disparities in Access to Transplant in the United States: One Step at a Time

Rhiannon D. Reed and Jayme E. Locke

See related article on page 1515.

1442 Incorporating Training in POCUS in Nephrology Fellowship Curriculum

Nathaniel C. Reisinger and Abhilash Koratala

See related article on page 1487.

Original Articles

Acute Kidney Injury and ICU Nephrology

1446 The Relationship between Rate and Volume of Intravenous Fluid Administration and Kidney Outcomes after Angiography

Qandeel H. Soomro, Sonia T. Anand, Steven D. Weisbord, Martin P. Gallagher, Ryan E. Ferguson, Paul M. Palevsky, Deepak L. Bhatt, Chirag R. Parikh, and James S. Kaufman, for the PRESERVE Trial Investigators

Chronic Kidney Disease

1457 Prevalence of Apparent Treatment-Resistant Hypertension in Chronic Kidney Disease in Two Large US Health Care Systems

Jaejin An, Manjula Kurella Tamura, Michelle C. Odden, Liang Ni, I-Chun Thomas, Maria E. Montez-Rath, and John J. Sim

See related editorial on page 1436.

1467 Arterial Stiffness and Chronic Kidney Disease Progression in Children

Karolis Azukaitis, Marietta Kirchner, Anke Doyon, Mieczysław Litwin, Aysun Bayazit, Ali Duzova, Nur Canpolat, Augustina Jankauskiene, Rukshana Shroff, Anette Melk, Uwe Querfeld, and Franz Schaefer, on behalf of the 4C Study Investigators

1477 Apolipoprotein L1 Genotypes and the Association of Urinary Potassium Excretion with CKD Progression

Titilayo O. Ilori, Jing Liu, Aylin R. Rodan, Ashish Verma, Katherine T. Mills, Jiang He, Cheryl A. Winkler, Josée Dupuis, Cheryl A.M. Anderson, and Sushrut S. Waikar

Clinical Nephrology

1487 Point-of-Care Ultrasound Training during Nephrology Fellowship: A National Survey of Fellows and Program Directors

Catherine A. Moore, Daniel W. Ross, Kurtis A. Pivert, Valerie J. Lang, Stephen M. Sozio, and W. Charles O'Neill IV

See related editorial on page 1442.

Maintenance Dialysis

1495 Implementation and Effectiveness of a Learning Collaborative to Improve Palliative Care for Seriously Ill Hemodialysis Patients

Manjula Kurella Tamura, Laura Holdsworth, Margaret Stedman, Annette Aldous, Steven M. Asch, Jialin Han, Glenda Harbert, Karl A. Lorenz, Elizabeth Malcolm, Amanda Nicklas, Alvin H. Moss, and Dale E. Lupu

See related editorial on page 1433.

Transplantation

1506 Employment Status and Work Functioning among Kidney Transplant Recipients

Tim J. Knobbe, Daan Kremer, Femke I. Abma, Coby Annema, Stefan P. Berger, Gerjan J. Navis, Sijrike F. van der Mei, Ute Bültmann, Annemieke Visser, and Stephan J.L. Bakker, on behalf of the TransplantLines Investigators

See related Patient Voice on page 1431.

1515 Comparison of 2021 CKD-EPI Equations for Estimating Racial Differences in Preemptive Waitlisting for Kidney Transplantation

Elaine Ku, Sandra Amaral, Charles E. McCulloch, Deborah B. Adey, Libo Li, and Kirsten L. Johansen

See related editorial on page 1439.

Research Letter

1522 Genome-Wide Epistatic Interaction between *DEF1B* and *APOL1* High-Risk Genotypes for Chronic Kidney Disease

Ha My T. Vy, Bridget M. Lin, Faris F. Gulamali, Charles Kooperberg, Mariaelisa Graff, Jenny Wong, Kirk N. Campbell, Tara C. Matise, Josef Coresh, Fridtjof Thomas, Alexander P. Reiner, Rami Nassir, Peter F. Schnatz, Tanya Johns, Steven Buyske, Christopher Haiman, Richard Cooper, Ruth J.F. Loos, Carol R. Horowitz, Orlando M. Gutierrez, Ron Do, Nora Franceschini, and Girish N. Nadkarni

Insights from the USRDS

1526 Associations of COVID-19 Outcomes with Dialysis Modalities and Settings

Eric D. Weinhandl, Jiannong Liu, David T. Gilbertson, James B. Wetmore, and Kirsten L. Johansen

Critical Care Nephrology and Acute Kidney Injury

1535 Postoperative Acute Kidney Injury

Naomi Boyer, Jack Eldridge, John R. Prowle, and Lui G. Forni

Kidney Case Conference: How I Treat

1546 Rituximab in the Frail and Elderly with Severe ANCA-Associated GN

Silke R. Brix and Vladimir Tesar

Perspectives

1549 Drug Development for Cystic Kidney Diseases

Sorin Fedeles and Ronald D. Perrone

See related Perspectives on pages 1551, 1555, and 1559, respectively.

1551 Perspectives on Drug Development in Autosomal Recessive Polycystic Kidney Disease

Max C. Liebau, Erum A. Hartung, and Ronald D. Perrone

See related Perspectives on pages 1549, 1555, and 1559, respectively.

1555 Perspectives on Drug Development in Early ADPKD

Djalila Mekahli, Hayley Womack, and Neera K. Dahl

See related Perspectives on pages 1549, 1551, and 1559, respectively.

1559 Current Challenges and Perspectives on Developing a Clinical Trial Design for ADPKD

Craig Ostroff, Ronald D. Perrone, and Frank S. Czerwiec

See related Perspectives on pages 1549, 1551, and 1555, respectively.

Feature

1563 Conceptual Framework for Patient-Reported Outcome Measures in Clinical Trials of Skeletal Muscle Cramping Experienced in Dialysis: A Kidney Health Initiative Workgroup Report

Michelle M. Richardson, Amanda Grandinetti, Tandra S. Hilliard-Boone, Kenneth R. Wilund, Rebecca Wingard, Wendy L. St. Peter, Dilani Logan, Francesca Tentori, San Keller, Melissa West, and Eduardo Lacson Jr.

On the Cover

What is the diagnosis?

A 41-year-old male with history of HIV/AIDS (CD4 10 cells per cubic millimeter; noted nonadherence to antiretroviral therapy) presented with shortness of breath. He was hypoxic and in circulatory shock on arrival, requiring intubation and vasopressors. AKI was present on arrival (serum creatinine 3.5 mg/dl from 0.8 mg/dl). Blood cultures grew methicillin-sensitive *Staphylococcus aureus*, and kidney function continued to worsen with development of oliguria, requiring KRT *via* nontunneled right internal jugular catheter. Kidney dysfunction persisted, and 8 days later, a tunneled dialysis catheter was placed. During this procedure, a thrombus adherent to the original nontunneled catheter was noted.

Image Description:

Left image: The internal jugular vein (#) appears in cross section within which is a central venous catheter (*) with adherent thrombus (arrow). Right image: Manual compression redemonstrates these findings and makes the carotid artery partially visible.

Teaching Points:

Catheter associated thrombosis (CAT) is a common complication of central venous catheters. The risk factors for CAT include device-related factors (large catheter size to vein diameter ratio, number of lumens and catheter size, catheter material), improper technique (multiple insertion attempts, improper tip position), and patient factors (cancer, age, obesity, and critical illness). A 14 French (4.66-mm catheter; 1 French=0.33 mm) dialysis catheter inserted into a central vein in an immobilized, bacteremic, critically ill patient creates a high-risk situation violating all components of Virchow's triad. Management depends on the size and location of the thrombus. A localized thrombus near the insertion site only, as in our case, generally can be managed with catheter removal without therapeutic anticoagulation. The management of a centrally located CAT requires further evaluation and a multidisciplinary treatment plan including anticoagulation and/or surgical intervention (1,2).

References:

1. Niyyar VD, Chan MR: Interventional nephrology: Catheter dysfunction—prevention and troubleshooting. *Clin J Am Soc Nephrol* 8: 1234–1243, 2013
 2. Yang H, Chen F, Jiao H, Luo H, Yu Y, Hong HG, Li Y, Fu P, Cui T: Management of tunneled-cuffed catheter-related right atrial thrombosis in hemodialysis patients. *J Vasc Surg* 68: 1491–1498, 2018
- (Images and text provided by Michael George, Cleveland Clinic Foundation, Department of Kidney Medicine, Cleveland, Ohio; James Lane, Cleveland Clinic Foundation, Critical Care, Respiratory Institute, Cleveland, Ohio; and Tushar Vachharajani, Cleveland Clinic Foundation, Department of Kidney Medicine, Cleveland, Ohio)