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On the Cover
What’s the diagnosis? A 67-year-old woman with history of ESRD, hypertension, anemia, peripheral vascular disease, secondary hyperparathyroidism, and type 2 diabetes mellitus was admitted with an episode of blood oozing from her right upper arm loop arteriovenous graft (AVG). On examination, the AVG had a good bruit and thrill. There was a crusted lesion over the AVG, which had some dried blood and skin erosion (left panel). There was no associated erythema or purulent drainage. The patient denied fever, but the nursing staff documented a temperature of 100.3 °F. Laboratory data demonstrated a mild leukocytosis (WBC 10.4 x 10^9/l) and anemia (Hb 8.2 g/dl). Blood cultures were drawn. The nephrology team was concerned about infection and an associated defect in the graft (which lead to bleeding) that would require AVG removal. However, the vascular surgeons thought infection was unlikely and recommended covered stent placement at the site of the lesion. An indium 111-labeled white blood cell scan was ordered to evaluate for infection. The scan was positive with the AVG demonstrating uptake (right panel). Blood cultures returned positive for MRSA and the AVG was removed. Purulent material involving the AVG was noted during the operative procedure. Infection of an AVG is often obvious with swelling, erythema and purulent drainage in a patient with fever, leukocytosis and positive blood cultures. However, at times, an AVG may be infected with very few symptoms or signs present. Hyporesponsive anemia may be the only clue to an infected vascular access. This can provide a significant challenge to the healthcare providers trying to provide appropriate care. On the one hand, an infected AVG can lead to serious problems such as bacteremia with metastatic infections and graft rupture with serious hemorrhage, while excising an uninfected AVG eliminates an important vascular access site for hemodialysis in the patient. A test that is sometimes useful in elucidating infection within an AVG is the indium 111-labeled WBC scan. A relatively large study examining this modality showed that the test was most helpful in the management of suspected vascular access infections and osteomyelitis. Thus, in difficult cases, this test may provide useful diagnostic information. (Images and text provided by Barry Gorlitsky, MD and Mark A. Perazella, MD, Yale University School of Medicine, New Haven, Connecticut)