

tions.¹ I applaud the effort to define the at-risk contacts more precisely but anticipate that parsing the definition too finely will result in many gray areas and may make the guidelines difficult to implement.

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1. Prevention and control of meningococcal disease: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR Recomm Rep* 2005;54(RR-7):1-121.

2. Nuorti JP, Butler JC, Farley MM, et al. Cigarette smoking and invasive pneumococcal disease. *N Engl J Med* 2000;342:681-9.

3. Prevention of pneumococcal disease: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR Recomm Rep* 1997;46(RR-8):1-24.

Medical Mystery: Abnormal Abdominal Radiograph — The Answer

TO THE EDITOR: The medical mystery in the December 7, 2006, issue¹ involved a 50-year-old woman who presented to the emergency department with obtundation and hypotension. An abdominal radiograph showed gas throughout the right kidney (Fig. 1A). Computed tomography (CT) of the abdomen revealed extensive destruction of the right renal parenchyma with associated gas, as

well as gas in the retroperitoneal tissues (Fig. 1B). The patient's serum glucose level at presentation was 607 mg per deciliter (33.7 mmol per liter), and her glycated hemoglobin value was 12.2%. She did not have diabetic ketoacidosis. A diagnosis of emphysematous pyelonephritis in the setting of diabetes mellitus was made. The patient underwent urgent right nephrectomy, and *Escherichia coli* was cultured from the surgical site and from the blood. She had an uneventful recovery, with normalization of her renal function. Her newly diagnosed diabetes is well controlled through insulin therapy, and she is doing well.

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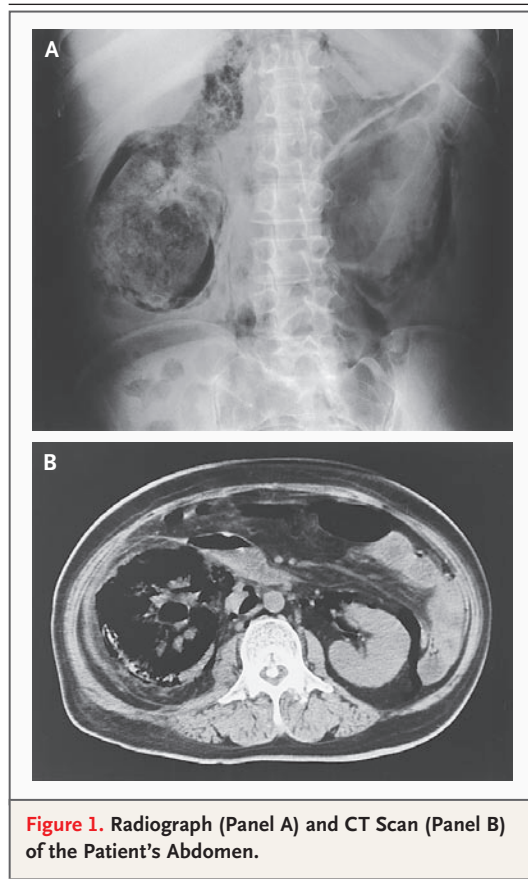
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1. Tajima K, Kurabayashi M. Medical mystery — abnormal abdominal radiograph. *N Engl J Med* 2006;355:2467.

Editor's note: We received 1162 responses to this medical mystery — 55% from physicians in practice, 19% from physicians in training, 13% from medical students, and 13% from other readers. Responses were received from 82 countries. Many of the responses reflect a team effort — such as the results of a discussion of the case during a teaching conference.

Forty percent of the respondents correctly identified gas associated with the right kidney or emphysematous pyelonephritis. Eleven percent suggested a gallbladder disorder such as emphysematous cholecystitis, 12% suggested other infections (e.g., hydatid cyst or hepatic abscess), another 12% suggested cancer (e.g., renal, adrenal, or hepatic), and 19% suggested a variety of diagno-



ses, including pneumatosis coli, renal-vein thrombosis, intussusception, toxic megacolon, volvulus, pancreatic cyst, or a fecolith. The remaining 6%

of respondents suggested a bezoar or an intra-abdominal pregnancy, including the possibility of a lithopedion.

Case 32-2006: A Girl with Fever after a Visit to Africa

TO THE EDITOR: In the Case Record regarding severe falciparum malaria in a 3-year-old girl (Oct. 19 issue),¹ Fraser et al. discuss the use of exchange transfusion and attribute the patient's clinical improvement to this treatment. Current evidence does not support this conclusion: a meta-analysis of eight comparative trials showed no significant benefit of adjunctive exchange transfusion over chemotherapy alone. Although there was systematic bias toward use of exchange transfusion in patients with severe malaria, subgroup analysis showed no additional benefit at any level of parasitemia.²

Treatment of severe malaria with artesunate, as compared with quinine, has been shown to reduce mortality by 35%.³ Unlike intravenous quinidine, artesunate is easy to administer and is well tolerated. Artesunate has not yet been approved by the Food and Drug Administration. Therefore, it is ironic that the drug is being used to great effect in much of Asia and Africa, even though in the United States, patients with severe falciparum malaria are denied the most effective treatment and may be exposed to unproven, potentially dangerous interventions.

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1. Case Records of the Massachusetts General Hospital (Case 32-2006). *N Engl J Med* 2006;355:1715-22.
2. Riddle MS, Jackson JL, Sanders JW, Blazes DL. Exchange transfusion as an adjunct therapy in severe *Plasmodium falciparum* malaria: a meta-analysis. *Clin Infect Dis* 2002;34:1192-8.
3. South East Asian Quinine Artesunate Malaria Trial (SEAQUAMAT) Group. Artesunate versus quinine for treatment of severe falciparum malaria: a randomised trial. *Lancet* 2005; 366:717-25.

TO THE EDITOR: In the Case Record, a 3-year-old child with severe malaria was treated with intravenous quinidine and exchange transfusion. Both the treatment protocols are potentially life-threatening, and better alternatives are available. A review of the currently available data from trials

that have compared quinine with artesunate suggests a 9% absolute reduction in the risk of death with the use of artesunate (number of patients who would need to be treated to prevent one death, 11), where available.¹ Also, the use of artesunate is associated with lower infusion volumes and can potentially reduce the incidence of fluid overload, which is a common complication in children. Furthermore, the parasite clearance time is faster with artesunate than with quinine, and its use might have obviated the observed increase in parasitemia in this case.¹ Moreover, artesunate is not associated with hypoglycemia and cardiac toxicity, both of which are commonly encountered with the use of quinidine. In a systematic review, exchange transfusion was not associated with a higher survival rate than was antimalarial chemotherapy alone, and the procedure is fraught with complications.² In fact, the recent guidelines of the World Health Organization (WHO) do not endorse the use of exchange transfusion, even in patients with severe parasitemia.³

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1. South East Asian Quinine Artesunate Malaria Trial (SEAQUAMAT) Group. Artesunate versus quinine for treatment of severe falciparum malaria: a randomised trial. *Lancet* 2005; 366:717-25.
2. Riddle MS, Jackson JL, Sanders JW, Blazes DL. Exchange transfusion as an adjunct therapy in severe *Plasmodium falciparum* malaria: a meta-analysis. *Clin Infect Dis* 2002;34:1192-8.
3. Guidelines for the treatment of malaria. Geneva: World Health Organization, 2006. (Document no. WHO/HTM/MAL/2006.1108.) (Accessed January 11, 2007, at <http://www.who.int/malaria/docs/TreatmentGuidelines2006.pdf>.)

TO THE EDITOR: One must not generalize from the experience with the patient in the Case Record, especially in the developing world. The discussants state that there are risks involved in exchange transfusion but fail to mention an im-