Two Cases of Enterococcus faecalis Bacteremia Associated with a Hemodialysis Machine

To the Editor—Arnow et al. [1] recently reported an outbreak of bloodstream infections arising from hemodialysis equipment. The waste-handling option (WHO) port, an attachment used for the disposal of priming saline prior to dialysis, harbored organisms that caused bacteremia in 29 patients over an 8-month period. In the Pediatric Renal Unit at City Hospital (Nottingham, UK), Enterococcus faecalis was isolated from blood cultures for 2 patients who had been dialyzed on the same machine. In these cases, the WHO port was also the source of the infection. Sampling of the WHO port yielded E. faecalis, and genotyping, using RAPD (random amplification of polymorphic DNA), showed that it was indistinguishable from the blood culture isolates.

The first patient was an 11-year-old boy with Jeune’s syndrome. The boy was receiving hemodialysis after a failed renal transplant. Thirty minutes after starting dialysis, he complained of headache and fever, and he vomited. Blood samples obtained through his jugular venous catheter grew E. faecalis in culture. The boy responded to treatment with intravenous ampicillin. Three days later, the second patient, a 15-year-old boy with a failed renal transplant, had rigors while being dialyzed on the same machine. Blood samples were obtained through his catheter and grew E. faecalis in culture. He also was treated successfully with intravenous ampicillin. Neither patient had any other focus of infection to account for these organisms, and therefore the WHO port on the dialysis machine was sampled.

Informed consent was obtained from all participants, and guidelines for human subject studies were followed at Miriam Hospital.

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Figure 1. Random amplification of polymorphic DNA analysis using M13 primer of (from left to right) 2 blood culture isolates, WHO port isolate, Enterococcus faecalis NCTC 12697, and unrelated E. faecalis.

This yielded mixed gram-negative bacilli and E. faecalis. Subsequent RAPD analysis of the 3 enterococcal isolates showed them to have identical banding patterns on gel electrophoresis (figure 1).

The WHO port is a feature of the Centrysystem 3 hemodialysis machine (COBE Laboratories, Lakewood, Colorado). It is used for disposal of priming saline in the dialysis catheter just before connection to the patient. However, the port cannot be cleaned adequately and appears to act as a reservoir for bacteria, as described by Arnow et al. [1]. We have advised that the WHO port no longer be used at our hospital, because we feel that its use carries a significant risk of introducing infection into the patient. The disposal of priming saline into sterile jugs is now recommended on the pediatric and adult renal units.

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