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Gram-negative Rod Contamination of an Ohmeda Anesthesia Machine

To the Editor:—During the preoperative check of an Ohmeda Modulus SE anesthesia machine (Ohmeda Inc., Madison, WI) with an Ohmeda 7900 ventilator and expiratory limb water trap, we observed approximately 1 cm (4 ml) of water in the base of the water trap. On examination, the water appeared to be very pale orange in appearance but did not have an obvious odor. Culture of this fluid grew $> 10^5$/ml nonfermenting Gram-negative rods, possibly *Flavobacterium* or a *Pseudomonas* species. *Flavobacterium* species are responsible for human neonatal meningitis and in-dwelling line infection in immunocompromised hosts. The role of *Pseudomonas* in human infection is well known. Subsequently, small amounts ($<$ 5 mm depth) of fluid were observed in two identical anesthesia machines over the following 3 days. Both fluid cultures grew $> 10^5$/ml nonfermenting Gram-negative rods. No further identification of organisms was undertaken. Aerobic and anaerobic swabs of the inspiratory and expiratory ports of the soda-lime absorber had no growth at 5 days.

This observation is in contrast to that of Azzam *et al.*,[1] who observed no contamination over a 94-day period in a single Ohmeda water trap that underwent routine cleaning and drainage. However, the Ohmeda water trap is capable of storing fluid over a long period of time, unless regular cleaning is undertaken. The expiratory limb of respiratory apparatus is capable of considerable contamination by respiratory organisms, especially *Pseudomonas aeruginosa*.[2–5] Insufficient drying has been implicated as a contributing factor in cross-patient infection.[6] The Ohmeda water trap installation instructions state that the trap should be cleaned in a neutral detergent but do not contain specific information on the frequency of such cleaning. No regular cleaning had been advised, or undertaken, at our institution over the approximately 18-month period of use. There had been no clinically obvious increase in pulmonary infections associated with those operating rooms during that period, but no formal quality-assurance process for review of pulmonary infections existed.

Whether anesthesia machines are a source of nosocomial infection is still open to debate.[5,7] The soda-lime canister seems to be a somewhat effective filter (60–99.9%) for most organisms, except perhaps *Mycobacterium tuberculosis*[8] and at low fresh gas flows.[9,10] Our routine practice was to use disposable circle anesthesia circuits but not bacteriologic filters. Subsequently, a regular (daily) cleaning program had been instituted. We have elected not to use bacteriologic filters routinely in the circuits of these anesthesia machines because, although they are effective filters, their efficacy in reducing patient cross-infection is unproven.[11,12] Other institutions may wish to examine their own institutional practices in light of this observation.

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