Fig. 2. Reanimated photo showing the initial point of friction that prevented extraction of the Medisorb® cartridge (GE Healthcare, Waukesha, WI), once inserted upside down into the canister.

6 min until the canister was replaced. We unfortunately did not observe the level of inspired carbon dioxide, oxygen, or anesthetic agent during this crisis, but this could be measured prospectively in a separate volunteer study. We are unaware of such measurements, and, in fact, are unaware of any published descriptions of this emergency ventilation technique.

In summary, we used an escalating technique of (1) high oxygen flush to overcome a major circuit leak, (2) momentary mouth-to-tube ventilation of the expiratory limb, and (3) SIMVD to expiratory limb ventilation to successfully ventilate and oxygenate this patient for approximately 6 min, without threatening the integrity of the surgical field.

We also question the need for a tapered design of the absorbent cartridge that allowed this human error to jam a cartridge into a canister (fig. 2). We speculate that the cartridge is tapered to prevent inversion once the proximal end turns purple from spent absorbent, and we welcome the manufacturer's comment on this point.

References

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2. Fasting S, Gisvold SE: Equipment problems during anaesthesia–are they a quality problem? Br J Anaesth 2002; 89:825–31
3. Gaba DM, Howard SK, Fish KJ, Smith BE, Sowb YA. Simulation-based training in anesthesia crisis resource management (ACRM): A decade of experience. Simulat Gaming 2001; 32:175–93.

GE Healthcare Response to Aestiva CO_2 Absorbent Cartridge Issue

In Reply:

GE Healthcare appreciates the opportunity to respond to the Letter to the Editor from Drs. Seif and Olympio,[1] pertaining to the Aestiva CO_2 absorbent cartridge issue. We thank you for your diligence in informing the anesthesiology community regarding this case and were impressed by your quick actions in solving the issue at hand.

GE Healthcare has shipped almost 2 million Medisorb cartridges with this exact design over the last 10 yr. After reviewing our database for similar events, we found no record of such a problem being previously reported. Your experience demonstrates that this unique human-induced failure can occur, and your report will help raise awareness to further reduce the likelihood of occurrence.

Furthermore, we tested absorbent cartridges from a few alternative vendors and found they are also unidirectional. The consistency of this unidirectional design may be due to the fact that a taper is required for normal manufacturing as part of the molding process. The taper also allows for proper positioning (centering) of the cartridge in the canister to adequately maintain a seal.

You effectively addressed the issue by swapping the canister. These canisters (0229-3015-800) are available for order in case you would like to have extra canisters available at your facility.

Thank you once again for bringing this to the attention of the anesthesia community.

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Reference

1. Seif DM, Olympio MA: Expiratory limb ventilation during unique failure of the anesthesia machine breathing circuit. Anesthesiology 2013; 118:751–3

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