Leak in circuit: An unusual cause!

Sir,

Prevention of perioperative hypothermia is important and a variety of warming devices are used in operation theatres (OTs) for this. There are reports in literature of thermal injury to patients caused by various warming devices,[1-3] but equipment damage by them is rare.

Figure 1: Proximity of circuit tubings to warming appliance

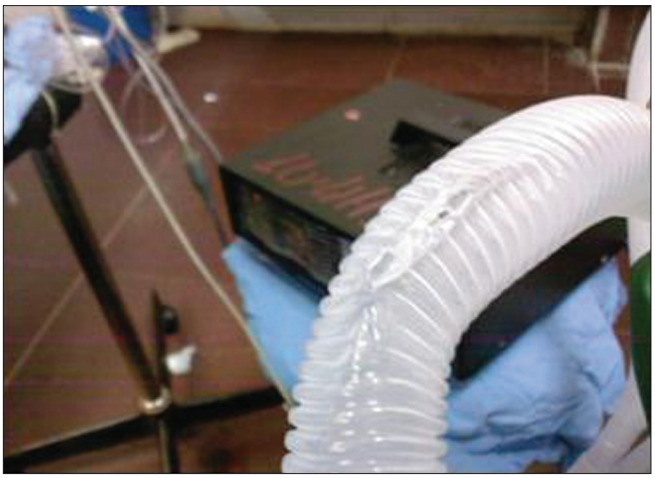

Figure 2: Burnt tubings

A 16-year-old woman, with pathological fracture of femur due to giant cell tumor, was scheduled for curettage with bone grafting along with open reduction and internal fixation of the fracture. Anesthesia was induced and maintained according to the standard institute protocol. Heating pads and blankets were not available for this patient as three other cases were simultaneously under way in the theatre. A hot-air fan was used to prevent hypothermia. It was placed on the right-hand side of the head-end of the patient. After three uneventful hours of surgery, it was noticed that the $EtCO_2$ value had diminished and the capnogram showed an oscillatory declining pattern with a decreased value. Also, the bellows of the ventilator had collapsed and could not be refilled. The patient's SpO_2 and ECG were within normal limit. Manual ventilation was started but even on closing the adjustable pressure limiting valve maximally, we were unable to ventilate. On increasing the flow and opening the O_2 flush, ventilation was possible. The circuit was checked for disconnections at patient and machine end which were found to be intact. The part of the breathing circuit tubing near the hot-air fan was warm to feel and rent of about 0.5 cm in diameter in the circuit tubing was seen. The tubings were replaced and the surgery proceeded uneventfully.

The hot-air fan (Turbo, ISI marked, India) has three options for temperature control—cool, warm, and hot. We had chosen the "hot" option. The hot-air fan was placed on a wooden stool covered by a cloth at a distance of about 30 cm from the patient. It was placed on the right-hand side close to the anesthesia circuit tubings (Intersurgical Ltd., UK) because of space limitation on the left-hand side of the OT table [Figure 1]. In our enthusiasm to warm the patient, we did not realize the implication of using a heating device near the breathing circuit tubings, which were made of plastic and could melt by exposure to heat (3 h in this case) [Figure 2].

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