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Letter to the Editor

When The Anesthesia Circuit Cannot Reach The Patient: Combining A Capnograph Adapter, Face Mask, Ambu Bag, And Oxygen Tank.

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Abstract

An existing anesthesia circuit can be reassembled and quickly used with an oxygen tank, Ambu bag, and a capnograph to quickly allow for induction and intubation in emergency circumstances or when an anesthesia machine may not be readily available or accessible.

To the Editor:

We are writing to draw attention to an innovative approach for patient ventilation that could aid in emergency and off-the-floor settings when common

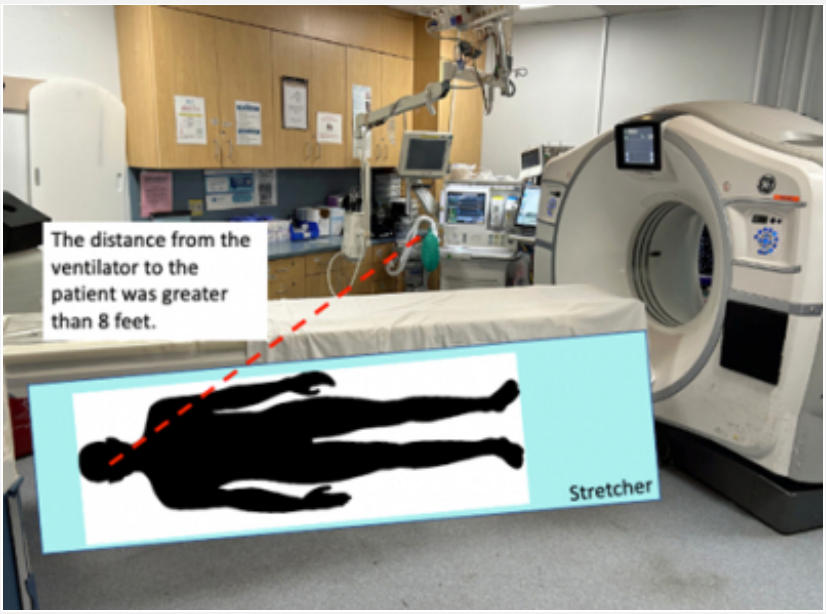
anesthesia equipment may not be readily available or usable.

In this situation, the patient required general anesthesia, in the prone position, while in the computed tomography (CT) suite for an image-guided evacuation of a left renal cyst.

However, due to the suite ergonomics and the position of the CT scanner, the anesthesia circuit could not be brought close enough to the patient for the safe induction of anesthesia. It should be noted that the patient was initially in the supine position, on a hospital stretcher, adjacent to the CT scanner. This is illustrated in Figure 1.

Figure 1

The excessive distance, from the anesthesia machine to the patient on the stretcher, necessitated the creation of a temporary anesthesia circuit.

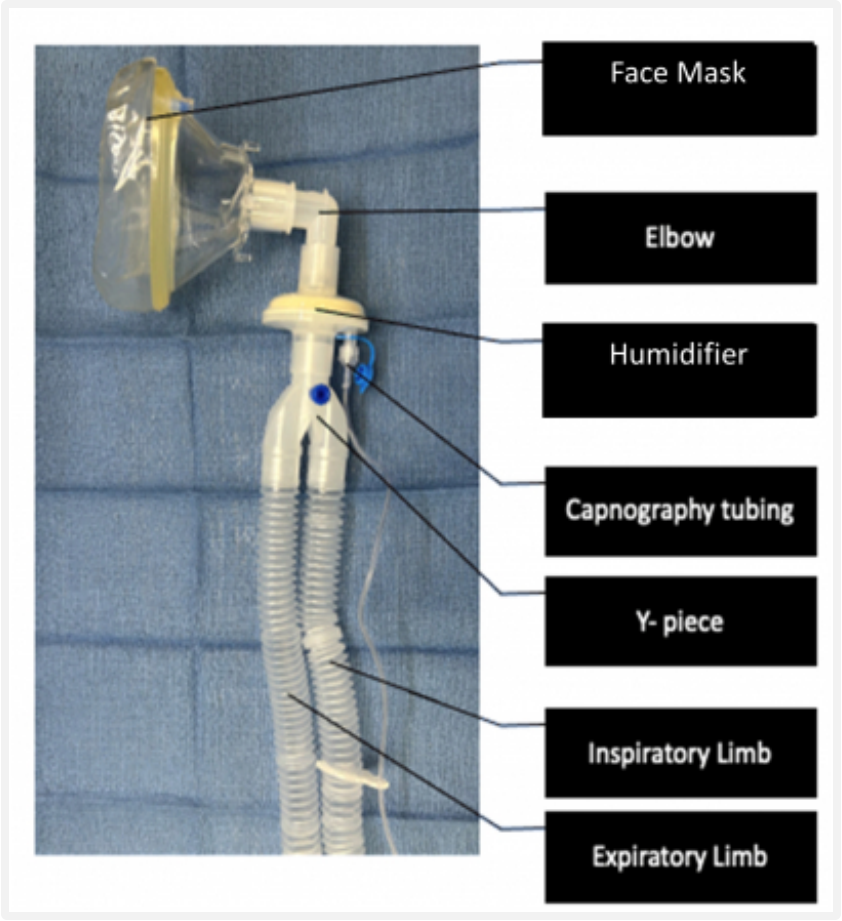


As shown in Figure 2, the machine-based circle anesthesia circuit consists of a cushioned face mask, elbow, and a humidifier which has a capnograph sampling port. Furthermore, there is a Y-piece which connects both inspiratory and expiratory limbs of the circuit.

In our case, the inspiratory and expiratory limbs, when fully extended, could not reach the patient to safely provide ventilation for induction and intubation.

Figure 2

The original anesthesia circuit with its various parts.



To address this problem, we constructed an improvised circuit to ventilate the patient for both induction and intubation.

Specifically, we connected an oxygen tank to an Ambu bag which was then connected to the humidifier and face mask from the original circuit. This is illustrated in Figures 3 and 4. Note that the CO2 sampling line was already connected to the humidifier. Furthermore, the elbow was not needed.

This setup, which made use of equipment already available to the anesthesia providers, allowed for the safe induction and ventilation of the patient while at the same time utilizing the existing humidifier with its capnograph adapter.

Furthermore, following induction and intubation, the patient was subsequently positioned in the prone position on the CT scanner. The elbow and humidifier, with its capnograph sampling port, were easily and quickly reattached to the original anesthesia circuit without compromise.

Figure 3

The oxygen tank connects to the Ambu bag, face mask, and humidifier with its CO2 sampling port and sampling line. Note that the elbow is not necessary in this arrangement.

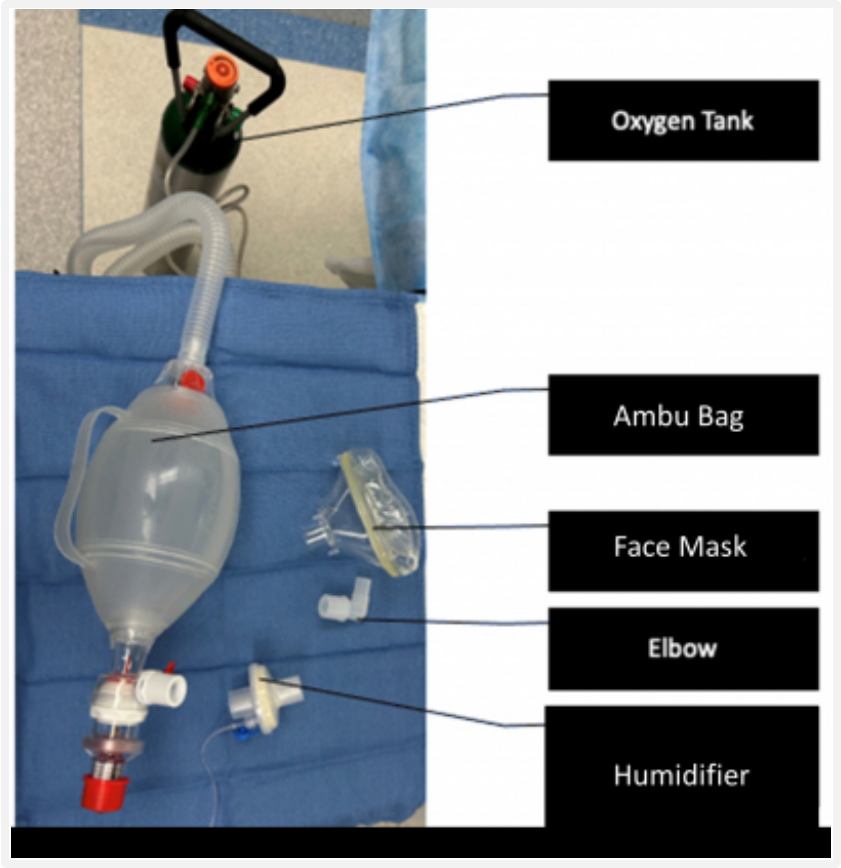


Figure 4

Assembled oxygen tank connected to the Ambu bag and face mask with the humidifier and its CO2 sampling port.

In an emergency, when the anesthesia machine or circuit may be unavailable or compromised, this alternative solution could be useful and potentially

lifesaving.

Thus, the Ambu bag in conjunction with an oxygen tank can provide a quick and efficient means of administering oxygen to patients requiring immediate ventilation. Furthermore, the CO2 sampling line can be redirected from the anesthesia circuit to the Ambu bag, allowing anesthesia providers to monitor end-tidal CO2. Lastly, this method ensures rapid and proper ventilation when traditional equipment may not be immediately accessible or functional.

References

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