Defective Y

Editor - In the newer anaesthesia workstations machine self-test detects integrity of the machine and the low-pressure circuit leak. The external circuits (especially disposable ones) can crack or break, leading to excessive leak of anesthesia gases and its complications.[1, 2]

We are reporting a case of unusual cause of significant leak leading to failure of self-test. Before starting the first case in morning schedule, the breathing tubes supplied by manufacturer were changed with alternate disposable light weight breathing tubes for orofacial surgery. Drager primus anaesthesia machine was then subjected to routine machine self-test. It was found that the machine was not able to complete the machine check and showed a failure in leak test. All the connections of the end tidal carbon dioxide monitoring tubing, elbow connector, hoses, soda lime canister, vaporizer and breathing bag were checked, for probable site for the leak. We also checked for moisture in the flow sensor and condenser. All connections were intact and vaporizers were correctly placed and set at zero mark, and y connector was snugly shut. On using the machine in manual mode at flow of 4 liter/min and pressing the breathing bag, a hissing sound was heard from the patient end of the breathing circuit. Savlon was applied to the circuit with gauze and it showed bubbling from the plastic blocker near the patient end. Close inspection revealed a very small puncture hole of approximately 1 mm diameter on the plastic blocker of one of the ports on the "Y' connector

of the breathing circuit. On replacing this blocker with an intact one and redoing the leak test, the machine passed the test.

In literature the leak in disposable circuits is reported commonly in the patient adapter end and the corrugated tubing (57%) and the swivel piece (40%).[2]This is the first time that leakage from nebulisation port blocker is reported. The leaks in the low-pressure circuit can cause hypoxia or patient awareness.

It was due to a sensitive machine, adherence to protocols of machine check and presence of an alert anaesthesiologist, that a possible catastrophe was averted. This incident highlights the need of meticulous anaesthesia machine and circuit check before commencing a case. Different machines have different sensitivities for detecting leak, and some machines may not have an inbuilt self-test system.

We suggest that one should always check for integrity of the breathing circuits along with the routine machine checks before giving anaesthesia.

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