



## Unconventional Method of Repairing the Inflation Line of Ambu Laryngeal Mask Airway

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**T**he Ambu® Aura40™ reusable laryngeal mask airway (LMA) is a supraglottic airway device that features a built-in curve replicating the natural human anatomy, facilitating correct insertion. In addition, it has a reinforced tip, extra soft cuff, colour-coded pilot balloon and convenient depth marks. Although, the manufacturer's recommendations state that it can be steam autoclaved up to 40 times for sterilisation prior to reuse, its safety regarding continuing usage is determined by its ability to pass the pre-use test rather than the specific number of times it has been used (1).

Recently, while undertaking routine inventory checking of our difficult airway equipments, we discovered that the inflation line of the Ambu LMA (size, 2½) had avulsed free from the main shaft, possibly due to weakening following repeated autoclaving (Figure 1a). This necessitated its discarding. Because the LMA otherwise was in a perfect working condition and was within its recommended life span of 40 uses, we attempted to repair it. An 18-gauge intravenous (i.v.) cannula (BD Venflon Pro IV Cannula) was used for the same. Initially, the i.v. cannula (with the sharp end of the stellate slightly withdrawn inside the i.v. catheter) was delicately introduced into the projecting detached end of the inflation line, which moulded inside the airway shaft. The slight proximal withdrawal of the stellate's sharp tip avoided inadvertent damage to the inflation line and simultaneously provided stiffness to the catheter, assisting its easy insertion (Figure 1b). The stellate was now completely extracted, and the projecting end of the inflation line was gently pulled over the catheter's circumference snugly covering approximately 2 cm of its distal length. Now the main body of the i.v. cannula (consisting the injection port) was cut and detached, keeping approximately another 2-cm length of the catheter hanging out from its point of attachment to the inflation line (Figure 1c). The longer end of the inflation line (containing the pilot balloon) was now introduced and railroaded over the entire section of this uncovered length of i.v. catheter (approximately 2-cm long) projecting out from the end of the inflation line connected to the shaft. Thus, the congruity of the inflation line was restored (Figure 1d). The external diameter of 1.3 mm of 18G i.v. catheter provided a secure fit to both the sliced ends of the inflation line, and acting as a stent maintained air tight continuity between the two severed sections. The joined section was further reinforced using a commercial adhesive (Quickfix). This repair restored the functionality of the LMA, provided adequate seal for inflation and prevented any loss of airway pressure following proper cuff inflation in subsequent procedures conducted with it.

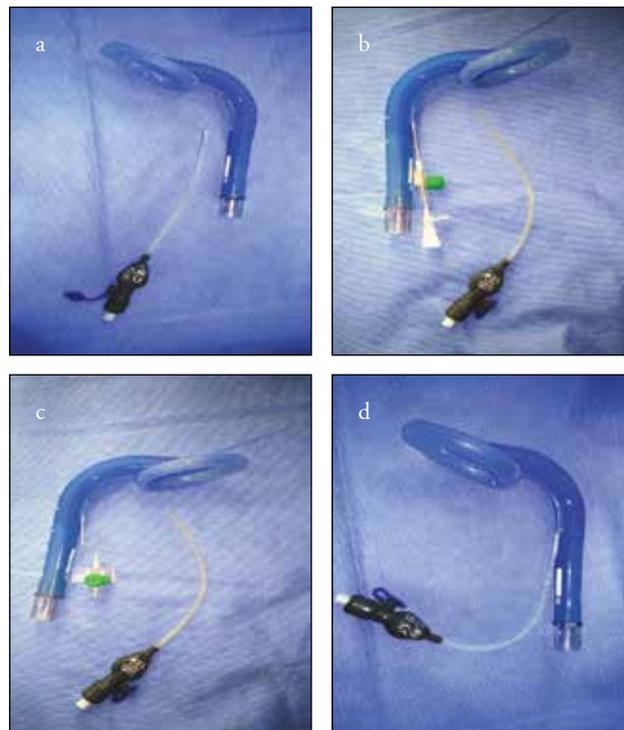


Figure 1. a-d. Showing different steps in inflation line repair of ambu laryngeal mask airway

Previous reports have described the functional refurbishing of various parts of damaged LMA's (damaged inflation line and valves) using parts sourced from diverse biomedical equipments (2-5).

We were reluctant to discard the Ambu LMA because it is an expensive instrument and ours was within its recommended usage duration and in perfect working condition. Therefore, we explored the possibility of repairing it. The circumferential dimensions of the catheter of an 18G i.v. cannula allowed a perfect fit to stent the gap between the two severed ends, recreating a perfectly functioning inflation line. Subsequently, this Ambu LMA was used for some more procedures before it was finally discarded. In this ensuing period, after each sterilisation and before starting a new case, the LMA was stringently tested, and it was used only after its satisfactory functioning was ensured. Moreover, while conducting these subsequent cases, a brand new LMA was always kept on standby for immediate replacement of the repaired LMA, should any defect in its functioning arise.

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**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept - R.S.; Design - R.S., A.K.; Supervision - R.H.; Resources - R.S.; Materials - R.S., A.K.; Data Col-

lection and/or Processing - R.S., A.K., R.H.; Analysis and/or Interpretation - R.S., A.K., R.H.; Literature Search - R.S., A.K., R.H.; Writing Manuscript - R.S., A.K., R.H.; Critical Review - R.S., A.K., R.H.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study has received no financial support.

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