Brief Communications

Unusual bulging (ballooning) of the laryngeal mask airway cuff causing secondary loss of airway

INTRODUCTION

Laryngeal mask airway (LMA) has been universally used either as primary or rescue airway devices. Although it is relatively safe and effective as a supraglottic airway device, there are few reports of its complications mostly related to its cuff volume and pressure or its malposition. Complication ranges from sore throat to nerve palsies (lingual, recurrent laryngeal, inferior alveolar, hypoglossal).[1-5] We encountered an unusual bulging of the disposable LMA cuff after correct positioning in hypopharynx and normal inflation with recommended volume of air. The unusual bulging (ballooning) of the cuff occurred 30 min after insertion, causing loss of ventilation and significant desaturation requiring change of LMA.

CASE REPORT

A 30-year-old male patient weighing 75 kg was scheduled for K wire fixation for bimalleolar fracture of right ankle. General anaesthesia with spontaneous ventilation through LMA was planned. After connecting standard monitors, the patient was induced with Remifentanil 50 μg over 1 min and propofol 150 mg. After checking the cuff leak and cuff deformity, Size 4 disposable LMA was inserted as per the standard technique with the index finger guidance and the cuff was inflated with 30 mL of air. LMA was connected to the ventilator tubing and patient was allowed to breathe spontaneously after initial manual assisted ventilation. Anaesthesia was maintained with oxygen 40% in air with sevoflurane (1–3%) and infusion of Remifentanil at a rate of 300–600 μg/h. Patient was breathing smoothly with good tidal exchange for the first 30 min, the patient started desaturating and the ventilator showed progressive loss of tidal exchange. All the external tubing and connections were checked and found to be intact. On manual ventilation, significant air leak from the LMA was diagnosed. LMA was taken out and replaced with another one [Figures 1 and 2].

Figure 1: Side view

Figure 2: Top view

DISCUSSION

The LMA used in this case was a new disposable unit with silicon cuff. The cuff of the LMA was inflated with air and tested before insertion, and nitrous oxide was not used intraoperatively. Therefore, the cause of this unusual ballooning (bulging one portion) was difficult to explain. Temperature in the hypopharynx might have caused expansion of the cuff volume and stretching of the silicon cuff, causing unusual bulging. We inflated the cuff with the recommended volume (30 mL for no. 4 LMA) and the patient was in a supine position. The surgical manipulation causing head and neck movement was negligible as the surgical field was far away from the body. There might be a possibility of manufacturing defect in the form of uneven thickness of silicon cuff that might have given way under normal volume and pressure. It would have been more interesting if we could have measured the cuff pressure.

The disposable LMA cuff is made of soft silicon designed to provide low pressure[6] and bulge with small increase in intracuff volume in a relatively warm atmosphere of hypopharynx, which might have

lead to secondary loss of airway. In our opinion, this potential condition should be kept in mind while using any LMA that might give rise to unexpected airway complications.

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