Ventilation failure due to endotracheal tube T-connector defect

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Sir,

Despite the check steps or visual inspection for physical defect, incidences of device failures are commonly encountered. A 1-month-old male infant weighing 3.2 kg was presented for pyloromyotomy in the elective OT due to infantile hypertrophic pyloric stenosis. Apart from the lump in the upper abdomen, there were no significant other medical complaints. Inside the operation theatre, the monitors were connected and then the patient was premedicated and preoxygenated using Jackson Rees modification of Ayre’s T tube circuit. Induction was done with ketamine, and after checking for adequate chest expansion, succinylcholine was given. After relaxation, laryngoscopy was done and intubation performed using a 3-mm id endotracheal tube (ETT) under vision.

On connecting the ETT to the circuit, the chest did not expand on ventilation, neither was there any air entry on auscultation. So, laryngoscopy was done and the position of the tube was assured; still the chest did not expand on ventilation. After this, the tube was taken out and without delay another tube of 3 mm id was connected. The baby was ventilated successfully, and on checking the previous tube, it was found that the T-connector of the ETT was obliterated. On inspection, it was found that this was a manufacturing defect [Figure 1] as the tube was new. There were no complications due to this delay of intubation.

ETTs are checked before intubation, but still device failures have been documented due to manufacturing defects,[1] e.g. cuff valve failure.[2] Other complications associated with the use of resterilised tubes,[3] breakage of part of the tube[4] or obliteration of the tube lumen by a foreign body, e.g. mucous plugs have also been documented. In our case, the 3-mm id ETT had obliteration in the T-connector, which caused ventilation failure. This was a manufacturing defect as the tube was neither being reused nor was resterilised. Usually on inspection, the obvious defects of the tubes are discovered but the defects which are visually not very perceptible are missed. This incidence signifies the importance of reviewing equipment defects for internal auditing purpose, so that complications could be avoided, because negligence could cost us a life.

Chetna Shamshery, Ashish K Kannaajia, Shefali Gautam
Department of Anesthesia, Chhatrapati Shahuji Maharaj Medical University, Lucknow, Uttar Pradesh, India

Address for correspondence:
Dr. Chetna Shamshery,
M-139, Aashiana Colony, Kanpur Road, Lucknow, Uttar Pradesh, India
E-mail: drchetna@rediffmail.com

Figure 1: ETT showing deformed connector
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Sir,

I read with interest the article titled "Reinforced ProSeal LMA" [1] by Dube et al. with interest. The authors have described a use of Foley's catheter as a means to achieve better seal by PLMA and hypothesized that their technique is superior to the existing design of PLMA, however, there are some reservations against this technique.

First, the authors need to specify in their technique, as to how did they confirm the optimum position of the inflating balloon of Foley's catheter. It seems they have done it blindly. Blind inflation of the balloon can lead to deformities in the cuff of PLMA and may lead to worsening of the existing seal and possible misplacement of PLMA.

Second, by inflating the balloon beyond the tip of PLMA; the tone of upper oesophageal sphincter could be further decreased leading to increased risk of aspiration.

Third, the aim of provision of drainage tube in PLMA is to provide a channel for gastric suctioning and a vent for air. There are chances that the openings of Foley's catheter abut against the walls of esophagus. In presence of an inflated balloon above it, a regurgitating patient is at risk of developing increased oesophageal pressures and a possibility of oesophageal rupture cannot be ruled out. Further, there is no provision for suctioning the gastric contents using this technique.

Lastly, on what basis the authors have labeled the technique superior and safer is not clear. The article does not mention anything about the measurements of the seal and leak pressures and their comparison without the inflation of balloon. The authors fail to mention, as to how many cases have been done using this technique and need to provide a comprehensive data comparing the positions of cuff, variations in seal and leak pressures apart from relevant data as the cases may.

Rajeev Sharma
Department of Anaesthesia, ESI Hospital, Rohini, New Delhi, India

Address for correspondence:
Dr. Rajeev Sharma,
C-5/108, 2nd Floor, Rohini Sector-11, Delhi - 110 085, India
E-mail: rajeevkrsharmaji@gmail.com

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