Manufacturing defect of endotracheal tube connector: A cause of airway obstruction

Sir,

Preuse check of the endotracheal tube (ETT) is an integral part of anesthesia practice. Despite this common practice, some of the manufacturing defects not perceptible on visual inspection can go unnoticed, leading to complete or partial airway obstruction.[1] Such errors can be catastrophic if corrective steps are not instituted timely, especially in pediatric patients.

We report one such case of ETT connector defect recently encountered in the pediatric operation theater, which resulted in inadequate ventilation. A 7 month old, American Society of Anesthetists physical status 1 child, weighing 8 kg was posted for bilateral inguinal herniotomy. Following induction of anesthesia, the airway of the patient was secured with a 4.0 mm single use ETT (Sterimed Medical Devices Ltd., Bahadurgarh, Haryana, India). On connecting to the anesthesia circuit, the ventilation was difficult, and the compliance of the bag was poor. The air entry was grossly diminished. There

was an increase in the peak pressures and the end-tidal carbon dioxide ($EtCO_2$). To rule out any mechanical obstruction as the plausible cause, the anesthesia circuit was checked for any kink or obstruction. The problem was diagnosed when a 10 F suction catheter could not pass through the ETT. The distal end of the connector was found to have an extremely narrow orifice, in comparison to the standard 4 mm ETT connector [Figure 1]. The connector was removed and replaced with another same size ETT connector. There was immediate improvement in ventilation. The peak pressures and the $EtCO_2$ came down to normal limits. The rest of the surgery was uneventful.

Difficult ventilation following successful endotracheal intubation could be due to acute bronchospasm, malfunction or obstruction of breathing circuit, kinking, obstruction of ETT by foreign body or malfunctioning defects of different parts of ETT e.g., inflation line, ETT connector.[2-5]

In spite of the several case reports of manufacturing errors, such mishaps continue to occur. Reporting of such critical events re-emphasizes the need for thorough check of each and every part of the anesthetic equipment prior to its use and highlights the role of a vigilant clinician in timely detection of such errors and thereby avoiding anaesthetic mishaps.

Divya Jain, Indu Bala

Department of Anaesthesia and Intensive Care, Post Graduate Institute of Medical Education and Research, Chandigarh, India

Address for correspondence: Dr. Divya Jain, H. No-2036, Sector 21-C, Chandigarh - 160 022, India.
E-mail: jaindivya77@rediffmail.com

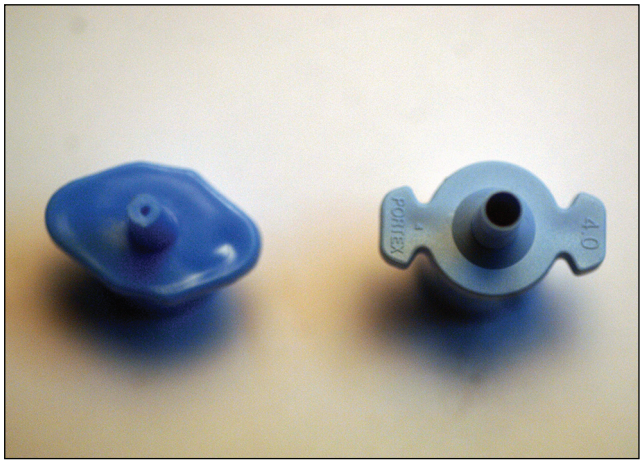

Figure 1: The narrow orifice endotracheal tube connector and the standard connector

References

1. Szekely SM, Webb RK, Williamson JA, Russell WJ. The Australian Incident Monitoring Study. Problems related to the endotracheal tube: An analysis of 2000 incident reports. Anaesth Intensive Care 1993;21:611-6.
2. Yang CH, Chen KH, Lee YE, Lin CR. Anesthetic breathing circuit obstruction mimicking severe bronchospasm: An unusual manufacturing defect. Acta Anaesthesiol Taiwan 2012;50:35-7.
3. Chacon AC, Kuczkowski KM, Sanchez RA. Unusual case of breathing circuit obstruction: Plastic packaging revisited. Anesthesiology 2004;100:753.
4. Hajimohammadi F, Taheri A, Eghtesadi-Araghi P. Obstruction of endotracheal tube; a manufacturing error. Middle East J Anesthesiol 2009;20:303-5.
5. Bharti N, Bala I, Sharma K. Endotracheal tube connector defect as a cause of high airway pressure. Paediatr Anaesth 2012;22:502-3.

Access this article online	
Quick Response Code:	Website: www.joacp.org
	DOI: 10.4103/0970-9185.142889