Endotracheal tube connector defect causing airway obstruction in an infant

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Sir,

In clinical practice manufacturing defects of airway equipment are seen rather infrequently; however, defective airway equipment can potentially compromise the airway and hence the patient’s safety. Usually most ET (endotracheal tube) defects are detected during routine visual inspection before their use, while some go unnoticed during such inspection and can lead to partial or complete airway obstruction in intubated patients. We report one case of partial airway obstruction resulting from manufacturing defect in the ET connector.

A 3-month-old infant girl weighing 5 kg and with septic arthritis of right knee was scheduled for emergency arthrotomy. After induction of anaesthesia with intravenous propofol 15 mg, fentanyl 15 mcg and vecuronium 0.5 mg, the patient was mask ventilated using a Jackson Rees’ Circuit (© Intersurgical Ltd., Wokingham, Berkshire, UK) and her trachea intubated with ET size 3.5 mm (Sterimed Medical Devices, Haryana, India). The placement of ET was confirmed with capnography and auscultation of bilaterally equal breath sounds. However, after intubation there was increasing difficulty in ventilating the patient using the same Jackson Rees’ circuit as the compliance of the breathing bag was reduced, airway pressures increased and there was an alarming rise in end tidal carbon dioxide (over 60 mm Hg). To exclude secretions as a source of obstruction, we passed an infant suction catheter (size 6 FG) through the ET connector. We noticed that the inlet of the ET connector was abnormally narrow. We replaced it with a normal connector of size 3.5 mm ET (left).

Figure 1: Defective connector with narrowed lumen (right) compared with a normal connector of size 3.5 mm ET (left).

A case of difficulty was recently encountered in ventilating an anaesthetised infant after intubating the trachea with size 3.5 mm endotracheal tube. It was found that the problem had occurred due to a manufacturing defect in the endotracheal tube connector where the connector was abnormally tapered and had an extremely narrow opening. The case underlines the need for a thorough check of each connector before use, especially for paediatric endotracheal tubes.

Keywords: airway, endotracheal, infant, obstruction

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References