Fiberoptic endotracheal intubation through a supraglottic conduit using an exchange catheter

Therefore, I believe that, intubation using a fiberoptic scope and supraglottic device with the aid of an exchange catheter is a reliable, safe, and easy to teach method which should not be replaced by a similar method which is not associated with the use of an exchange catheter without strong evidence.

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Sir,

I read with interest the original article in issue 1 volume 9 entitled (a comparison of fiberoptical guided tracheal intubation via laryngeal mask and laryngeal tube). The authors have used laryngeal mask airway (LMA) or laryngeal tube as a conduit for intubating the trachea by 5 mm internal diameter tube without an exchange catheter.

I have the following comments on their respected work:

I use and supervise my trainee using a fiberoptic scope and Aintree catheter as an exchange catheter through a supraglottic airway (usually classical LMA) for difficult intubation management, and I find this method is more useful and practical than the method described by the authors in this paper for the following reasons:

The endotracheal intubation using fibreoptic scope, Aintree catheter and LMA technique is safe and efficient for patients who are difficult to intubate after induction of anesthesia.

Furthermore, using Aintree catheter (or equivalent exchange catheter) as a conduit is a quick procedure with no extra experience is needed.

In addition, using endotracheal tube without exchange catheter is usually difficult and prone to dislodgment because of the length of endotracheal tube, which is usually not long enough to pass through the LMA smoothly and needs more manipulation with extra device like a pusher.

Moreover, the authors have used an endotracheal tube with an internal diameter of 5 mm to facilitate the insertion, however, an endotracheal tube with this diameter is not suitable for adult patient and may cause several adverse effects.

右側先天性膈部洞: 罕見的新生兒緊急情況

Sir,

先天性膈部洞 (CDH) 佔出生率的 1/5000 生活出生。右側缺陷（10-15%）比較左側（85%）為少見，因為肝臟會填滿開口。右側先天性膈部洞具有不適當比例的重置。
high mortality and morbidity. Presence of liver herniation is a predictive of poor outcome.[3] It results in caval compression, reduced preload and impaired cardiac output.[3]

A 4-day-old baby weighing 2.3 kg born by vaginal delivery at 36 weeks. He was diagnosed antenatally as a case of CDH. In view of respiratory distress he was intubated. Ventilation was instituted by keeping peak inspiratory pressure (PIP) of 20 cm H$_2$O, FiO$_2$ of 0.6 and respiratory rate of 60/min. Circulatory support was started in the form of dopamine infusion and intravenous fluid. His echo revealed moderate pulmonary hypertension. Chest X-ray showed multiple intestinal loops with liver herniation in right sided hemithorax and severe mediastinal shift in the left side [Figure 1]. His ABG revealed pH-7.25, PCO$_2$-44 mmHg, PO$_2$-88 mmHg HCO$_3$-18 mEq/L and lactates-1.5 ummol/L. His preductal and postductal SpO$_2$ differed by 5%. Hb was 15 g\% and the rest of the investigations were normal. After 3 days of stabilization child was posted for surgical repair of the hernia.

Inside operation theater routine monitors (electrocardiogram, noninvasive blood pressure, SpO$_2$, EtCO$_2$, temperature) were attached. Neonatal resuscitation trolley was kept ready. Baseline parameters of heart rate 144/min and BP-66/40 mmHg were noted. His preductal SpO$_2$ was 95% and postductal saturation was 90%. Continuous nasogastric suctioning was done. Intravenous (IV) fentanyl 5 ug and IV atracurium was given. Pressure controlled ventilation was started with PIP of 20 cm H$_2$O, respiratory rate of 50/min with FiO$_2$ of 0.7. Anesthesia was maintained with oxygen, air and sevoflurane. The anaesthetic goal was to avoid hypoxia, hypotension and hypothermia, which increases pulmonary vascular resistance and worsens the right to left shunt. A right subcostal incision was made. Liver and bowel loops were reduced and the defect in right hemidiaphragm was closed. Child remained stable throughout the surgery. Duration of surgery was 2 h. Intraoperative blood and fluid loss were replaced with Isolyte P. Child was electively ventilated postoperatively. IV morphine infusion was started for sedation. Muscle relaxants were avoided, and spontaneous respiration was encouraged. Child was extubated on POD 5, but could not tolerate extubation and was reintubated on the same day. On POD 8 again trial for extubation was given which he tolerated well.

The goal of preoperative stabilization includes blood pressure normal for gestational age, preductal SpO$_2$ of 85-95%, lactate <3 mmol/L, urine output >2 ml/kg.[3] This was achieved in our case. Ventilation strategy first described by Wung et al. was used in this case.[4] It aims at achieving adequate tissue oxygenation with minimal barotrauma. It consists of limiting PIP <25 cm H$_2$O, permissive hypercapnia (PaCO$_2$ between 45 and 60 mmHg). This strategy has shown to increase in survival and decreased use in extracorporeal membrane oxygenation. Continuous nasogastric suctioning should be done to prevent bowel distension and further lung compression.

Until date, there are no uniform guidelines for the management of CDH. Many centers lack advanced neonatal care facilities affecting the prognosis. However, still conventional technique have shown good outcome.[5]

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Low oxygen saturation: Really a hypoxia?

Sir,

A 50-year-old male patient with severe mitral stenosis was scheduled for mitral valve replacement. Before anesthesia induction, pulse oximetry probe was applied on the left index finger and the radial artery was cannulated for blood pressure monitoring. Patient's saturation was 99% on pulse oximetry at room air. Surgery was done after going on cardiopulmonary bypass (CPB). During CPB, saturation was not displayed on pulse oximetry due to nonpulsatile perfusion flow. Saturation monitoring was done by in line arterial blood gas analysis, which was consistently above 95%. As the weaning from bypass was started, pulsatile arterial waveform appeared with pressure of 153/50 mmHg. However, pulse oximetry showed saturation of 65% with good plethysmographic waveform [Figure 1]. Another pulse oximetry probe was attached to ear lobe, which showed oxygen saturation (SpO₂) of 99%. Arterial blood gas analysis revealed saturation of 98.9% with PaO₂ of 178 mmHg on FiO₂ of 0.5. Pulse oximetry probe on the finger was examined, it was not misplaced, but dusky discoloration was observed on the left hand below the forearm probably because of prolonged compression by leaning over by surgeon while operating. As the compressive effect was removed, SpO₂ on the same finger probe showed saturation of 98% in a short period of time.

Pulse oximeter system consists of a peripheral probe together with a microprocessor unit displaying a plethysmographic waveform, the SpO₂ and the pulse rate. The probe is placed on the fingertip, earlobe or nose. Probe has two LEDs emitting red spectrum (660 nm) and the infrared spectrum (940 nm). Photodetector on the other side of the probe senses the light passed through the tissue. Oxygenation of hemoglobin influences the amount of light absorption at each frequency. [1] Pulse oximeter calculates the ratio of pulsatile to nonpulsatile absorbance and derive the SpO₂. Adequate arterial pulsations are essential to distinguish the light absorbed by arterial blood from that absorbed by venous blood. Inaccurate reading may be displayed in the presence of poor peripheral pulsations, low cardiac output, hypovolemia, peripheral vascular disease, improper positioning, hypotension, hypothermia, CPB, low cardiac output. [1]

Figure 1: Monitor display showing low saturation with good plethysmographic waveform