Post-intubation cricoarytenoid joint dysfunction

Editor—We read with interest the report by Mikuni and colleagues1 as we had a similar experience with a 20-yr-old female patient who had undergone anterolateral spinal decompression at T4–6. Tracheal intubation with a double-lumen tube was unremarkable except for the failure of the first attempt. After operation, the patient had hoarseness of voice. On the first postoperative day, the patient went into respiratory failure and required mechanical ventilation. A fibreoptic bronchoscopy revealed gross hyperaemia of the glottis and arytenoids. A diagnosis of glottic oedema was made. The patient was managed with steroids and on the fifth postoperative day again extubated. A few hours later, the patient had to be reintubated due to respiratory failure.

A CT scan of the neck was unremarkable. A repeat fibreoptic bronchoscopy revealed hyperaemia of glottis with swelling of the arytenoids. Bronchoscopy on the eighth postoperative day showed no hyperaemia in the glottic region, but the arytenoids were still swollen. A 70° scoping was done post-extubation, which showed sluggish movement of both vocal cords. A month later, the patient had some residual hoarseness.

This prompted the diagnosis of post-intubation cricoarytenoid joint dysfunction probably after haemarthrosis of cricoarytenoid joint. Laryngeal oedema was a strong possibility but the delay in onset of respiratory distress and the persistence of hoarseness for nearly a month favoured the diagnosis of cricoarytenoid joint dysfunction.

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Editor—Thank you for your interest in our report. Although the double-lumen tube is the main airway device for deferential lung ventilation, our concern is that it can easily cause arytenoid cartilage dislocation because of its large outer diameter, which widens at the tracheal lumen orifice, and the rigidity of the material. The double-lumen tube may apply an external force to the arytenoid cartilage leading to dysfunction. Additionally, there is a possibility that the failure in the first attempt at tracheal intubation has an effect. It is important to investigate the possibility of arytenoid cartilage dysfunction early in the case with persistent hoarseness after the use of a double-lumen tube.

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Right molar approach to tracheal intubation in a child with Pierre Robin syndrome, cleft palate, and tongue tie

Editor—The right molar approach for laryngoscopy has been described for intubation of patients with a difficult airway as the paraglossal1 and retromolar2 technique, respectively. In this technique,1 a straight blade laryngoscope is introduced from the right corner of the mouth along the groove between the tongue and the tonsil, using leftward and anterior pressure to displace the tongue to the left of the laryngoscope. The blade is advanced and its tip is made to pass posterior to the epiglottis. Rotation of the neck and manipulation of the cricoid cartilage have been suggested to improve the laryngoscopic view.3 The advantage of using this technique is that structures in the midline which hamper the laryngeal view in the anterior airway line3 are avoided. We used this technique to successfully intubate a child with Pierre Robin syndrome, cleft palate, and tongue tie. These children are known to have airway obstruction due to the distorted anatomy and are difficult to mask ventilate and intubate. Reduced tongue mobility has been identified as an independent factor for difficult intubation4 in five adult patients with reduced tongue mobility who required fibreoptic or retrograde intubation. A combination of cleft palate with tongue tie has been reported to cause problems in intubation which was accomplished by the two anaesthetist technique.5

A 14-month-old male was scheduled to undergo cleft palate repair. On examination, he had a micrognathic mandible and tongue tie. Anaesthesia was induced with oxygen, nitrous oxide, and sevoflurane using a paediatric breathing circuit with mask and end-tidal capnography, pulse oximetry, and cardiac monitor and an i.v. cannula was commenced. As the depth of anaesthesia increased, signs of airway obstruction appeared, but after a Guedel airway was inserted, there were no problems in maintaining the airway or ventilating the lungs. Glycopyrrolate, meperidine, and succinylcholine were given i.v. Laryngoscopy was performed after adequate positioning with a straight blade (Miller) laryngoscope but no laryngeal structure, including the epiglottis, could be seen even after optimum external laryngeal manipulation (OELM). A single blind attempt at intubation with a south pole RAE tube, size 4.5 with a stylet inserted into it, and shaped into a curve with a hockey stick end resulted in oesophageal intubation. The tube was withdrawn and the patient ventilated with the mask. As the patient had three anatomical airway problems in the
midline, it was decided to perform laryngoscopy by the right molar approach. The laryngoscope was re-introduced through the right angle of the mouth and the tip was directed to the midline into the vallecula. OELM was applied and this brought the posterior rim of the glottis into view, although no other laryngeal structure was visible. Intubation was accomplished successfully on the first attempt.

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The Airway Scope, a new video laryngoscope: its use in three patients with cervical spine problems

Editor—The Airway Scope AWS-S100 (Pentax, Tokyo, Japan) is a new video laryngoscope that enables laryngoscopy without alignment of the oral, pharyngeal, and laryngeal axes. The handle has a 6 cm LCD monitor screen, and a flexible image tube with a camera and LED light source mounted at the tip. The disposable polycarbonate blade, the Pblade, has a channel that completely encloses and protects the image tube, a groove to hold and guide the insertion of the tracheal tube, and a separate channel for a suction catheter (Fig. 1A). The Pblade tip is positioned posterior to the epiglottis, to lift it during laryngoscopy. The target symbol on the LCD display helps alignment of the Pblade with the larynx for tracheal intubation (Fig. 1B). We report our use of the Airway Scope in three patients with cervical spine pathology and difficult conventional laryngoscopy.

Patient 1 was a 58-yr-old man who sustained subluxation at the C2/C3 level with cord oedema after a fall. The surgeon planned posterior decompression and stabilization surgery, and requested that the patient remain conscious during tracheal intubation and positioning. We maintained cervical immobilization with a rigid collar and manual inline stabilization, and oxygenated the patient in between all airway procedures. We sedated the patient with remifentanil and midazolam, sprayed lidocaine on his oropharynx, and injected lidocaine through his cricothyroid membrane. During gentle laryngoscopy with a Macintosh laryngoscope, we were unable to see even the epiglottis. We were able to see the larynx fully with the Airway Scope. We inserted a suction catheter through the Pblade suction channel to spray lidocaine to the epiglottis and larynx under vision. We then intubated the trachea easily at the first attempt, without the patient gagging. The patient was able to move his hands and feet upon instruction immediately after intubation and again after being positioned prone.

Patient 2 was a 73-yr-old man with severe cervical myelopathy for whom posterior laminectomy and decompression at C7/T1 level were planned. As a result of previous cervical spine surgery, he had very limited neck movement, and awkward gaps in his front teeth. Patient 3 was a 54-yr-old man with subluxation of C5/C6 and cervical myelopathy for whom anterior cervical decompression and fusion of C4/C6 were planned. He too had limited neck movement and several missing teeth. In these two patients, we applied manual inline stabilization, induced anaesthesia, and induced muscle relaxation after checking that ‘bag mask ventilation’ was possible. In both patients, we were able to see only the tip of the epiglottis with the Macintosh laryngoscope. With the Airway Scope, we were able to see their larynxes fully and intubate their tracheas easily.

With the Airway Scope, we found the ability to easily guide the tracheal tube under vision advantageous compared with other devices. With the GlideScope, it can be