

Tracheostomy over Ambu® Aura40™ in cannot intubate situation due to effects of chemoradiation

Sir,

Head and neck cancer patients have potentially difficult airways. The degree of difficulty in intubating the trachea depends on the disease *per se*, its location, extent, previous surgery and type of treatment (chemotherapy and radiotherapy) received.^[1] All these factors make airway management challenging and could be life-threatening in case of inability to ventilate or intubate. We report the emergency management of a patient with carcinoma of the tongue presenting with respiratory distress with difficult airway due to effects of chemotherapy and radiation therapy (chemoradiation). AMBU® laryngeal mask (LM) proved to be a rescue device to secure airway and to facilitate tracheostomy.

A 50-year-old average-built female presented to the emergency department with complaints of fever with cough and expectoration for 1 week and shortness of breath and swelling of face for 1 day. She was tachypnoeic (respiratory rate [RR] 38 breaths/min) and had stridor. She was a known case of carcinoma tongue under follow-up. She underwent palliative radiotherapy (20 Gy/5 fractions/1 week) and had taken metronomic chemotherapy (methotrexate 22.5 mg once weekly and celecoxib 200 mg twice a day) for 6 weeks. Disease progressively increased over few weeks with involvement of the anterior tongue, floor of the mouth and lymph nodes, and the tumour was deemed surgically unresectable. The patient was under follow-up at the Pain Clinic, receiving oral morphine (immediate release) 20 mg 4th hourly, gabapentin 300 mg twice daily and paracetamol 1 g thrice a day. The patient was diabetic for 10 years and receiving oral hypoglycaemic drugs.

The patient had progressively increasing stridor, tachycardia (pulse rate-[PR], 130/min), tachypnoea (RR, 38/min) with shallow breathing and desaturation (oxygen saturation-[SpO₂], 80%) with face mask oxygen. Blood pressure (BP) was 136/84 mmHg. Arterial blood gas analysis revealed respiratory acidosis with compensatory metabolic alkalosis

(pH 7.25, pCO₂ 60 mmHg and HCO₃ – 29 mmol/dL); blood glucose was 437 mg/dl and urine ketones were negative. The patient was disoriented and awake fibre optic intubation was not attempted. Neck scarring with flexion deformity was present due to radiation.

In emergency department, after quick assessment of the patient, endotracheal intubation and elective ventilation were planned. Direct laryngoscopy was performed after giving midazolam 1 mg and incremental doses of propofol by intravenous (IV) route. Glottic opening was not seen after optimal external laryngeal manipulation (Cormack Lehane Grade IV). Endotracheal intubation was attempted using a stylet but failed. Face mask ventilation was not adequate even with the use of Guedel's oropharyngeal airway. Rescue with supraglottic airway device was attempted and the Ambu® Aura40™ laryngeal mask (AA40-LM) size 4 was placed successfully. Ventilation was confirmed and the patient was mechanically ventilated with the synchronised intermittent mandatory ventilation mode. Vitals became stable (PR-102/min, BP-110/68 mmHg, RR-28/min and SpO₂-96%). Flexible fibre optic laryngoscopy was performed through the LMA which showed glottic and periglottic oedema. Tumour was seen obscuring just the glottic opening. Attempt to intubate trachea through AA40-LM was unsuccessful. Infusion of fentanyl and midazolam were started for sedation. Injection hydrocortisone was given in view of airway oedema. Insulin infusion was started to control blood sugar.

After initial resuscitation, the patient was shifted to operation theatre for elective tracheostomy. Front of neck access like cricothyrotomy was not tried as the patient had neck scarring and fibrosis. Breathing circuit of anaesthesia machine was connected to the AA40-LM via catheter mount. PR was 102/min, BP 110/68 mmHg, SpO₂ 96% and RR-28 breaths/min. IV fentanyl 100 µg was administered and induction was performed using propofol 80 mg and maintained with oxygen and sevoflurane 1.5%, with manual ventilation. Due to risk of potential airway collapse, muscle relaxant was avoided. Tracheostomy was performed uneventfully. Sevoflurane was discontinued and oxygen was supplemented through tracheostomy tube. The AA40-LM was removed, and patient shifted to post-operative recovery room for monitoring. Vitals were stable throughout procedure and recovery was uneventful.

Head and neck cancer patients have distorted airway anatomy due to tumour growth and treatment-related

side effects.^[2] When tumour is surgically unresectable, radiotherapy in high doses is administered. Radiotherapy may cause scarring and fibrosis of airway.^[3] Chemoradiation causes oral mucositis, trismus and osteoradionecrosis of the mandible which is liable to infection and pathological fracture.^[4] These factors predispose such patients for difficult airway. Fibre optic intubation is helpful in such cases but demands high skill and may be difficult in emergency situations. Surgical access such as needle cricothyrotomy and surgical cricothyrotomy are other options in cannot ventilate and cannot oxygenate scenario. In the current case, the anatomy was distorted, and the neck muscle had fibrosed post-radiation, so surgical access was not attempted in emergency as the airway was controlled with the AA40-LM.

In oral pathology, supraglottic devices are relatively contraindicated due to risk of malposition and dislodgement. However, in our case, we inserted the AA40-LM as a life-saving measure. Various guidelines recommend use of supraglottic devices to secure airway when tracheal intubation is not successful.^[5]

In conclusion, for tracheal intubation of head and neck cancer patients, experience of anaesthesiologist is often the limiting factor in difficult airway conditions. Hence, it is important to emphasise the importance of a supraglottic airway device for the management of difficult airway in oral cancer patients especially in cannot intubate situation.

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Conflicts of interest

There are no conflicts of interest.

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