Difficult tracheostomy in a case of difficult mask ventilation and difficult intubation?

Sir,

Difficult airway is a commonly encountered problem in the anesthesia practice. There are practice guidelines of difficult airway,\(^1\,^2\) which have given a lot of stress on can’t ventilate and can’t intubate situation but do not adequately address rescue from a situation wherein after a CVCI one faces difficulty in securing an emergency surgical airway. Supraglottic airways, surgical or needle cricothyrotomy, high frequency jet ventilation, cardiopulmonary bypass\(^3\) can be used as rescue in such scenario.

A 50-year-old male, known case of carcinoma esophagus, post-esophagectomy done 2 years ago, presented with complaints of dysphagia and orthopnea since 2 months. Computed tomography scan showed mass lesion involving cervical esophagus probably at anastomotic site with invasion in trachea causing compression and narrowing of infra-cricoid trachea lumen suggestive of probable recurrence of tumor at anastomotic site [Figures 1 and 2].

Patient had stridor and respiratory distress. Tracheal intubation was attempted twice without any success. Decision for bedside surgical tracheostomy under local anesthesia, avoiding intravenous sedation was taken in view of persisting stridor and impending airway obstruction. Difficult airway cart including fiber-optic bronchoscope was kept ready. However, patient was not able to tolerate any attempt of making him supine.

We then planned to shift patient to operation theater and do the procedure under inhalational anesthesia maintaining spontaneous breathing. Oxygen, nitrous oxide, and sevoflurane were used to maintain required depth with spontaneous and assisted ventilation. After proper positioning and local anesthesia infiltration, an otorhinolaryngologist started tracheostomy procedure, but was not able to appreciate the tracheal rings. There was hard structure extending from thyroid to suprasternal notch with no discrimination of anatomical landmarks, probably trachea infiltration by malignant cells. The exploration of tissue was very difficult. Meanwhile, mask ventilation with spontaneous ventilation was becoming increasingly difficult. Then, direct laryngoscopy was carried out, which revealed a cleft instead of a glottic opening, through which we couldn’t pass the endotracheal tube. We tried inserting different sizes of endotracheal tube (ETT); the smallest being 4 mm internal diameter (ID) uncuffed ETT with stylet.

Taking a hint from the way we do percutaneous

Figure 1: Neck X-ray showing tracheal lumen compression in infra cricoid region
tracheostomy, 14 G intravenous cannula connected to saline in syringe was used to puncture the hard structure to locate the trachea, which was successful. A 4 mm endotracheal tube was inserted through this opening with the help of stylet. The diameter of small tracheal stoma was further increased by peritubal dilatation of tissue. Then using a suction catheter of 10 french, 7.5 mm internal diameter (ID) tracheostomy tube was rail roaded. The correct position of tracheostomy was confirmed. Throughout the event, patient maintained oxygen saturation levels above 90%.

Supraglottic airway devices was not of choice in this scenario because of anticipated complete airway obstruction. Retrograde intubation device and flexible fiber-optic intubation would have required an open patent airway. Emergency cricothyrodotomy was not feasible because of airway infiltration of tumor. Cardiopulmonary bypass was not immediately available.

The surgical tracheostomy was thought to be a good option, but difficult anatomy posed problem in doing surgical tracheostomy too. The method attempted for maintenance of airway in this life threatening situation was a blended method of doing percutaneous dilatational and surgical tracheostomy to overcome the impending complete airway obstruction.

Percutaneous tracheostomy has mostly been carried out as elective procedure, but also have been reported as rescue procedure in the emergency situations.\textsuperscript{[4,5]} It can be taken into consideration in difficult airway situation and in situations where surgical tracheostomy can be technically difficult.

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