



Troubleshooting Intraoral Endotracheal Tube Kinking with a Novel Technique

Bhargavi Vallabhaneni¹  Keta Thakkar¹  Georgene Singh¹ 

¹ Department of Neuroanaesthesia, Christian Medical College, Vellore, Tamil Nadu, India

Address for correspondence Georgene Singh, MD, DNB, DM, Department of Neuroanaesthesia, Christian Medical College, Vellore 632004, Tamil Nadu, India (e-mail: georgenesingh@gmail.com).

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A 36-year-old woman with a falco-tentorial meningioma was scheduled for a craniotomy and excision in the left park bench position under general anesthesia. After induction, the patient was intubated with a 7-mm inner diameter (ID) cuffed polyvinyl endotracheal tube (ETT) fixed at 20 cm. A soft bite block was placed to prevent inadvertent tube compression and tongue bite during monitoring. Mechanical ventilation was initiated and adjusted to maintain an end-tidal carbon dioxide of 35 mm Hg. The initial peak airway pressure (Ppeak) was 17 cmH₂O, which increased to 21 cm H₂O after the final position, ensuring optimum head and neck positioning. After 1 hour, Ppeak gradually increased to 33 cm H₂O without any modifications in the ventilation. The checklist for increased airway pressure was followed, and extraoral ETT and breathing circuit were patent; cuff pressure was 25 cm H₂O, and the depth of anesthesia was adequate with a bispectral index (BIS) of 40. Chest auscultation revealed diminished breath sounds bilaterally with no added sounds, and significant low bag compliance was noted. There was no improvement after bronchodilator therapy. Hence, an intraoral ETT kink was suspected, and a 10-Fr suction catheter could not be negotiated beyond 15 cm. In view of ongoing surgery at the stage of tumor resection, a gum elastic bougie (15 Fr, 5-mm outer diameter [OD], 70 cm, coude tip, Portex) via the ETT was inserted, which could not be passed. An 11-Fr airway exchange catheter (3.7-mm OD, Cook Medical) through the ETT passed beyond the obstruction and stented the ETT. The catheter was then removed, and the circuit was connected. The ventilation parameters then returned to normal after reshaping the tube. The surgery was uneventful, and the patient was extubated postoperatively. Postextubation, the ETT showed a minimal kink at 16 cm.

Intraoperative kinking of nonreinforced ETT can occur in neurosurgical procedures, which frequently include neck flexion and rotation. This can be complicated by minimal access to the airway, making its management tricky. Intraoperative kinks commonly appear above the glottis at the cuff line exit site.¹ It can be insidious due to the thermal softening of ETT.² In this case, we did not use a flexometallic tube due to the possibility of postoperative ventilation and difficulty in replacing it in an edematous airway. A change in the neck position and tube exchange³ have been reported maneuvers to overcome this problem, which were not feasible since we encountered the stenosis at a crucial surgical stage. Bronchoscopy-aided stenting of ETT stenosis has been proven to visualize and reestablish the airway,⁴ but it is cumbersome and may require re-draping. Our technique is time sensitive and feasible with minimal resources. Although this technique is not foolproof and does not allow direct visualization of the stenosis, it gives us time until a definite plan is possible and offers the option of repeatability if required with minimal complications.

Conflict of Interest

None declared.

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