

Difficult tracheostomy tube insertion rescued by an angiographic catheter

Rudrashish Haldar · Sukhen Samanta ·
Prakhar Gyanesh

Received: 31 October 2012 / Accepted: 10 April 2013 / Published online: 21 April 2013
© Japanese Society of Anesthesiologists 2013

Keywords Tracheostomy · Ca larynx · Cardiovascular angiographic catheter · Distorted anatomy

To the Editor:

Tumors compressing the trachea may necessitate tracheostomy in which the distorted anatomy, friable tissues, and bleeding make open surgical tracheostomy fraught with unrecognized complications. An angiographic catheter (AC) is usually used in intervention cardiology, but its application outside the cardiac catheterization laboratory has been rarely reported [1]. We present a case where tracheostomy tube (TT) placement through the tracheal incision became difficult because of altered anatomy and a cardiovascular AC aided the successful passage and placement of TT.

A 45-year-old male patient with subglottic carcinoma and tracheal compression caused by the tumor (Fig. 1) was scheduled for emergency tracheostomy. While a difficult airway cart was kept ready, the patient was anesthetized with sevoflurane and could be intubated with a 6.5-mm endotracheal tube (ET). After tracheal incision, as TT insertion was attempted, it could not be negotiated inside the trachea. The tumor had compressed and rotated the circular cross section of the trachea so that the incision had

been inadvertently made on the lateral wall of the trachea (instead of the anterior wall). Attempting TT insertion caused its tip to impinge on the deformed and indented opposite tracheal wall, preventing its passage. Trials with size 7.5-mm and 7.0-mm TTs also failed. Suction catheters and nasogastric tubes of different calibers (12, 14, and 16 F) were passed through the incision to railroad the TT over them, but adequate guidance and passage were not obtained. The ET was then pushed below the incision and ventilation continued.

A sterile AC (Pro-Flo; Medtronic) was taken, its hub cut at about 40 cm, and pushed inside the lumen of the ET such that its distal end went below the carina and proximal end below the ET connector. Ventilation resumed by connecting the ET connector with the circuit. Now the ET was withdrawn above the incision and the proximal end of the AC was pulled out through the incision with an artery forceps. The ET was then pulled up to the cords, and a well-lubricated TT (8.0-mm size) with obturator removed was successfully railroaded over the AC into the tracheal lumen and its position confirmed.

Failure to insert the TT through the stoma can potentially magnify into a life-threatening scenario. Thus, the necessity of securing the airway through the orotracheal route cannot be overemphasized. Suggested guides of TT through the stoma are fiberoptic scopes, suction catheters, red rubber catheters, and airway exchange catheters (AEC) [2]. A fiberoptic scope may not be universally available. Blind or guide-facilitated insertions cannot distinguish between the tracheostomy tract and adjacent tissues, and repeated attempts can cause hemorrhage, tract disruption [3, 4], and false tract formation. Moreover, suction catheters and red rubber catheters are pliable and may not provide an adequate guide for the TT. Stiffer varieties of AEC can cause tissue trauma [5]. The AC, which is a polymer-

R. Haldar (✉) · P. Gyanesh
Department of Anaesthesiology, Sanjay Gandhi Post Graduate
Institute of Medical Sciences, Lucknow, Uttar Pradesh 226014,
India
e-mail: rudrashish@yahoo.com

S. Samanta
Department of Critical Care Medicine, Sanjay Gandhi Post
Graduate Institute of Medical Sciences, Lucknow 226014, India



Fig. 1 Computed tomography (CT) scan of tracheal compression and distortion by tumor shows narrowing of the tracheal lumen and indentation of the posterolateral wall

based catheter, provided the perfect combination of stiffness as well as flexibility for negotiating the TT through the difficult anatomy. Its tapering atraumatic tip prevented

airway trauma. Throughout the procedure airway control was maintained, and the small-caliber AC did not impair ventilation. We therefore, advocate its inclusion in the difficult tracheostomy armamentarium.

Conflict of interest None.

References

1. Ghatak T, Samanta S, Baronia AK. A new technique to insert nasogastric tube in an unconscious intubated patient. *N Am J Med Sci.* 2013;5:68–70.
2. Kaiser EF, Seschachar AM, Popovich MJ. Tracheostomy tube replacement: role of the airway exchange catheter. *Anesthesiology.* 2001;94:718–9.
3. Rajendram R, McGuire N. Repositioning a displaced tracheostomy tube with an Aintree intubation catheter mounted on a fibre-optic bronchoscope. *Br J Anaesth.* 2006;97:576–9.
4. Mirza S, Cameron DS. The tracheostomy tube change: a review of techniques. *Hosp Med.* 2001;62:158–63.
5. DeLima L, Bishop M. Lung laceration after tracheal extubation over plastic tube changer. *Anesth Analg.* 1991;73:350–1.