Is computed tomography scan the ultimate modality for airway evaluation?

Sir,

Patients with anterior mediastinal mass pose special anesthetics challenges, and they are prone to perioperative complications particularly from airway collapse.[1] We present anesthetic challenges in a 78-year-old patient suffering from a retrosternal goiter and thymic cyst presented with compressive symptoms.

Written informed consent was obtained for publication of this case. A 78-year-old man was admitted to our hospital with the complaints of cough and expectoration for 5 months. He also complained of inability to lie down in left lateral posture but did not have any difficulty in the supine position even during sleep. There was also no history of respiratory distress and stridor neither at rest nor with activity.

Computed tomography (CT) scan of neck and thorax revealed a thyroid swelling extending from the neck into the superior mediastinum along with a thymic cyst. Both CT scan [Figure 1] and a chest X-ray found a deviation of the trachea, and moderate compression of thoracic trachea, with a compression of the laryngeal vestibule and cervical trachea was noted [Figure 1]. The minimum internal diameter of the thoracic trachea was found to be 6.0-7.0 mm. All other investigations were within normal limit.

General anesthesia with endotracheal (ET) intubation along with thoracic epidural catheter for postoperative pain management was planned. Awake fiberoptic bronchoscope guided intubation with airway block, and topical anesthesia was planned. To anesthetize upper airway, 5 ml of 4% lignocaine nebulization was done for 10 min, followed by 2 ml 4% lignocaine injected into the trachea. We used real-time ultrasound to identify trachea as it was deviated.

In the operating room, after attaching all the monitors, fiberoptic bronchoscopy was attempted through oral route using an oral bite block. We noted a near total compression of the trachea started just below the vocal cord extending up to just above the carina. It was on the contrary to the preoperative CT scan finding. However, we were able to introduce the fiberscope in the trachea and a 7.0 mm ID cuffed flexo-metallic ET tube was rail-roaded over the scope. The tip of the ET tube was kept just above the carina passing the distal end of tracheal compression. The fiberscope was taken out under vision, and anesthesia was induced with 250 mg intravenous thiopentone sodium and after confirmation of bilateral air entry, 25 mg atracurium was given.

At the end of the surgery, elective postoperative ventilation was planned. After, a check fiberoptic bronchoscopy, we exchanged the flexo-metallic ET tube with an 8.0 mm ID cuffed ET tube over an airway exchange catheter. On the next day, he was extubated uneventfully in the surgical intensive care unit.

Computed tomography scan is one of the most commonly used diagnostic modality for this purpose. CT scan predicts perioperative complications in these patients.[2,3]

In our case, CT scan correctly delineated compression of the larynx and cervical trachea, but failed to detect a significant thoracic tracheal compression. As CT scan provides only static image,[4] fiberoptic bronchoscopy does have a role in such patients because it provided dynamic imaging.[5] As magnetic resonance imaging (MRI) provides excellent soft tissue contrast,[6] so it is an important preoperative investigation for tumors of the mediastinum.[7,8] We suggest a preoperative MRI for proper anesthetic planning in such patients.

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