



Tracheal distortion in achalasia

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Received: 12 February 2020 / Revised: 14 February 2021 / Accepted: 22 February 2021 / Published online: 9 March 2021
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A 77-yr-old 40-kg 171-cm man (who provided written consent for this report) with achalasia (Figure, panel A) presented with postprandial inability to swallow, choking, and suspected aspiration. He was scheduled for esophageal disimpaction.

Following rapid sequence induction of anesthesia under cricoid pressure, placement of the endotracheal tube (ETT; internal diameter, 8.5-mm) met significant resistance at ~20 cm (at the alveolar ridge) with its proximal cuff visualized at the level of the larynx. The ETT was not advanced further. Ventilation was uneventful. During flexible esophagoscopy, the surgeon described a “very tortuous” upper esophagus. He drained > 400 mL of turbid fluid without solid content. The procedure was completed uneventfully and so was subsequent tracheal extubation. The patient was to undergo per-oral endoscopic myotomy (POEM) in the future.

Achalasia (incidence and prevalence in Canada in 2007, 1.63/100,000 and 10.82/100,000, respectively)¹ is caused by esophageal paralysis. Differential diagnoses include malignancy, foreign body, esophageal stricture, esophageal rings and webs, cardiovascular anomalies, thyromegaly, and Chagas disease. Several litres of food debris can accumulate, causing megaesophagus.¹ In our patient,

preoperative computed tomography showed tracheal distortion (Figure, panels B–E), which disappeared post-disimpaction (Figure, panel F).

With post-prandial respiratory difficulties, aspiration and bronchospasm are suspected. Notably, mechanical distortion of the airway by a megaesophagus is not mentioned in an anesthetic review on the subject,² nor in standard anesthesia textbooks^{3–5} possibly because patients for elective POEM are fasted and acute extreme esophageal distension is absent. Another possible reason is that airway complications from megaesophagus are rare and have almost exclusively been reported in the non-anesthesia literature. Such complications include vocal cord paralysis (requiring tracheostomy) or swelling, neck swelling and bulging, tracheobronchial compression, inability to pass even a small ETT followed by high airway pressure, inability to ventilate, thoracic inlet obstruction, dyspnea, cyanosis, hypercarbia and hypotension caused by atrial compression, and asphyxiation.⁶

Anesthesiologists responding to acute post-prandial breathing difficulties in patients with achalasia should be mindful of possible airway compromise from a dilated esophagus. If time permits, chest radiographs should be reviewed. The use of a smaller ETT may be required. Esophageal drainage should improve breathing and, if intubation is indeed required, facilitate atraumatic ETT insertion and ventilation.

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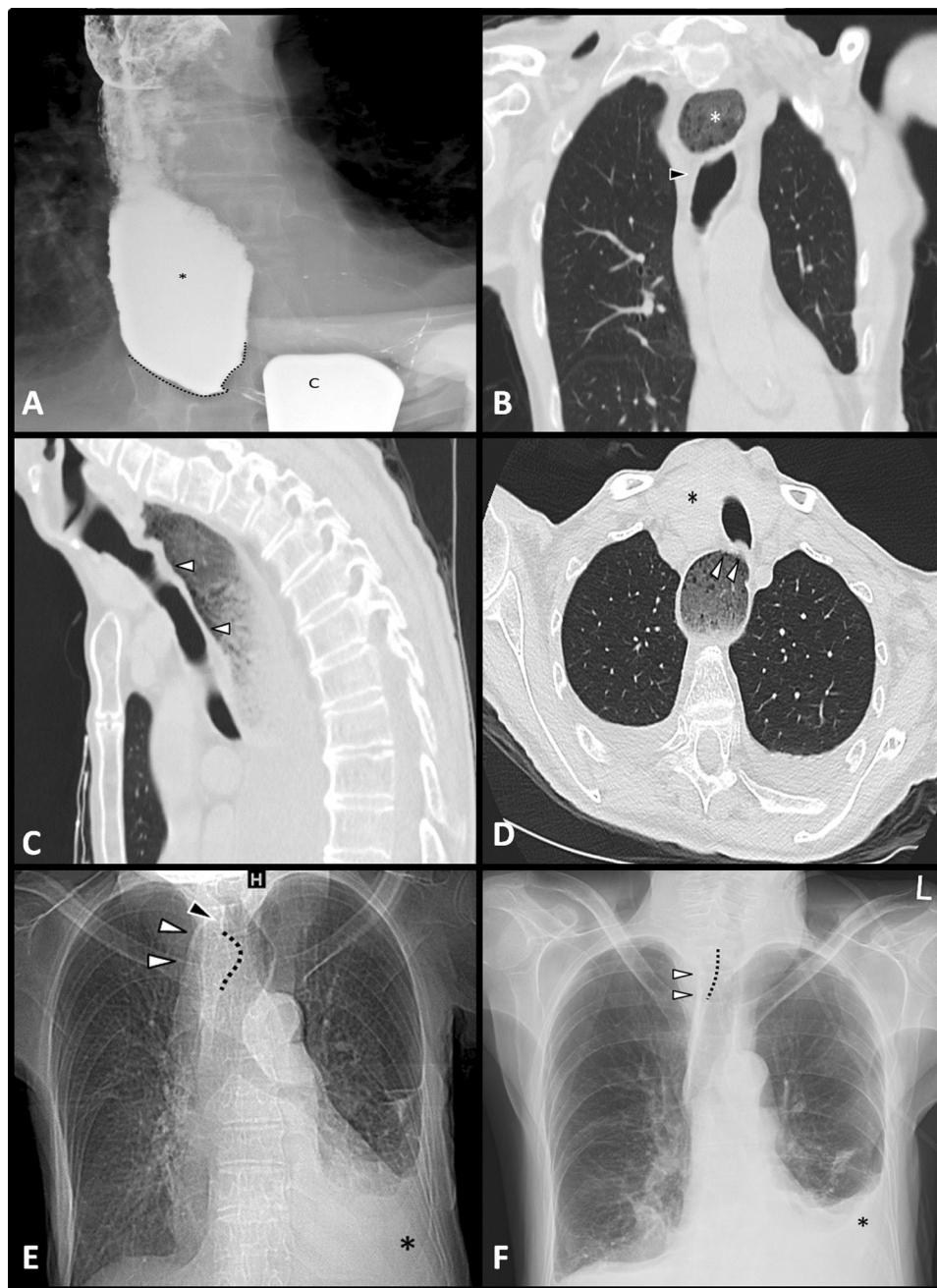


FIGURE A) A preoperative frontal posteroanterior chest radiograph taken during barium esophagography shows retention of barium within the lower esophagus (asterisk). Abrupt narrowing of the lower esophagus (dotted line) in keeping with achalasia (“bird’s beak sign”) is seen. The cup of barium (marked “c”) is included in the field of view, extrinsic to the patient. (B–E) Tracheal distortion shown in computed tomography images of the chest three days preoperatively. B) A coronal image in a lung window shows a patulous dilated esophagus filled with retained ingested contents (asterisk) resulting in leftward displacement of the trachea (black arrowhead). C) A sagittal image in a lung window shows anterior displacement of the trachea (white arrowheads) due to the dilated esophagus. D) An axial image in a lung window shows anterior and leftward displacement of the trachea (white arrowheads). There is also some mass effect on the trachea related to an enlarged right thyroid lobe/goiter (asterisk). E) Frontal scout showing a gas-filled structure along the right side of the upper mediastinum with convex borders (white arrowheads), in keeping with the dilated esophagus. There is a resultant mass effect on the trachea, which is displaced and bowed towards the left (dotted line). Abrupt angulation superiorly (black arrowhead) may represent the area of resistance to endotracheal tube advancement. A left pleural effusion is seen (asterisk). F) Frontal posteroanterior chest radiography one day following esophageal disimpaction shows midline positioning of the upper trachea with resolution of previously visualized leftward bowing (dotted line). The right lateral border of the esophagus is also more medially positioned and no longer appears convex (white arrowheads).

Disclosures None.

Funding statement Support was provided solely from institutional and/or departmental sources.

Ethics and consent Queen's University Research Ethics Board approval and written informed consent were obtained for publication of this manuscript.

Editorial responsibility This submission was handled by Dr. Stephan K.W. Schwarz, Editor-in-Chief, *Canadian Journal of Anesthesia*.

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