

Hugh C. Hemmings, Jr., M.D., Ph.D., Editor

Anterior Mediastinal Mass

Ulrike Berth, M.D., J. Lance Lichtor, M.D.

University of Massachusetts Medical School
lance.lichtor@umassmed.edu

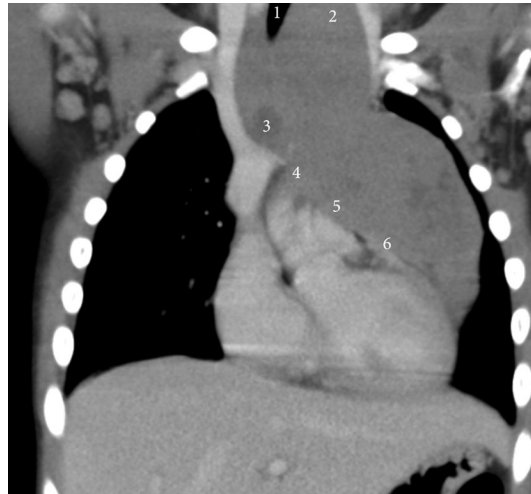


Fig. Anterior mediastinal mass. The trachea is bowed to the right (1). The tumor extends superiorly into the root of the neck to the level of C5 (2). The left brachiocephalic vein is displaced posterior-inferiorly and the right brachiocephalic vein is displaced laterally (3). The tumor is contiguous with the ascending aorta (4), the main pulmonary artery (5), and the left atrial appendage (6).

THE image depicts an anterior mediastinal mass in a 4-yr-old who presented with numbness in the left arm. A large soft tissue mass can be seen in the anterior mediastinum. The mass extended into the neck and displaced the great vessels in the mediastinum and major vessels in the left neck. The airway and thyroid were deviated toward the right. The trachea was narrowed slightly at its midportion. The overall size of the mass was $12 \times 5 \times 5$ cm. The patient presented for biopsy of the mass. Despite the impressive magnetic resonance imaging scan, the child preoperatively had no sign of airway obstruction. For the procedure, anesthesia was induced with propofol, and a laryngeal mask airway was inserted. Anesthesia maintenance was with a propofol infusion with fentanyl supplementation while the patient breathed spontaneously with the head elevated. The procedure was uneventful. The pathologic diagnosis was stage 3 T-cell lymphoplastic non-Hodgkin lymphoma with starry sky macrophages.

Patients, particularly children, with anterior mediastinal masses can have pulmonary as well as cardiac collapse.^{1,2} In a series of 98 adults who underwent 105 procedures, no patient during surgery had airway obstruction.³ Infants and small children, though, have airways that are more compressible, and they may be more susceptible than adults to extrinsic airway obstruction. Preoperatively, patients should be evaluated for extension of the tumor to determine whether the tumor affects structures that can lead to respiratory and/or hemodynamic instability.⁴ Although there are risks in anesthetizing children with mediastinal masses, it is also important that an accurate tissue diagnosis can be obtained so appropriate therapy can be instituted. If airway obstruction preoperatively is not severe, anesthesia should generally be safe.⁵ Spontaneous respiration is essential to maintain negative intrathoracic pressure and prevent compression of anterior mediastinal structures.⁶ It is advisable, then, that paralysis should be avoided. Although the use of laryngeal mask airways has been described as part of the anesthetic management of patients with a mediastinal mass, an endotracheal tube can alleviate obstruction due to a mediastinal mass.⁷

References

1. Neuman GG, Weingarten AE, Abramowitz RM, Kushins LG, Abramson AL, Ladner W: The anesthetic management of the patient with an anterior mediastinal mass. *ANESTHESIOLOGY* 1984; 60:144-7
2. Keon TP: Death on induction of anesthesia for cervical node biopsy. *ANESTHESIOLOGY* 1981; 55:471-2
3. Bechard P, Letourneau L, Lacasse Y, Cote D, Bussieres JS: Perioperative cardiorespiratory complications in adults with mediastinal mass: Incidence and risk factors. *ANESTHESIOLOGY* 2004; 100:826-34
4. Erdos G, Tzanova I: Perioperative anaesthetic management of mediastinal mass in adults. *Eur J Anaesthesiol* 2009; 26:627-32
5. Ferrari LR, Bedford RF: General anesthesia prior to treatment of anterior mediastinal masses in pediatric cancer patients. *ANESTHESIOLOGY* 1990; 72:991-5
6. Sibert KS, Biondi JW, Hirsch NP: Spontaneous respiration during thoracotomy in a patient with a mediastinal mass. *Anesth Analg* 1987; 66:904-7
7. Prakash UB, Abel MD, Hubmayr RD: Mediastinal mass and tracheal obstruction during general anesthesia. *Mayo Clin Proc* 1988; 63:1004-11