TITLE: ANESTHETIC MANAGEMENT OF MEDIASTINAL MASSES REVISITED.

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INTRODUCTION: Anesthetic management of large anterior mediastinal masses (AMM) remains a clinical challenge, particularly since many pathologists insist that prophylactic preoperative irradiation impairs accurate tissue diagnosis. Thus, even though it increases the safety of anesthetic management,[1] it ultimately might result in improper therapy. Since this policy holds sway at our institution, we instituted a Quality Assurance review of our experience to determine guidelines for general anesthesia in patients with AMM.

METHODS: The records of 30 adult patients with AMM (mean age 46.3 yr, range 19-82 yr) were reviewed. All underwent biopsy or resection performed by the same surgeon over a 4 year period. Tissue diagnoses were: 19 lymphoma, 4 thymoma, 2 sarcoma and 5 metastatic tumors. All tumors were < 8 cm in diameter as determined by CXR, CT or MRI. Patients were divided into an asymptomatic group (n=14) and a symptomatic group (n=16). Among the latter, 5 had superior vena cava syndrome, 8 had cough, 4 had pain, 2 had dyspnea on exertion and 2 had positional dyspnea. Preoperative pulmonary function tests (including flow-volume loops) showed no difference between the symptomatic and asymptomatic patients.

RESULTS: All patients received general anesthesia. In 28, a routine intravenous induction in the supine position was performed using paralysis for intubation and surgery. An awake fiberoptic intubation and spontaneous ventilation in semi Fowler position was chosen for two patients, both of whom had positional dyspnea. There was no perioperative complication.

DISCUSSION: These data suggest that adults with AMM <8 cm in diameter who do not have positional dyspnea, do not require awake endotracheal intubation or spontaneous ventilation, as has been recommended for children.[2] Presumably, this is because the mediastinum of adults is more rigid and is less likely to sustain critical airway or cardiovascular compromise during paralysis and positive pressure ventilation. Conversely, we would hold that adults with lesions > 8cm in diameter and/or with positional dyspnea should continue to be regarded as high-risk cases, in whom the benefits of awake endotracheal intubation and spontaneous ventilation during thoracotomy are fully justified.

REFERENCES: 1) Piro et al. J Rad Onc Biol Phys 1:415, 1976. 2. Newman et al. Anesthesiology 60:144, 194.

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TITLE: CARBON DIOXIDE REBREATHING DURING PULMONARY ARTERY CATHETER INSERTION

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Rebreathing of carbon dioxide (CO2) has been demonstrated when plastic drapes such as are used for ophthalmologic surgery are applied to awake patients.[1,2,3] This study evaluated the occurrence of CO2 rebreathing during a similar draping procedure for pulmonary artery catheterization (PA cath).

Following approval of the Institutional Review Board, 15 patients scheduled for elective cardiac surgery were studied. Each patient received 3 L/min of oxygen (O2) via a nasal cannula which permits CO2 sampling during administration of supplemental O2.[4] Following placement of an arterial line, PA cath was performed using an Arrow Percutaneous Sheath Introducer set (product # AK-09807). An infrared capnometer was used to determine inspired CO2, (ICO2), end-tidal CO2 (ETCO2), and respiratory rate (RR) every 20 seconds before application of (Pre), during presence of (Drape), and following removal of (Post) the plastic drape provided in the Arrow set. Arterial CO2 (PaCO2) was determined once during each study. For each patient, the student's t-test was used to compare ICO2, ETCO2, and RR between Pre and Drape.

Results are summarized in Table One. Every patient experienced a significant ($p < .01$) increase in ICO2 during Drape. 14 of 15 patients experienced a significant ($p < .01$) increase in ETCO2 and/or RR during Drape compared to Pre.

TABLE ONE

	Pre	Drape	Post
ICO2(mmHg)	0.0±0.0	6.0±1.9*	0.0±0.0
ETCO2(mmHg)	36.9±2.8	38.6±3.3	36.5±3.4
PaCO2(mmHg)	40.8±3.5	42.0±4.5	40.8±4.4
RR	15.5±2.9	15.5±3.1	14.2±2.8

* $p < .01$ versus Pre

Application of a plastic drape for PA cath is associated with the same potential for CO2 rebreathing that is associated with draping for ophthalmologic surgery.

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2. Anesth Analg 70:S31, 1990.
3. J Clin Anesth 1:262-267, 1989.
4. J Clin Monit 5:105-110, 1989.