

# Mediastinal Mass Management Algorithm

Evidence Based Outcomes Center

Evidence of Large Anterior Mediastinal Mass (confirmed by imaging)

Signs/Symptoms of respiratory distress/cardiovascular collapse?

YES

-NO- Patient is clinically stable

**Urgently contact:**

- Anesthesia MD 1 Phone for consult, 512-791-3316
- Pediatric Oncologist on call

Pediatric Oncologist then to initiate multidisciplinary team huddle: ①

Pediatric Surgery, IR, PICU, CT surgery, ENT, circulating RN, Anesthesia

CONSIDER:  
What additional workup is needed:  
CT, ECHO, biopsy, LP, CVL placement, bone marrow biopsy, needed for CV surgery or CV anesthesia

DISCUSS:  
Pre-procedure steroids, chemotherapy, radiation

**Diagnostic Evaluation:**

- Place IV
- Send labs: CBC, CMP, Type and Screen, Uric Acid, LDH, PT/PTT, AFP, BHCG
- Obtain: CT neck/chest
- Perform: Echocardiogram

High Risk findings on investigations?

YES

NO

Interventional plan and disposition decision

Transport to OR

- Order 2 units pRBCs, 1 unit FFP on call

Exit Pathway if

- Therapy not emergently needed
- Patient can be admitted to Oncology Floor

Admit to PICU

- Initiate steroid or other bridging therapy
- Huddle to re-evaluate plan for OR ①

**Huddle** – In person or via zoom conference call during “daytime hours” unless patient is High Risk and consultants are contacted emergently overnight

**Anesthetic Management Goals**

- Need additional personnel present
- Maintain spontaneous ventilation
- Maintain patient’s position of comfort when recumbent
  - Consider lateral or prone for cardiorespiratory decompensation
- Avoid positive pressure ventilation and muscle relaxants if possible
- Biopsy under local anesthesia
- If impending respiratory collapse
  - Intubate past obstruction
  - Stent airway with rigid bronchoscope
- Initiate ECMO if impending cardiovascular collapse
- Consider fluid bolus immediately pre-procedure if tamponade present

**HIGH RISK**

Includes any ONE of the following:

Signs/Symptoms

- ≥ 3 symptoms of respiratory distress
- Upper body enema
- Inability to lie flat
- Orthopnea

Echocardiogram:

- Pericardial effusion
- Pulmonary artery outflow obstruction
- Ventricular Dysfunction
- Cardiac compression

CT Scan:

- Tracheal diameter ≤50% normal
- Mediastinal mass ratio >0.45%
- SVC or great vessel obstruction/displacement



#### References

1. Bohm, A., Campbell, C., Peters, C., & Dato, N. (2023). Timely diagnostics and safe procedures in children with anterior mediastinal masses (AMMs): a qualitative review of the AMM protocol at BC Children's Hospital in Vancouver BC. *Pediatric hematology and oncology*, 40(1), 51–64. <https://doi.org/10.1080/08880018.2022.2072985>
2. Malik, R., Mullassery, D., Kleine-Brueggene, M., Atra, A., Gour, A., Sunderland, R., & Okoye, B. (2019). Anterior mediastinal masses - A multidisciplinary pathway for safe diagnostic procedures. *Journal of pediatric surgery*, 54(2), 251–254. <https://doi.org/10.1016/j.jpedsurg.2018.10.080>
3. [https://www.texaschildrens.org/sites/default/files/uploads/documents/outcomes/standards/MediastinalMass\\_110117.pdf](https://www.texaschildrens.org/sites/default/files/uploads/documents/outcomes/standards/MediastinalMass_110117.pdf) Guidelines for the Perioperative Management of Anterior Mediastinal Masses. Evidence Based Outcomes Center. Texas Children's Hospital (2015).
4. Pearson, J. K., & Tan, G. M. (2015). Pediatric Anterior Mediastinal Mass: A Review Article. *Seminars in Cardiothoracic and Vascular Anesthesia*, 19(3), 248–254. <https://doi.org/10.1177/1089253215578931>
5. Campbell, Tsai, A., Reading, B., Thompson, M., Noel-MacDonnell, J., Schwartz, R., & Sheeran, P. (2021). Risk factors for anesthetic-related complications in pediatric patients with a newly diagnosed mediastinal mass. *Pediatric Anesthesia*, 31(11), 1234–1240. <https://doi.org/10.1111/pan.14281>

EBOC Project Owner: Dr. Lindsey Rutland, MD

Approved by the Pediatric Evidence-Based Outcomes Center Team

**Revision History**

Original Date Approved: July 2023

Next Review Date: July 2027

Document v1.0 Developed and Published to EBOC.

**Mediastinal Mass Management:**

Heme/Onc - Sage Green, MD

Heme/Onc - Raven Cooksey, MD

PICU - Michael Auth, MD

PICU - Paul Sheeran, MD

ER - Winnie Whittaker, MD

Surgery - Erich Grethel, MD

IR - CJ Yen, MD

EBOC - Carmen Garudo, PM

**EBOC Committee:**

Lynn Thoreson, DO

Sarmistha Hauger, MD

Patty Click, MSN, RN

Deb Brown, MHA, RN

Sheryl Yanger, MD

Tory Meyer, MD

Nilda Garcia, MD

Meena Iyer, MD

Lynsey Vaughan, MD