Pediatric Congenital Hematologic Disorders Research Center
مرکزتحقیقات بیماری های خونی مادرزادی کودکان

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MedIAstinal massES in pediatrics

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Case report

- 11 months old infant with cc of dyspnea
- Increase vascular marking in his thorax
- Other finding NL

- CBC;WBC:12300,P;30,L;70

  Hb:11.5

  MCV;74

  plt:580,000.

ESR:70

Shalkow J. Apr 15, 2010

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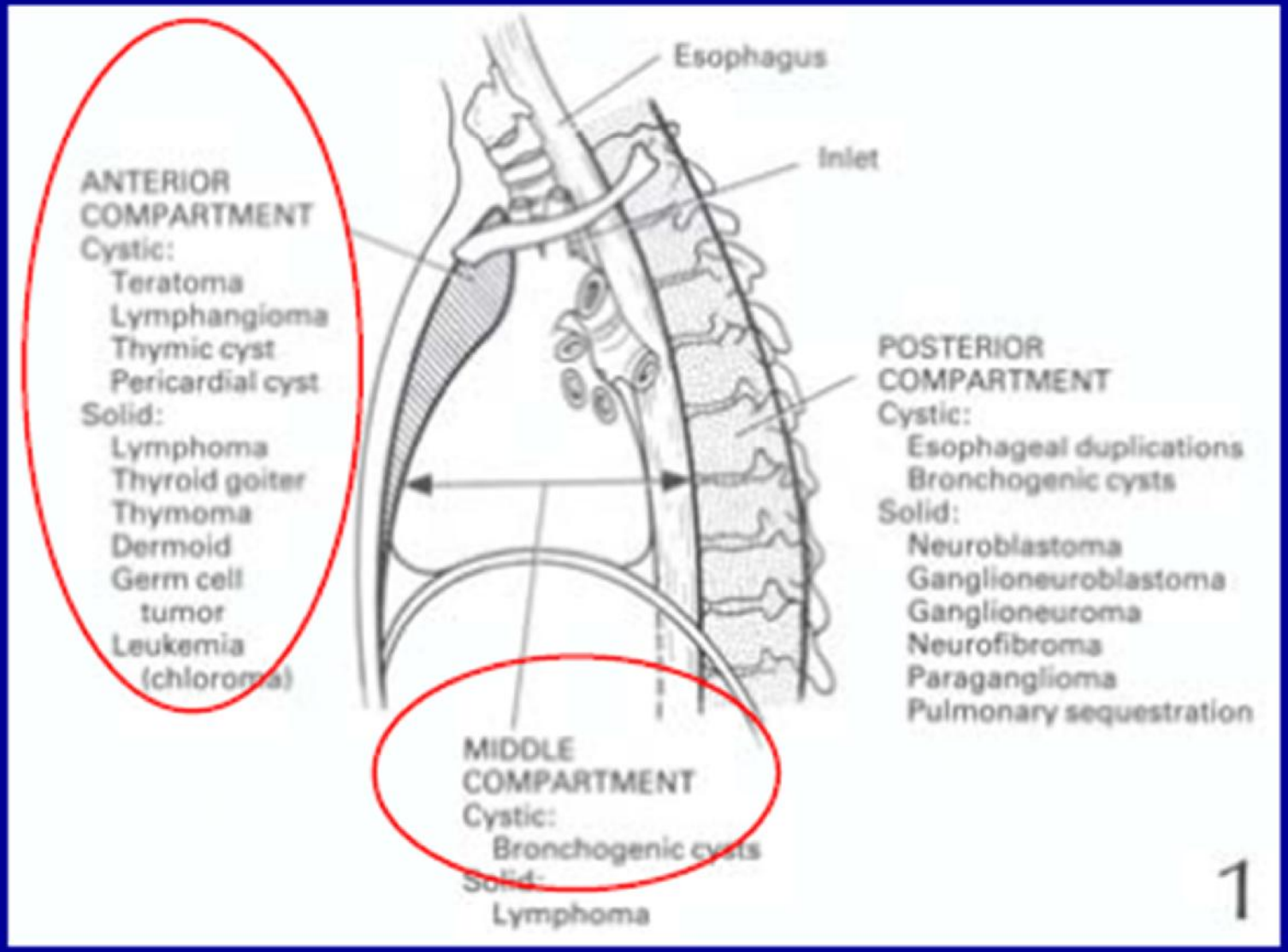
- Alfa feto pr:8000,BHCG:NL

WHAT'S THE DIFFERENTIAL?

- V - Vascular
- I - Infectious
- T - Trauma
- A - Allergic/Autoimmune
- M - Metabolic
- I - Iatrogenic
- N - Neoplastic (benign & malignant)
- S - Structural

Overview


Esophagus
Inlet
ANTERIOR COMPARTMENT
Cystic:
Teratoma
Lymphangioma
Thymic cyst
Pericardial cyst
Solid:
Lymphoma
Thyroid goiter
Thymoma
Dermoid
Germ cell tumor
Leukemia (chloroma)
POSTERIOR COMPARTMENT
Cystic:
Esophageal duplications
Bronchogenic cysts
Solid:
Neuroblastoma
Ganglioneuroblastoma
Ganglioneuroma
Neurofibroma
Paraganglioma
Pulmonary sequestration
MIDDLE COMPARTMENT
Cystic:
Bronchogenic cysts
Solid:
Lymphoma
1

DIFFERENTIAL

- Vascular
  - Aortic aneurysm
  - Pericardial effusion
- Infectious
  - Histoplasmosis
  - Paravertebral abscess
  - Bacterial pneumonia
- Traumatic
  - Hemomediastinum
- Iatrogenic
  - Foreign body
- Neoplastic
  - Benign
  - Malignant
- Structural
  - Diaphragmatic hernia
  - Thymus
  - Bronchogenic cyst
  - Pericardial cyst
  - Meningocele

Duwe, Sterman, Musani, 2005

HOW TO WE DIAGNOSE THE PT?

- Anterior Mediastinum
  - Thymus
  - Fat
  - Lymph nodes
- Middle mediastinum
  - Heart, Pericardium
  - Ascending and transverse aorta
  - Brachiocephalic veins,
  - Trachea, Bronchi,
  - Lymph nodes
- Posterior mediastinum
  - Descending thoracic aorta
  - Esophagus
  - Azygous vein
  - Autonomic ganglia and nerves
  - Thoracic lymph nodes

Chest. 2005 Oct;128(4):2893-909

How to Evaluate Anterior Mediastinal Mass?

- Imaging studies
- Lab datas
- Sampling of tissues

Diagnostic Approach

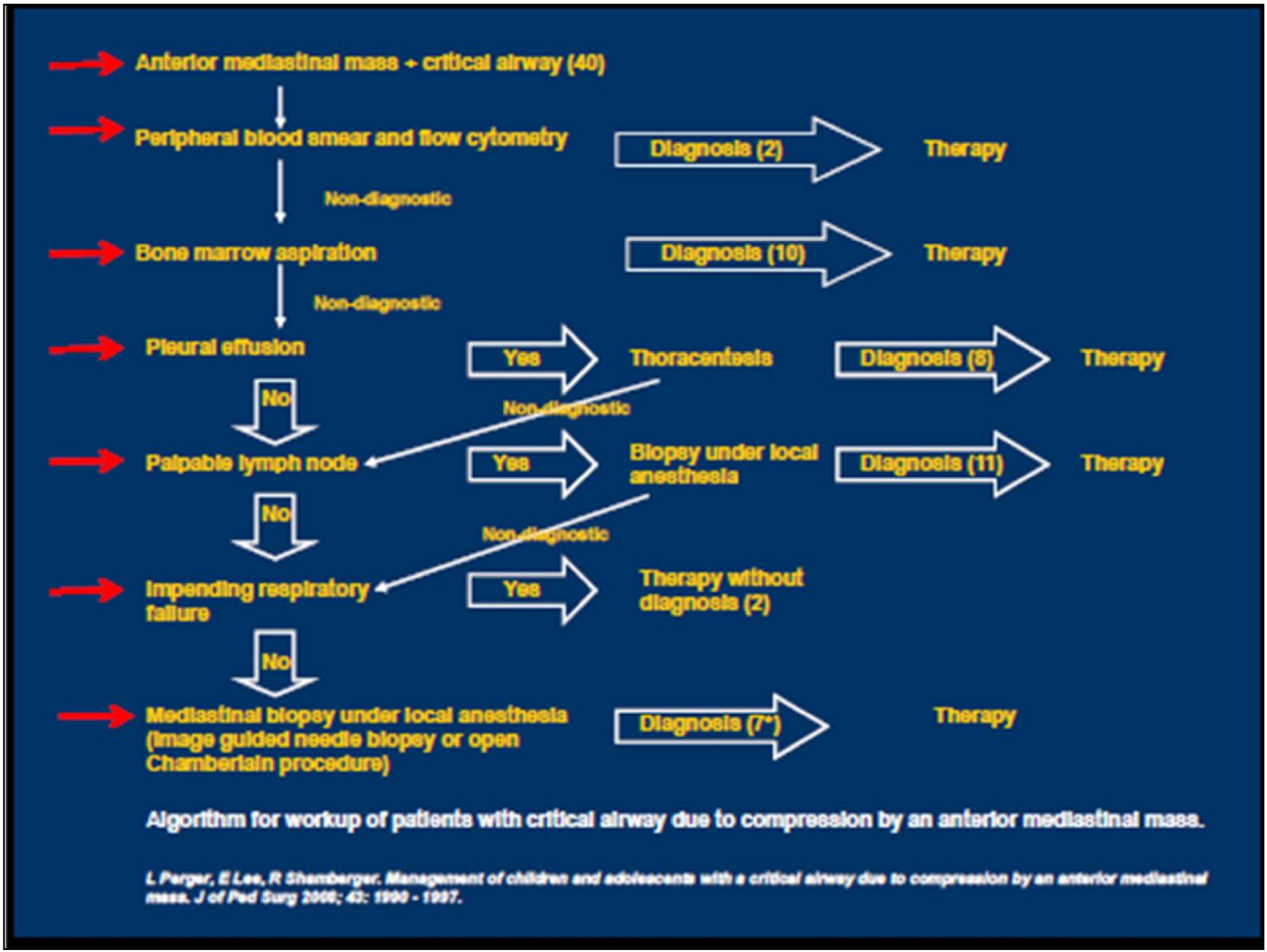
- Golden rule:
  - Starting with less-invasive procedure.

Initial Evaluation (Less Invasive)

- Malignancy
  - Bone Marrow:
    - mildly hypocellular marrow with orderly trilineage hematopoiesis
    - mild eosinophilia
    - **no morphologic evidence of malignancies**
  - Urine VMA and HVA **NEGATIVE**
  - AFP and BHCG **NORMAL** range

Initial Evaluation

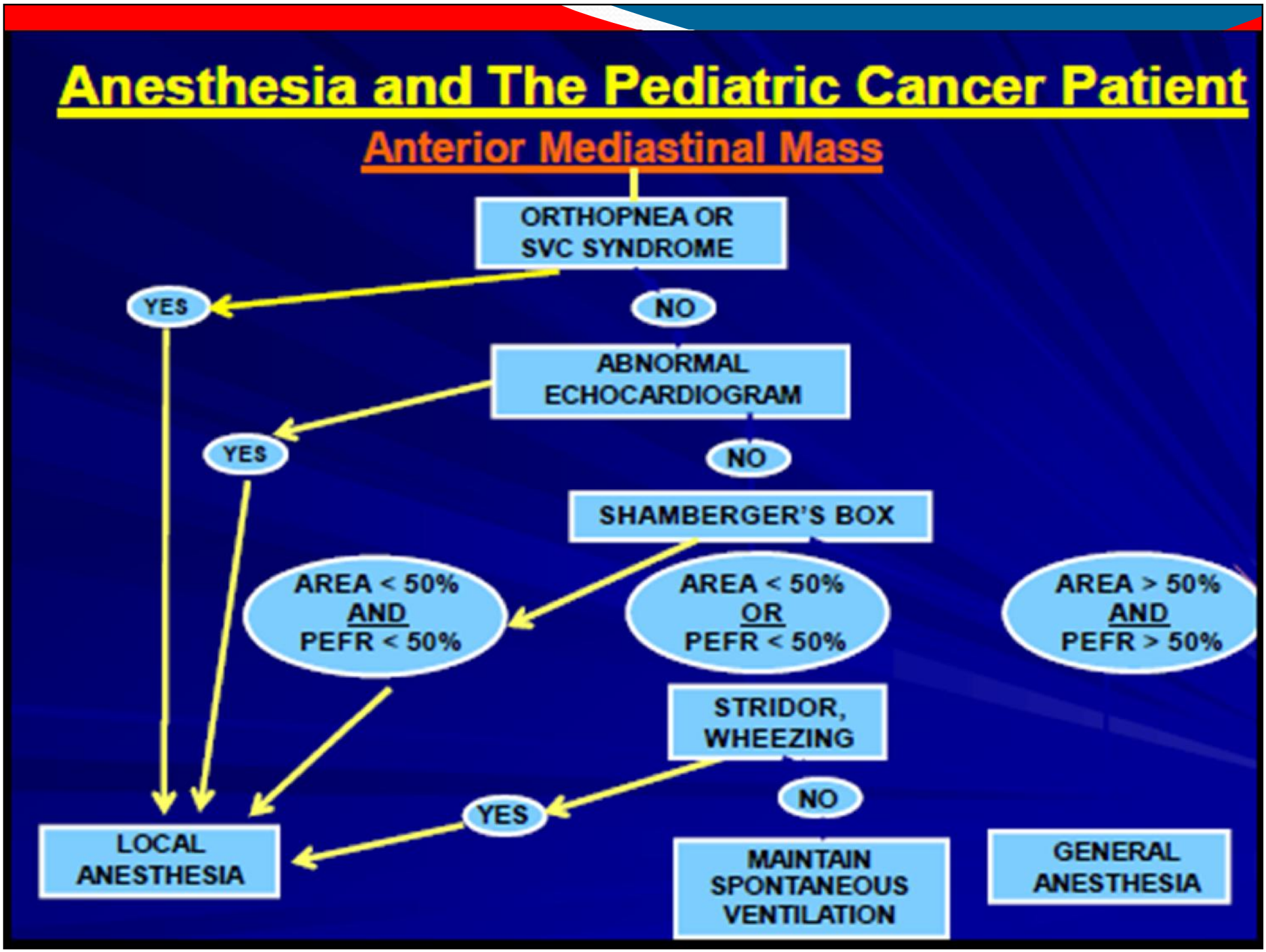
- Infectious Disease
  - Histoplasma Antigen/Antibodies NEGATIVE
  - Bartonella titers NEGATIVE
  - RPR NEGATIVE
  - PPD NEGATIVE
  - EBV
    - EA IgG NEGATIVE,
    - EBV NA IgG NEGATIVE
    - EBV VCA IgG POSTIVE
    - EBV VCA IgM NEGATIVE



Algorithm for workup of patients with critical airway due to compression by an anterior mediastinal mass.

L Perger, E Lee, R Shamberger. Management of children and adolescents with a critical airway due to compression by an anterior mediastinal mass. J of Ped Surg 2008; 43: 1990 - 1997.

Anesthesia and The Pediatric Cancer Patient



Conclusion

- During diagnostic approaches of mediastinal mass, it is important to:
  - Evaluate the risk of sedation / anesthesia, based on the degree of tracheal compression on CT scan.
  - Start with "less invasive" procedures upon extra-thoracic lesions, then advancing the procedures depending on the obtained result.
- For the patients with severely compromised respiration, starting empiric treatment may need to be considered.

TABLE 39-1. INCIDENCE OF MEDIASTINAL MASS AND SUPERIOR VENA CAVA SYNDROME (SVCS) AT ST. JUDE CHILDREN'S RESEARCH HOSPITAL BETWEEN 1973 AND 1988

Diagnosis	No. of patients	Mediastinal mass (%)	SVCS with mediastinal mass (%)
Acute lymphoblastic leukemia	1,464	130 (8.4)	6 (4.6)
Acute nonlymphocytic leukemia	392	9 (2.3)	0
Hodgkin's disease	333	102 (30.6)	2 (2.0)
Non-Hodgkin's lymphoma	330	230 (69.7)	8 (3.4)
Neuroblastoma	332	69 (20.8)	3 (4.3)
Germ cell tumors	114	10 (8.8)	2 (20.0)
Sarcomas	696	26 (3.7)	3 (11.0)

From Ingram L, River G, Shapiro DDN. Superior vena cava syndrome associated with childhood malignancy. Analysis of 24 cases. Med Pediatr Oncol 1990;18:476, with permission.

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THE END