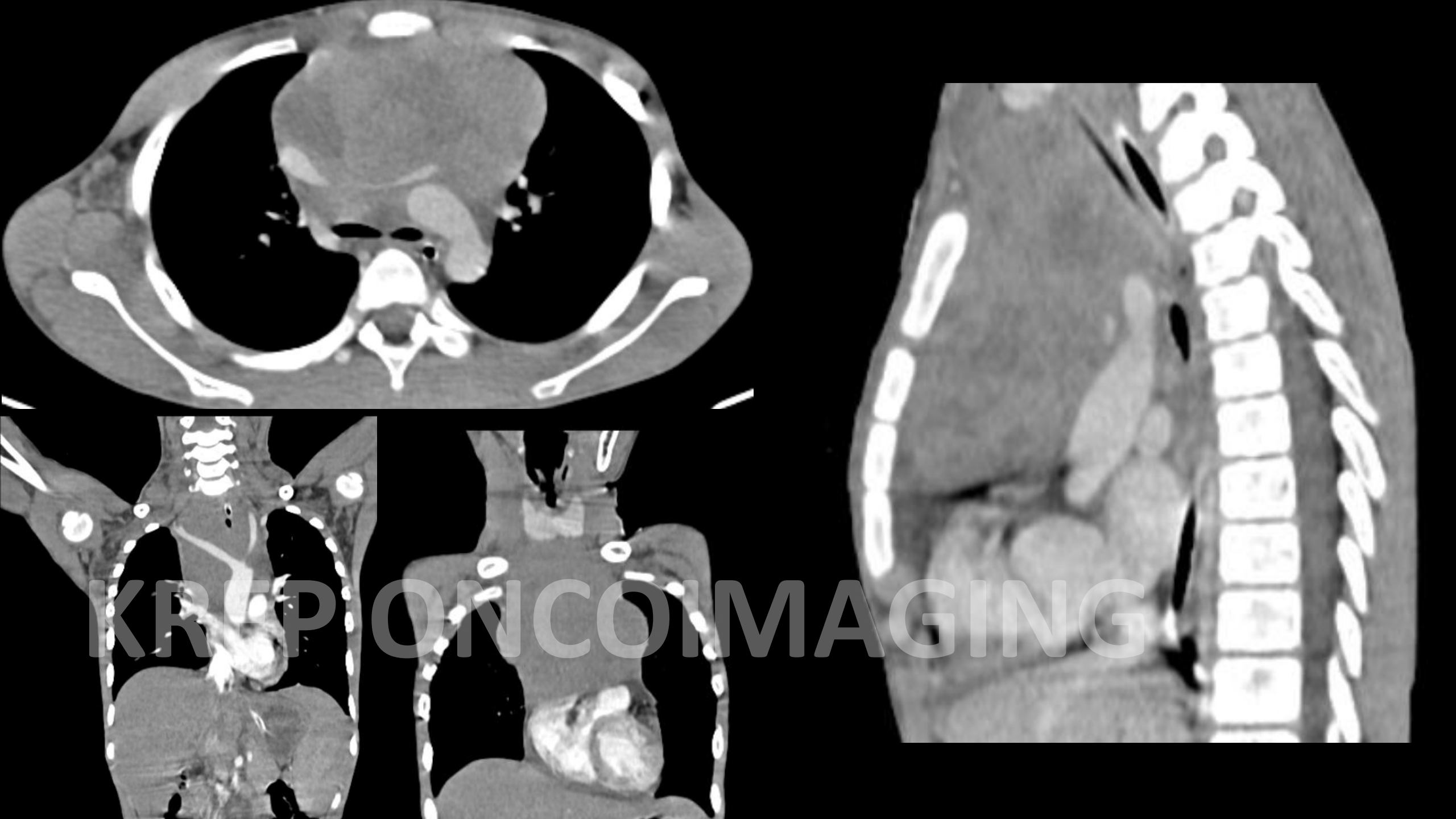
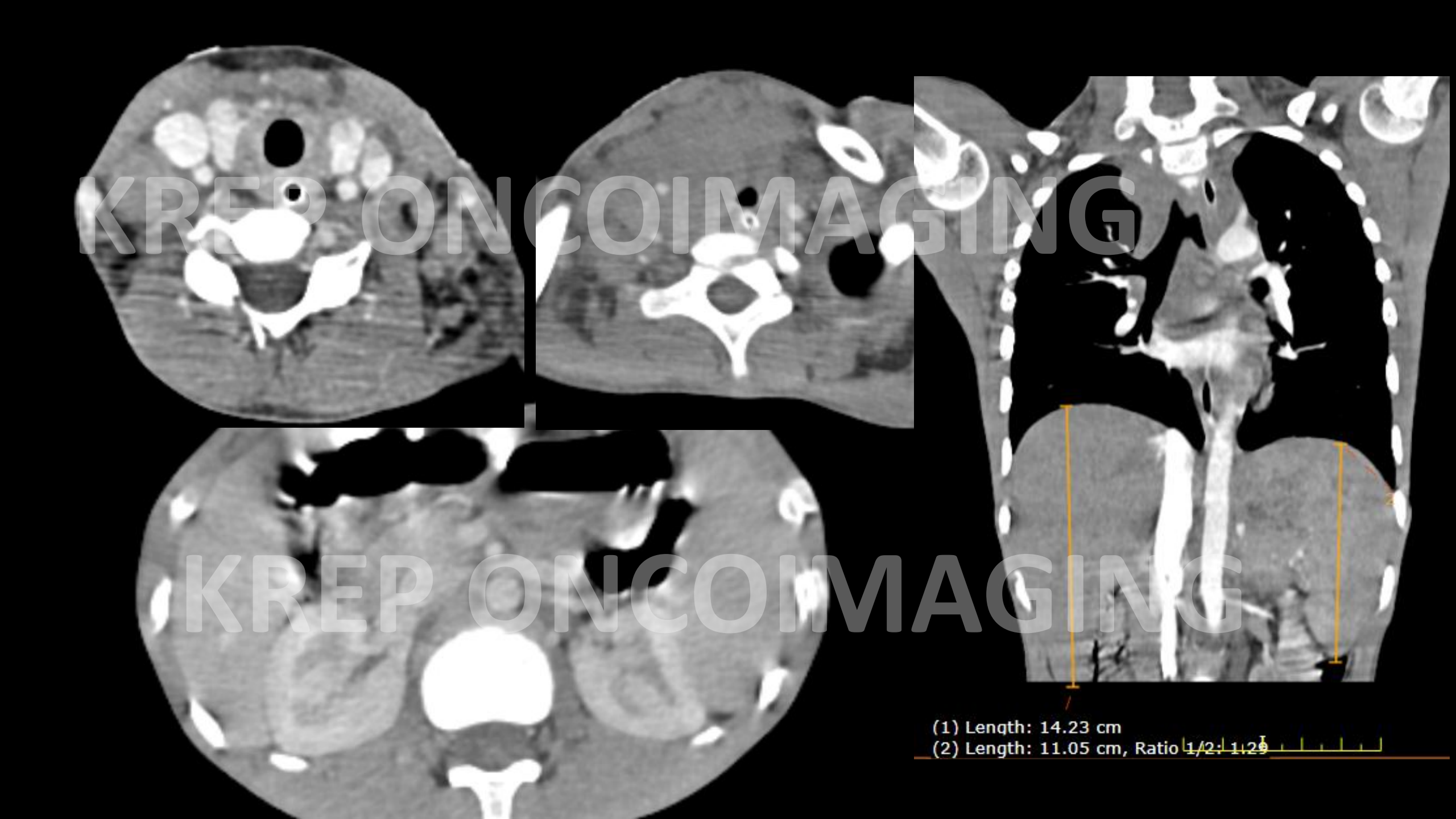
2025

KARNATAKA RADIOLOGY EDUCATION PROGRAM

- Topogram showing mediastinal widening with lobulated margins and indistinct silhouette of the hilae.
- The mass is ill-defined at level of neck base; the cephalic border of the shadow is disappearing at level of clavicles with indistinct superolateral margins around the approximate level of lower border of clavicle (not an erect frontal radiograph, however the similar principle of cervicothoracic sign can be applied)
  - this implies the mass has to be in the anterior mediastinum.


KR FP ONCOIMAGING


KREP ONCOIMAGING
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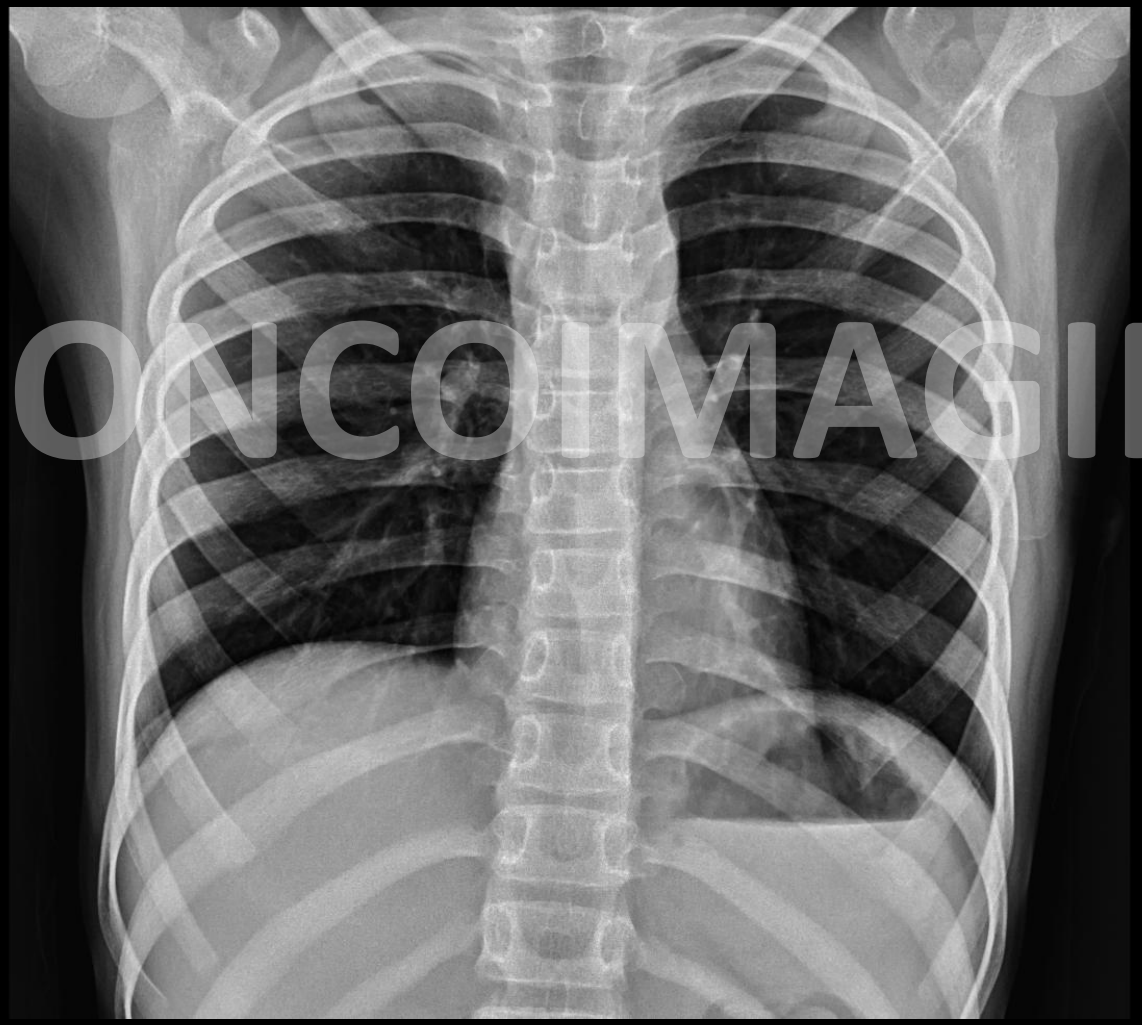
(1) Length: 14.23 cm
(2) Length: 11.05 cm, Ratio 1/2: 1.29

- CECT Chest images showing a large mostly homogeneous mildly enhancing lobulated soft tissue density mass in the prevascular mediastinum with significant compression of left brachiocephalic vein, trachea and SVC. The mass occupies more than 1/3rd of the chest (bulky disease).
  No evidence of invasion into the lumen of the vessels. No pericardial or pleural effusion.

- The neck base images show cervical adenopathy; there is encasement of right carotid and vertebral arteries by the mass.
- There is hepatosplenomegaly (no differential hypoenhancing nodules in venous and delayed phase) and periportal lymphadenopathy.
  - Overall – Lugano stage III(1).
  - It will be upstaged to stage IV if there are multiple hypoechoic nodules on USG in liver / spleen.
- HPE – T lymphoblastic lymphoma

Post treatment



1. **Relevant Subtypes & Demographics:**
    - Dominantly **Hodgkin Lymphoma (Nodular Sclerosis type)** and **Primary Mediastinal Large B-Cell Lymphoma (PMBCL)**, arising from **thymic B-cells** in the **prevascular/anterior mediastinum.**
    - Occurs in **young to middle-aged adults**; PMBCL has a **female** predominance; Hodgkin slightly more common in **males.**
2. **Clinical Clues:**
    - **Bulky mediastinal mass** ± dyspnea, cough, chest pain.
    - **SVC obstruction** may be present but **true vascular invasion is uncommon** (key distinguishing point).
    - **B-symptoms** (fever, weight loss, night sweats) more frequent in Hodgkin.
3. **CT Characteristics:**
    - **Large, smooth-lobulated anterior mediastinal mass**, often with **homogeneous soft-tissue density** in Hodgkin; **PMBCL** appears **heterogeneous** or with **septations.**
    - **Encasement without destruction** of great vessels and airways is a hallmark (vs thymic carcinoma which invades).
    - May be associated with **hilar/mediastinal nodes**, **pericardial/pleural effusion**.

4. **MRI Advantages:**
    - **T1:** low–intermediate; **T2:** intermediate–high;
    - **Marked diffusion restriction** due to high cellularity → useful for differentiating from thymic cysts or fibro-fatty thymus.
    - Best for evaluating **SVC compression**, **pericardial involvement**, and **chest wall or diaphragm contact**.
5. **PET/CT — Essential Role:**
    - **Strong FDG uptake** in nearly all mediastinal lymphomas → guides **staging and radiotherapy planning**.
    - **Deauville scoring** used to assess **interim and end-of-treatment response**.
    - Differentiates **residual scar/fibrosis** (low SUV) from **active disease** (high SUV) — critical post-therapy.
6. **Patterns of Spread:**
    - Tends to stay **mediastinal initially**, later spreading to **lungs, pleura, liver, bone marrow, and spleen**.
    - PMBCL can partially invade **adjacent lung** or **pericardium** but still characteristically **preserves tissue planes**.

7. Differential Diagnosis — Imaging Clues:

Entity	What Favors It
Thymic carcinoma	*Irregular, invasive margins; vascular invasion; necrosis.*
Germ-cell tumor	*Fat, cysts, teeth, or elevated β-hCG/AFP.*
T-Lymphoblastic Lymphoma	*Teen/young adult male, very bulky, effusions + marrow/CNS involvement.*

8. What the Report Must Clearly State:

- **Compartment**: prevascular/anterior mediastinum.
- **Size & bulk** (important prognostic marker).
- **Degree of SVC and airway compression vs invasion**.
- **Pericardial/pleural involvement**, lung/chest wall contact.
- **Nodal levels** and **extrathoracic disease** (via PET).
- Use **PET response-based terminology** for follow-up.

Contributors

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