2025

KARNATAKA RADIOLOGY EDUCATION PROGRAM

Mediastinal SOLs

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MEDIASTINUM

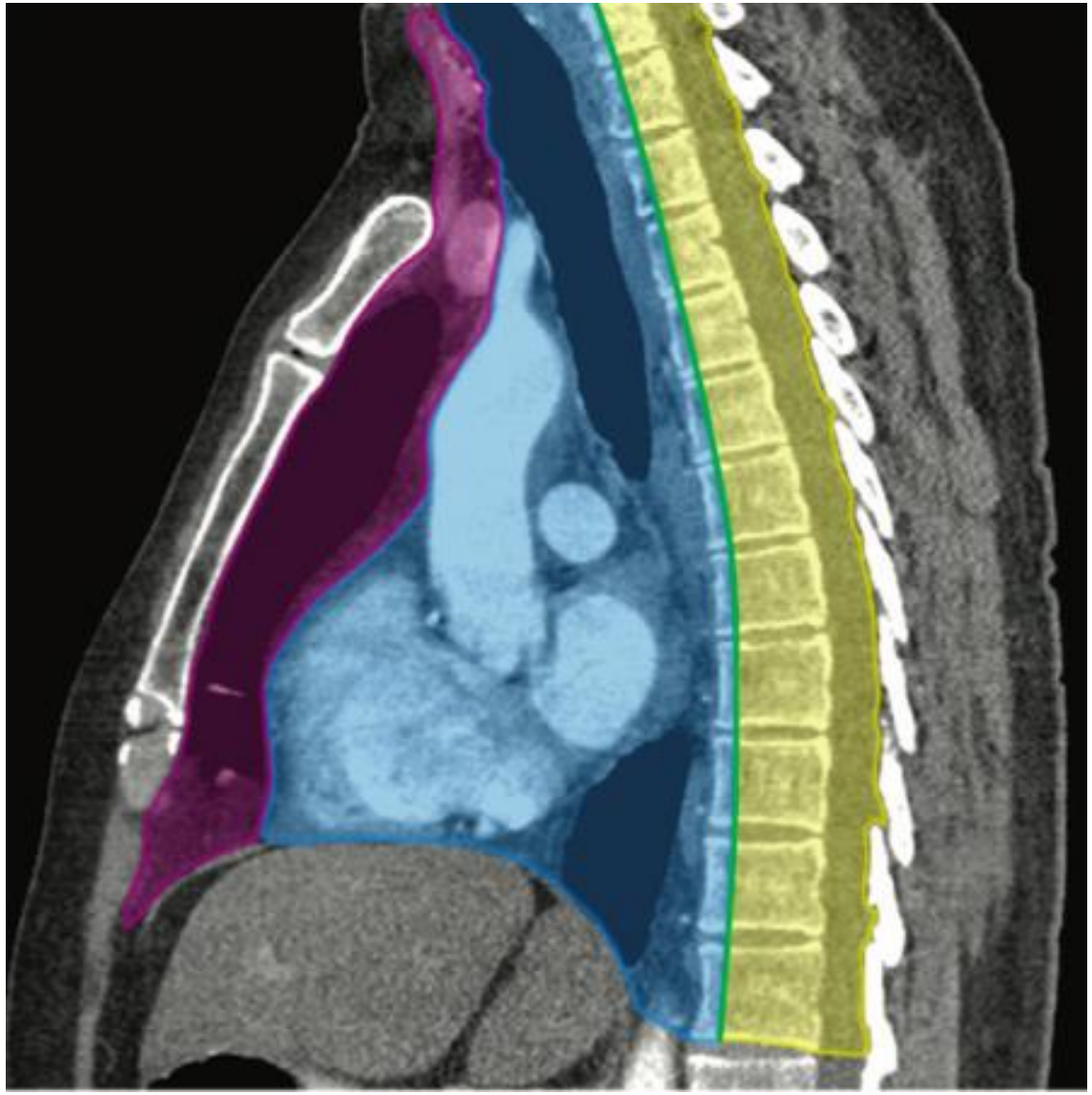
- Situated between the lungs in the centre of the thorax
- It extends from the thoracic inlet above to the central tendon of the diaphragm below
- With the sternum anteriorly,the thoracic spine posteriorly and the parietal pleura laterally

CLASSIFICATION OF MEDIASTINUM

- ITMIG classification
- Felson’s classification
- Anatomical classification

INTERNATIONAL THYMIC MALIGNANCY INTEREST GROUP CLASSIFICATION OF MEDAISTINUM

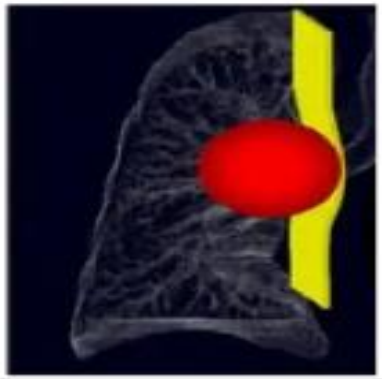
Compartment	Boundaries
Prevascular	Superior: thoracic inlet Inferior: diaphragm Anterior: sternum Lateral: parietal mediastinal pleura Posterior: anterior aspect of the pericardium as it wraps around the heart in a curvilinear fashion
Visceral	Superior: thoracic inlet Inferior: diaphragm Anterior: posterior boundaries of the prevascular compartment Posterior: vertical line connecting a point on each thoracic vertebral body 1 cm posterior to its anterior margin
Paravertebral	Superior: thoracic inlet Inferior: diaphragm Anterior: posterior boundaries of the visceral compartment Posterolateral: vertical line against the posterior margin of the chest wall at the lateral margin of the transverse process of the thoracic spine



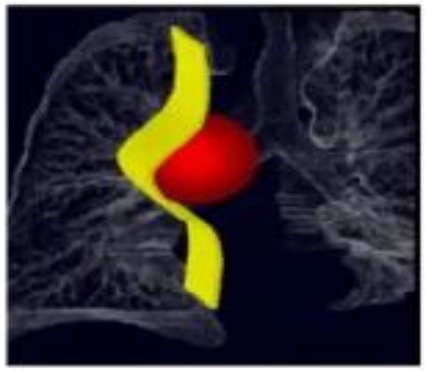
MEDIASTINAL LESIONS

	Lesions	Fluid	Fat	Vascular
Anterior	Thymic Lymphoma Germ Cell Goiter	Thymic C Thymoma Pericardial C Germ Cell Lymphoma	Germ cell-b Thymolipoma Fat Pad	Thyroid Cardiac Coronary
Middle	Lymph nodes Duplication C Arch anomaly	Duplication C Necrotic nodes Pericard recess Retroperitoneal	Lipoma Esophageal FV polyp	Arch anomaly Azygous Vein Vascular nodes
Posterior	Neurogenic Bone and marrow	Neuroenteric C Schwannoma Meningocoele	Extramedullary Hematopoiesis	Desc Aorta
>1 comp	Infection Hemorrhage Lung Cancer	Lymphangioma Mediastinitis	Liposarcoma	Hemangioma

LUNG vs MEDIASTINAL MASS

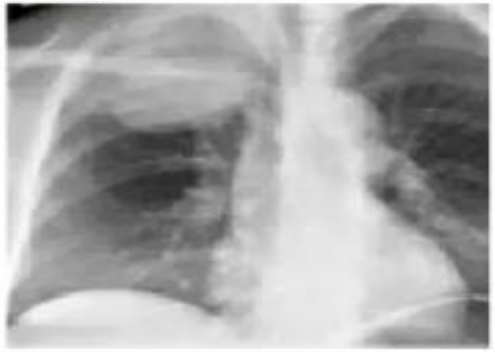


A lung mass abutts the mediastinal surface and creates acutes angle with the lung

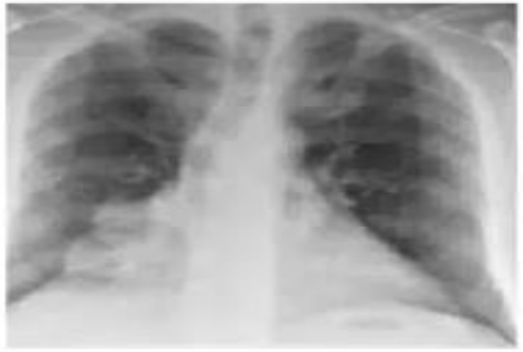


A mediastinal mass will sit under the surface of the mediastinum, creating obtuse angles with the lung

Example :



There is a lesion that has an acute angle border with the mediastinum (This must be lung mass)



There is a lesion with an obtuse angle to the mediastinum (This must be a mediastinal mass)

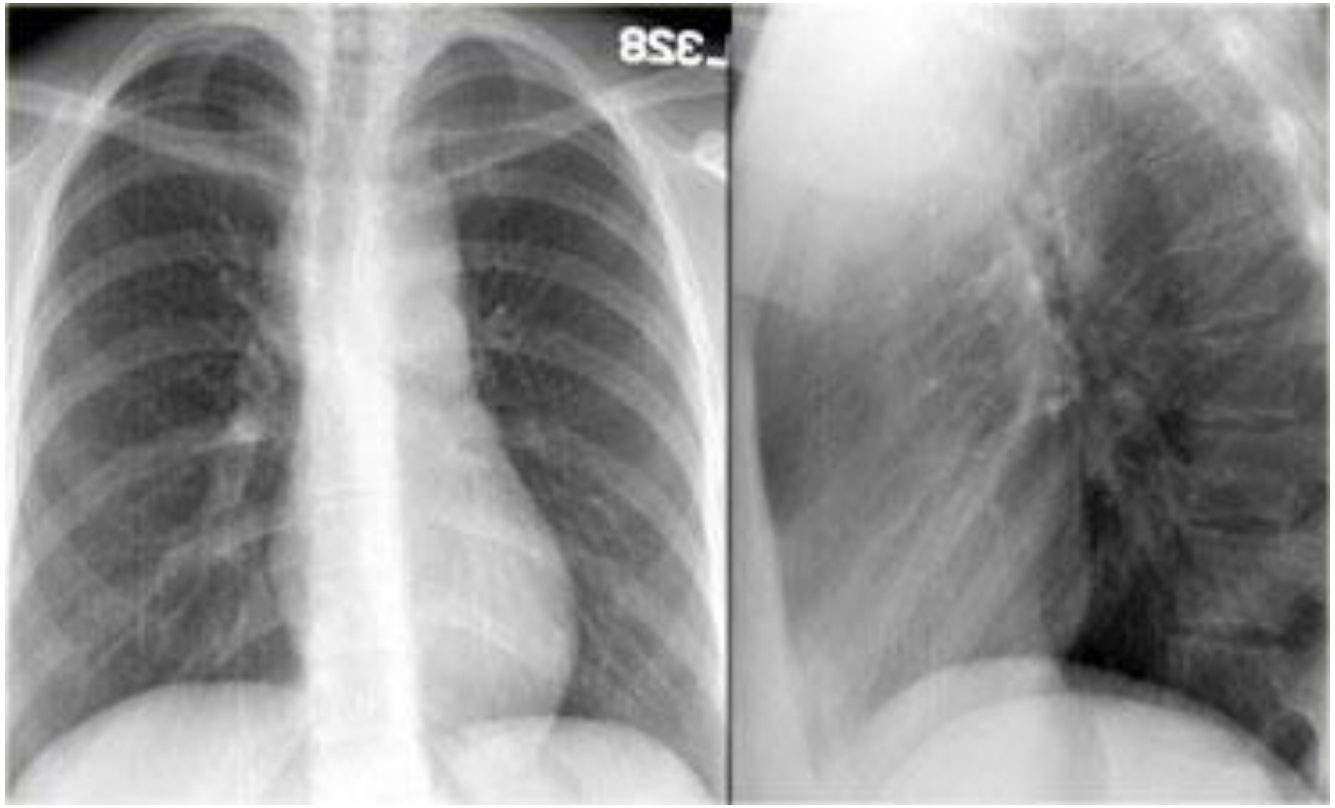
ANTERIOR MEDIATINAL LEISONS

	Anterior mediastinal masses	ular
Anterio	*On conventional radiographs look for:* › Displaced anterior junction line › Obliterated cardiophrenic angles › Obliterated retrosternal clear space › Hilum Overlay sign › Effacement/dense ascending aorta	id ic ary

ANTERIOR MEDIASTINAL MASS

On the PA film there is a lobulated widening of the superior mediastinum.

On the lateral chest film the retrosternal clear space is obliterated.



HILAR OVERLAY SIGN

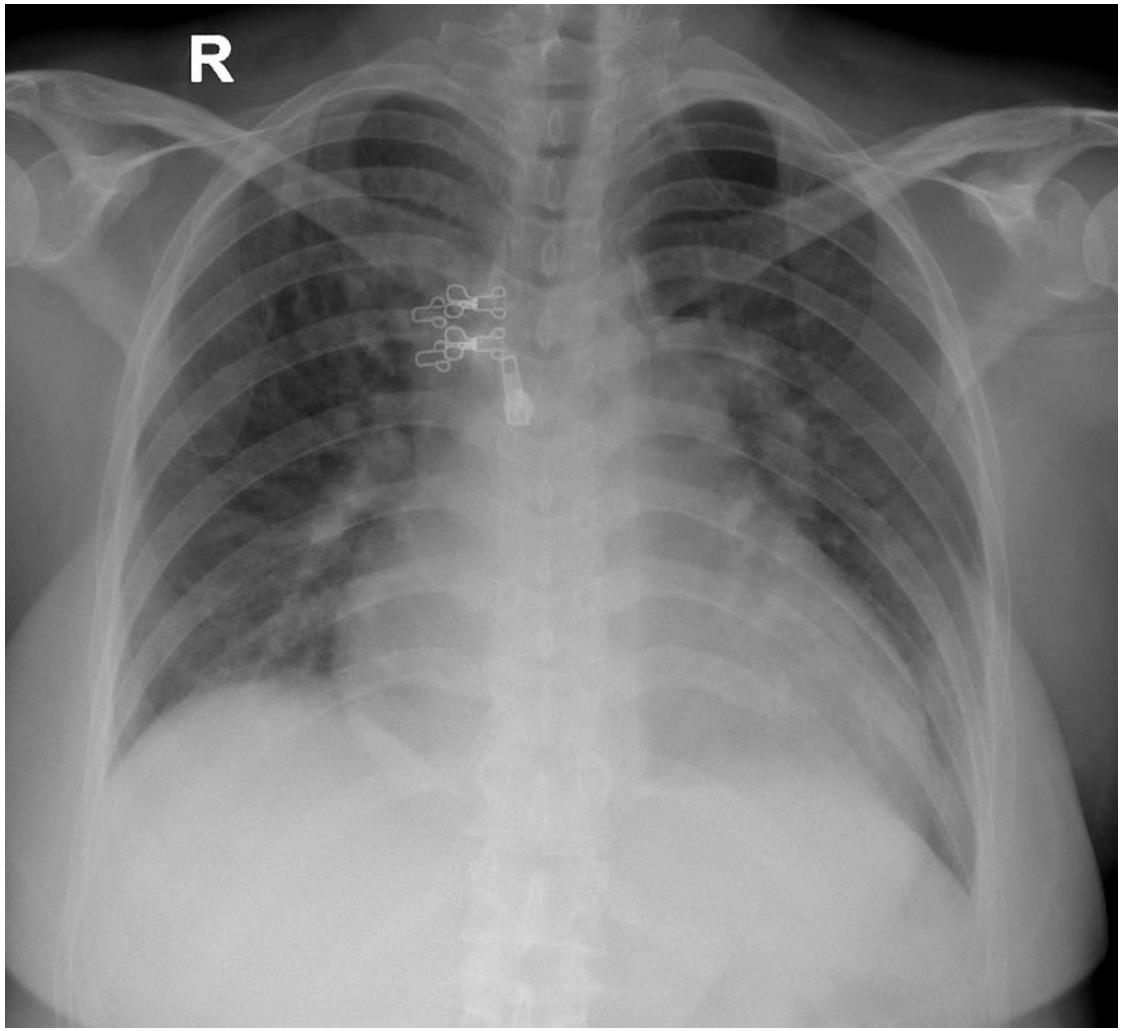
When there is a mediastinal mass and the hilar vessels are seen through the mass, then the mass does not arise from the hilum. It lies either in anterior or posterior mediastinum.
This is known as the hilum overlay sign.

HILUM CONVERGENCE SIGN

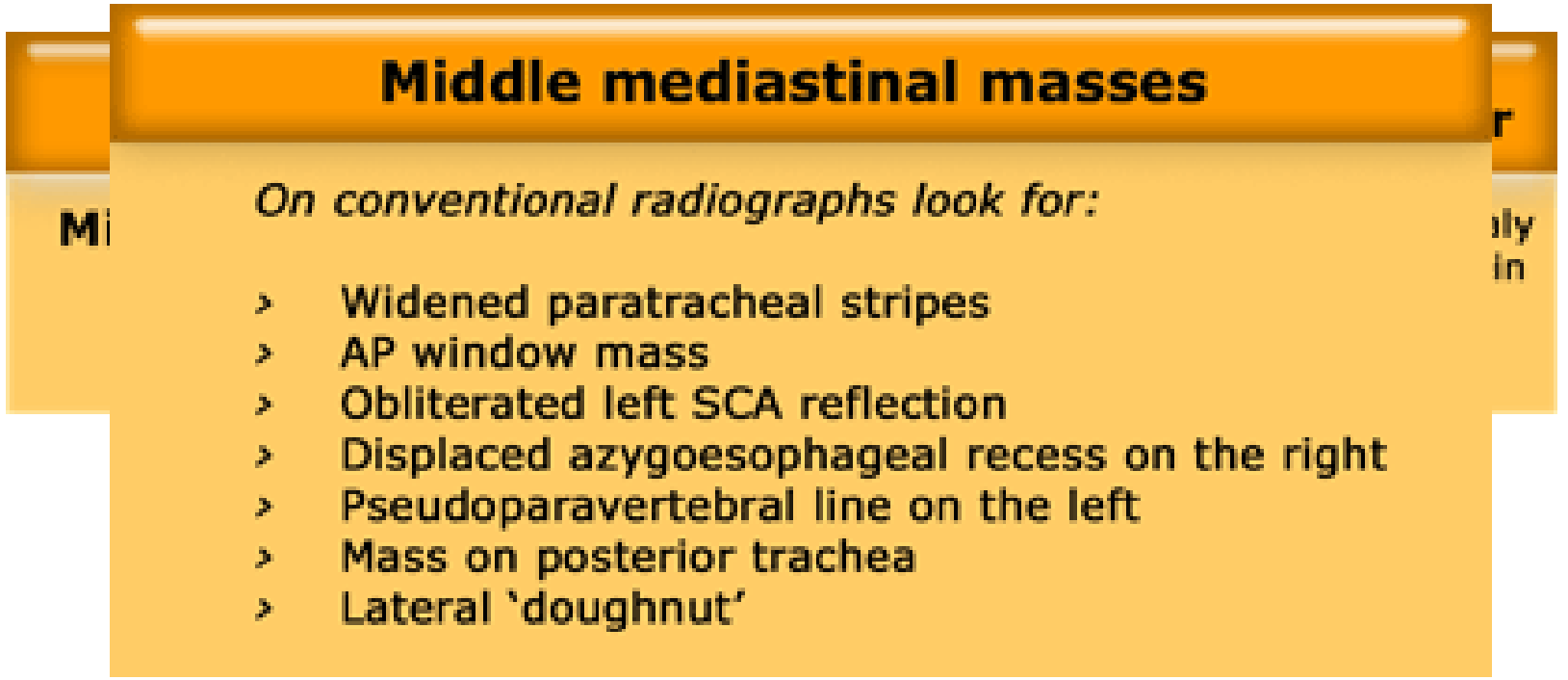
To distinguish between enlarged pulmonary artery and mediastinal mass.

If branches of the pulmonary artery converges toward a central mass – enlarged pulmonary artery.

If branches of pulmonary artery converge towards the heart rather than the central mass- mediastinal tumor.



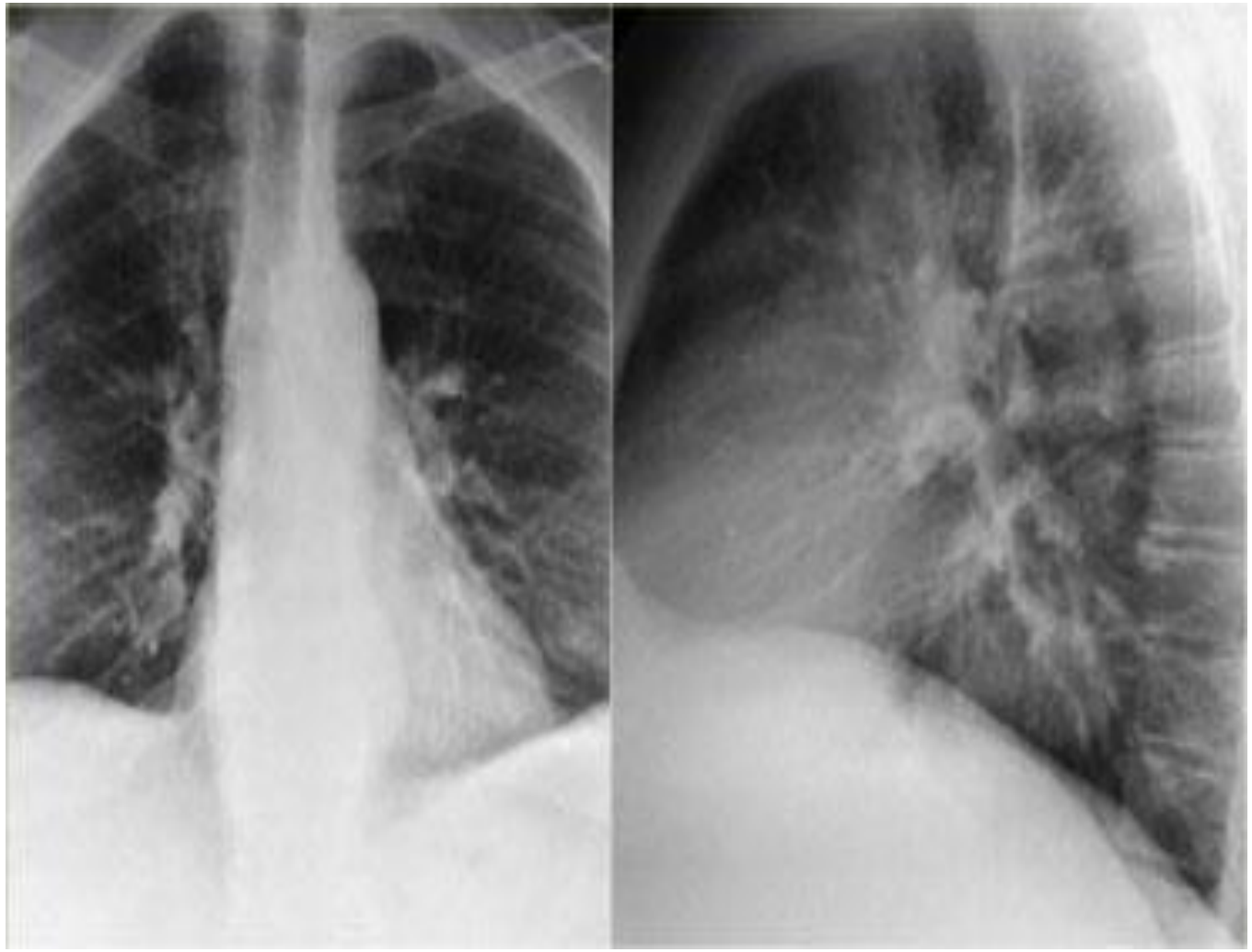
MIDDLE MEDIASTINAL LEISONS



MIDDLE MEDIASTINAL MASS

On the AP chest radiograph of this patient there is widening of the azygoesophageal recess on the right. There is an apparent widening of the paravertebral line on the left.

On the lateral film the mass is anterior to the spine and therefore is located in the middle mediastinal.



POSTERIOR MEDIASTINAL LESIONS

	Lesions	Fluid	Fat	Vascular
Posterior	Neurogenic Bone and marrow	Neuroenteric C Schwannoma Meningocoele	Extramedullary Hematopoiesis	Desc Aorta

Posterior mediastinal mass

- Conventional radiograph:

➢Cervicothoracic Sign
➢Widening of the paravertebral stripes

CERVICO THORACIC SIGN

- Used to describe the location of a lesion at the inlet of the thoracic cavity.
- In this anatomical space, the posterior portions of the lung apices are located more superiorly than the anterior portions .
- A lesion clearly visible above the clavicles on the frontal view must lie posteriorly and be entirely within the thorax.
- If the cranial border of the lesion is obscured at or below the level of the clavicles, it is located at the anterior mediastinum

MAGNIFIED IMAGE

CARCINOSARCOMA

- Carcinosarcomas highly malignant biphasic tumors with both carcinomatous (epithelial) and sarcomatous (bone, cartilage, or skeletal muscle) components.
- The sarcomatous component may have arisen from a pre-existing carcinoma through mesenchymal metaplasia.
- Location:
- Lung, esophagus, genitourinary tract, ovary,thyroid.
- Mediastinal carcinosarcomas are very rare.

Symptoms

- Cough, chest pain, difficulty in breathing and fever.
- However, when there is tumour invasion or compression to surrounding structures, there could also be other symptoms such as respiratory compromise, dysphagia, Horner's syndrome or superior vena cava syndrome.

- Gold standard for diagnosis is Biopsy.

IMAGING

1)CHEST RADIOGRAPH:

Mediastinal mass.

2)CT:

Evaluation of the anatomical location of the lesions, extent of the disease, tissue invasion and tissue density.

3) MRI:

Superior to CT scan to identify nerve plexus and blood vessels, to distinguish tissue planes and invasions.

Treatment and Prognosis

- Surgical resection of the is the mainstay treatment.
- Poor prognosis