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What are the most common middle mediastinal masses?

The most common middle mediastinal masses consist of enlarged lymph nodes, foregut duplication cysts and aortic arch anomalies. Lymphadenopathy should be the first thing to consider for middle mediastinal masses but you must exclude other processes as well.

What are two fat containing masses that can present in the middle mediastinum?

Lipomas and esophageal fibrovascular polyps are fat containing masses that can present in the middle mediastinum.

What are some vascular processes that can present as middle mediastinal masses?

Aortic arch anomalies such as aortic arch duplication and interrupted inferior vena cava with azygous continuation can present as middle mediastinal masses.

What are some subtypes of foregut duplication cysts?

Mediastinal foregut duplication cysts are most often bronchogenic in etiology with respiratory epithelium and have a propensity for infection which should be suspected if an air-fluid level is seen. Bronchogenic cysts most commonly do not communicate with the bronchial tree and therefore are not commonly air-filled. If you see an air-fluid level within a cyst, however, you need to be concerned about the possibility of an infected bronchogenic cyst which can be a manifestation as well that communication with the bronchial tree has now formed as a sequelae of infection. On imaging look for a rounded fluid or soft tissue density mass that can cause compression of adjacent structures and if airways are compressed is one cause of a hyperlucent hemithorax. Sometimes you can see layering milk of calcium within the cyst.

Mediastinal foregut duplication cysts can also be of esophageal origin and these may have a propensity to bleed due to ectopic gastric mucosa and normally have pseudostratified columnar epithelium. Esophageal foregut duplication cysts are more common on the right aspect of the mediastinum. These can cause symptoms of dysphagia due to esophageal compression.

Note that neurenteric cysts also exist in the posterior mediastinum and are rare but have a hallmark of communication with the spinal canal and associated vertebral body anomalies.

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What are common differential considerations for posterior mediastinal masses?

Most posterior mediastinal masses have a neurogenic etiology to include neuroblastomas, schwannomas and neurofibromas. Other considerations include extramedullary hematopoiesis in the setting of various causes of anemia, lymphadenopathy, neurenteric cysts as already discussed, meningoceles, descending aortic anomalies such as an aortic aneurysm, and bone processes related to the vertebrae to include discitis/osteomyelitis, Ewing sarcoma, chondrosarcoma and so forth.

A more extensive list of posterior mediastinal masses that are neurogenic tumors include neurofibromas, malignant peripheral nerve sheath tumors, schwannomas, paragangliomas, pheochromocytomas, chemodectomas, neuroblastomas, ganglioneuroblastomas and ganglioneuromas. You don't need to memorize all of these but I point this out to drive home the association between posterior mediastinal masses and neurogenic tumors.

Lastly, don't forget about hernias to include hiatal hernias and Bochdalek hernias that can present, although not exclusively, as a posterior mediastinal mass.

What is the cervicothoracic sign?

Basically, if you have a mass that arises above the level of the clavicles, and there is lung tissue anterior to the mass, then the location is in the posterior mediastinum. Note that the anterior mediastinum does not arise above the level of the clavicles.

What are causes of anemia that can be associated with extramedullary hematopoiesis?

Causes of anemia that can be associated with extramedullary hematopoiesis can include leukemia and lymphoma, myelofibrosis, polycythemia vera, sickle cell disease, hereditary spherocytosis and thalassemia.

True or false? Extramedullary hematopoiesis can present as a fat-containing mass.

True. Fat can be seen within sites of extramedullary hematopoiesis, especially if long-standing.

What must one consider prior to biopsy of a mass that may be related to extramedullary hematopoiesis?

Sites of extramedullary hematopoiesis may bleed as a result of biopsy. On a board exam question be cautious before recommending biopsy of a site of extramedullary hematopoiesis and, if tissue sampling must be performed, fine needle aspiration may be a better option compared to core needle biopsy.

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Besides the posterior mediastinum, what other locations can be involved with extramedullary hematopoiesis?

Extramedullary hematopoiesis can also commonly affect the liver and spleen and less commonly affect other tissues to include the adrenal glands, lungs, breasts, GI tract, skin, kidneys, brain and so forth. Perirenal soft tissue masses that can look similar to renal lymphoma can occur and is one way this can be tested on board exams. Also note that bony expansion, such as rib expansion, can occur.

What are differential considerations for masses that don't respect assigned mediastinal boundaries?

Note that mediastinal boundaries are arbitrary and there are no actual soft tissue structures or tissue planes that isolate tissues to one compartment versus another. However, when you see a mediastinal processes that crosses or encompasses multiple mediastinal compartments consider infection such as mediastinitis, malignancy to include primary lung malignancy, liposarcoma, and metastatic disease, mediastinal hematomas, and lymphangiomas.

What is a testable link between pancreatitis and middle mediastinal masses?

Occasionally, pancreatitis can cause a mediastinal fluid collection—an intrathoracic pancreatic pseudocyst—that can present as a mediastinal mass.

What is Castleman disease?

Castleman disease is angiofollicular lymph node hyperplasia which is a benign type of B-cell lymphoproliferation that causes a solitary or multicentric hypervascular lymphoid hyperplasia, with unicentric involvement being most common. If unicentric, classic presentation is in a younger population presenting with a thoracic mass (though can less commonly be seen in the neck or abdomen/pelvis) and if multicentric think older population with coexisting HIV and human herpesvirus 8 (HHV-8).

Treatment for unicentric Castleman disease is often surgical and multicentric may include surgery, chemotherapy, steroids and possibly antivirals. Note that there is a POEMS syndrome association with Castleman disease and multicentral disease often has additional symptoms to include fevers, night sweats, weight loss, and hepatosplenomegaly.

Diagnosis of Castleman disease is made by lymph node excision or biopsy following exclusion of other causes of lymphadenopathy.