Statement of Editorial Purpose
The Hospital Physician Pulmonary Disease Board Review Manual is a peer-reviewed study guide for fellows and practicing physicians preparing for board examinations in pulmonary disease. Each manual reviews a topic essential to current practice in the subspecialty of pulmonary disease.

Approach to Mediastinal Masses

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Cover Illustration by Catherine Twomey
INTRODUCTION

Mediastinal masses affect patients of all ages and can be asymptomatic. In fact, only approximately one third of mediastinal tumors cause symptoms. Consequently, a mediastinal mass is frequently first noted on a routine chest radiograph, although the plain radiograph is rarely diagnostic. When symptoms develop, patients can present with complaints related to compression of vital structures (e.g., cough or wheezing from bronchial compression, dysphagia from esophageal compression, superior vena cava syndrome from compression); pain from involvement of bone, pleura, or pericardium; diaphragmatic paralysis or vocal cord paralysis due to involvement of the phrenic nerves or recurrent laryngeal nerves, respectively; limb paralysis due to involvement of the spinal column; or constitutional complaints. Both localized disorders (e.g., primary tumors or cysts) and systemic diseases, including metastatic neoplasms and granulomas, can be responsible for mediastinal masses.

Although several techniques for obtaining tissue for the diagnosis of mediastinal masses are available, neither guidelines nor a standard of care approach to evaluating these masses has been developed. Due to the diversity of the structures within the mediastinum, the wide variety of histologic types of mediastinal masses, and the relative difficulty in gaining access for diagnostic examination, masses in the mediastinum can present a diagnostic and management challenge. In this manual, we review the diagnostic entities to be considered and typical diagnostic approaches used in patients who present with mediastinal masses.

ANATOMIC CONSIDERATIONS

The mediastinum is located in the center of the thorax between the 2 pleural cavities, the diaphragm and the thoracic inlet. Although various divisions of the mediastinum exist, most clinicians use Fraser et al’s classification in which the mediastinum as visualized on a lateral radiograph is divided into anterior, middle, and posterior compartments (Figure 1). The anterior mediastinal compartment is bounded anteriorly by the sternum and posteriorly by the pericardium, aorta, and brachiocephalic vessels. The compartment contains the thymus gland, branches of the internal mammary artery and vein, lymph nodes, the inferior sternopericardial ligament, and variable amounts of fat. The middle mediastinal compartment contains the pericardium and its contents, the ascending aorta and the aortic arch, the superior and inferior vena cava, the brachiocephalic (innominate) arteries and veins, the phrenic nerves and cephalad portion of the vagus nerves, the trachea and main bronchi and their regional lymph nodes, and the pulmonary arteries and veins. The posterior mediastinal compartment is bounded anteriorly by the pericardium and the vertical part of the diaphragm, laterally by the mediastinal pleura, and posteriorly by the bodies of the thoracic vertebrae. It contains the descending thoracic aorta, esophagus, thoracic duct, azygos and hemiazygos veins, autonomic nerves, fat, and lymph nodes.

When formulating the differential diagnosis of a mediastinal mass, the location of the mass should be considered because some disorders occur characteristically in certain compartments (Table 1).

APPROACH TO EVALUATION

The diagnosis of mediastinal disorders may be approached in 2 phases: noninvasive imaging techniques and invasive procedures for tissue sampling. All patients should have a detailed history and physical examination before a major work-up is initiated. Symptoms or signs of myasthenia gravis may obviate the need for preliminary biopsy, and patients with these findings can be referred for excision of the mass. A palpable superficial lymph node may suggest a metastatic disease or lymphoma, again obviating the need for sampling the mediastinal mass. A palpable thyroid may suggest mediastinal extension of a cervical goiter. A testicular examination should be done in all male patients with an anterior mediastinal mass. If there is any doubt whether a mass is present, ultrasound evaluation of the
scrotum should be performed before invasive tests in the chest are performed.

Most mediastinal abnormalities are first detected by standard posteroanterior and lateral chest radiographs. Whenever a mediastinal mass is detected on plain films, a computed tomography (CT) scan of the chest is generally indicated. Most patients with a mediastinal mass who present to a pulmonologist will likely already have had a CT scan of the chest. We recommend that a CT scan of the chest with intravenous contrast media be obtained in those who have not had a scan. Although some centers use intravenous contrast routinely to evaluate the mediastinum, it is only required for optimal evaluation of the hila. Demonstration of the status of the intrathoracic blood vessels is the major indication for magnetic resonance imaging (MRI) of the mediastinum. Also, MRI provides better soft tissue differentiation than CT, and therefore it may offer better characterization of cysts and adenomas (Table 2). MRI should be considered in patients who cannot receive iodinated intravenous contrast.

In most patients with a mediastinal mass, an invasive procedure is required to obtain a diagnostic tissue sample (Table 3). Tissue sampling is always necessary in patients with suspected lymphoma (which can occur in any mediastinal compartment), lymphadenopathy (which would suggest metastatic disease or lymphoma), or positive serologic tests for α-fetoprotein (AFP) or β-human chorionic gonadotropin (β-HCG, which would suggest nonseminomatous malignant germ cell tumors). If lymphoma is an important differential diagnosis, a definitive biopsy (not fine-needle aspiration or core needle biopsy) generally should be performed. Patient characteristics (e.g., performance status, age) must be considered when deciding how invasive the biopsy approach will be. If fine-needle aspiration and/or core needle biopsy are to be attempted, we favor either transbronchial biopsy, ideally utilizing endobronchial ultrasound (EBUS), or CT-guided biopsy based on proximity. Endoscopic ultrasonography-guided biopsy should be considered, also based on proximity to the esophagus, in centers where there is experience with this procedure.

**MIDDLE MEDIASTINAL MASS**

**CASE PRESENTATION 1**

A 25-year-old woman presents with a complaint of heartburn, dysphagia, and mid-chest discomfort of 3 weeks’ duration. She has not experienced fever, chills, night sweats, or significant weight loss. The patient is a native of India and immigrated to the United States at 11 years of age. She has never smoked. Eight years prior to presentation, she had a nonreactive tuberculin skin test using purified protein derivative (PPD). Physical examination reveals normal vital signs, no palpable lymph nodes, and clear lungs on auscultation.

An initial portable anteroposterior radiograph is normal. A barium swallow examination demonstrates a focal ulceration of the mid portion of the esophagus without perforation. Esophagogastroduodenoscopy (EGD) demonstrates an esophageal ulceration with fistula formation. A chest CT scan with intravenous contrast is obtained to further evaluate for involvement of adjacent organs and reveals a $2.3 \times 3.4 \times 5.0$ cm enhancing subcarinal mass inseparable from the esophagus (Figure 2, see page 6) as well as compression of the right pulmonary artery.

- What diagnoses should be considered when evaluating a middle mediastinal mass?
**Table 1. Differential Diagnosis of Mediastinal Mass by Compartment**

<table>
<thead>
<tr>
<th>Anterior Mediastinum</th>
<th>Middle Mediastinum</th>
<th>Posterior Mediastinum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thymic diseases: thymoma, thymic carcinoma, thymic carcinoid, thymolipoma, non-neoplastic thymic cysts</td>
<td>Lymphadenopathy: reactive and granulomatous inflammation (eg, tuberculosis or fungal diseases, metastasis)</td>
<td>Neurogenic tumors arising from peripheral nerves, sympathetic ganglia, or paraganglionic tissue</td>
</tr>
<tr>
<td>Lymphoma: Hodgkin’s disease, non-Hodgkin’s lymphoma</td>
<td>Developmental cysts: pericardial cyst, foregut duplication cysts (bronchogenic cyst, enteric cyst), others</td>
<td>Esophageal lesions: carcinoma, diverticula</td>
</tr>
<tr>
<td>Thyroid neoplasms</td>
<td>Vascular enlargements</td>
<td>Diaphragmatic hernia (Bochdalek)</td>
</tr>
<tr>
<td>Parathyroid neoplasms</td>
<td>Diaphragmatic hernia (Morgagni)</td>
<td>Miscellaneous</td>
</tr>
<tr>
<td>Mesenchymal tumors: lipoma, fibroma, lymphangioma, hemangioma, mesothelioma, others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diaphragmatic hernia (Morgagni)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary carcinoma</td>
<td></td>
<td></td>
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<tr>
<td>Angiofollicular lymphoid hyperplasia (Castleman’s disease)</td>
<td></td>
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**Differential Diagnosis**

**Lymphomas**

The differential diagnosis of a middle mediastinal mass is summarized in Table 1. Lymphoma is one of the most common mediastinal tumors, representing 10% to 15% of all mediastinal masses,7,8 and presents more frequently as a generalized disease, although it may manifest as a primary mediastinal disease.9–11 In patients with peripheral lymphoma and mediastinal involvement, 50% to 70% have Hodgkin’s disease (HD) and 15% to 25% have non-Hodgkin’s lymphoma (NHL).9,12 Subtypes of HD include nodular sclerosis (the most common subtype),10 mixed cellularity, lymphocyte depletion, lymphocyte-rich classical, and nodular lymphocyte predominant. Nodular sclerosis HD has a predilection for the anterior mediastinum, especially the thymus.9,10,13 Only 20% to 30% of patients with HD present with fever, night sweats, and/or weight loss.14 Although HD may present with cough, wheezing, chest pain, and/or dyspnea due to invasion of or mass effect on mediastinal structures, up to 55% of patients may be asymptomatic, and these masses may be incidentally noted on radiographs obtained for other reasons.10 Large B-cell lymphoma and lymphoblastic lymphoma (variants of NHL) also have a predilection for the anterior mediastinum and are the most common primary mediastinal NHL.9,12

**Tuberculosis and Other Granulomatous Disorders**

Tuberculous lymphadenitis is another important consideration in this patient. Tuberculosis (TB) is responsible for up to 43% of all of peripheral lymphadenopathy in the developing world.15 In the United States, 5.4% of all TB cases are extrapulmonary, and 31% of these are lymphatic.16 In developed countries, 70% to 85% of patients with TB lymphadenitis are immigrants. The cervical region is most frequently involved, but mediastinal involvement occurs in approximately 27% of cases.17 Although some suggest that an isolated chronic nontender lymphadenopathy in a young adult without systemic symptoms is the most common presentation of tuberculous lymphadenitis,18 a series of 61 patients found that all patients had night sweats, weight loss, and weakness.17 In this same series, except for one HIV-positive patient, all patients had a positive PPD test. Most HIV-negative patients with tuberculous lymphadenitis have an remarkable chest radiograph.17,19 Tuberculous mediastinal lymphadenopathy presenting with dysphagia20 or esophageal perforation21 has been reported.

In patients with granulomatous mediastinitis secondary to histoplasmosis, symptoms that include chest pain, cough, hemoptysis, and dyspnea may be caused by compression of the airways, superior vena cava, or pulmonary vessels.22 Involvement of the esophagus may result in dysphagia, odynophagia, or chest pain but only occasionally leads to the development of bronchoesophageal or tracheoesophageal fistulas.23,24

**Developmental Cysts**

Mediastinal cysts account for 18% of mediastinal masses.25 Foregut duplication cysts, which are frequently the reference for bronchogenic and enteric cysts, are typically found near the large airways, often just posterior to the carina.3 Bronchogenic cysts affect adults in their mid-thirties (mean age, 36 years), while enteric cysts are relatively uncommon in adults but are the
A p p r o a c h  t o  M e d i a s t i n a l  M a s s e s

most common cysts found in infants and children.5 Two thirds of patients with developmental cysts eventually develop local symptoms.25 Bronchogenic cysts generally present as a well-circumscribed mass without significant compressive effects and with variable CT density of its contents and a smooth, thin wall27; therefore, it is an unlikely diagnosis for this patient.

• What diagnostic testing is appropriate in this patient?

DIAGNOSTIC TESTING

Lymphoma is one of the leading differential diagnoses in this case, and fine-needle aspiration or core needle biopsy do not consistently provide sufficient tissue for histologic, immunologic, and molecular biologic assessment of this disease.28 Therefore, a surgical approach is appropriate for this patient.

CASE 1: FURTHER EVALUATION

A biopsy via cervical mediastinoscopy is performed, and the specimen demonstrates granulomatous inflammation with foci of caseation (Figure 3 and Figure 4). Special stains for fungus and mycobacterium are negative. Following this procedure, a PPD tuberculosis test is placed and is reactive (22 mm). A presumptive diagnosis of tuberculous lymphadenitis is made.

• Could this mass have been approached in a different way?

Retrospectively, a tuberculin skin test could have been performed before any invasive procedures were performed, especially if the patient’s immigration status had been taken into account. Most HIV-seronegative patients (this patient eventually tested negative for HIV infection) with tuberculous lymphadenitis are PPD positive.17–19 If this path had been chosen, one might have considered doing a bronchoscopy with transbronchial needle biopsy and aspiration before a mediastinoscopy because most patients with tuberculous lymphadenitis can be diagnosed with these procedures.17,29,30 Also, isolation of Mycobacterium tuberculosis is not necessary to make a diagnosis of tuberculous lymphadenitis because less than 50% of patients with this disorder have positive cultures.17 However, M. tuberculosis grew in this patient’s tissue culture after 4 weeks. In centers where pulmonologists feel comfortable doing transbronchial needle biopsy and aspiration, this path likely would have been taken. EBUS has the capability of visualizing the layers of the bronchial mucosa and can differentiate with reliability neighboring tumors or masses, lymph nodes, and vascular structures.31 In addition, EBUS-guided lymph node sampling has been shown to be superior to standard aspiration in all locations except the subcarinal region.32 EBUS-guided transbronchial fine-needle aspiration should be used where available to sample masses near to the tracheobronchial tree. In this case,
EBUS was probably not appropriate due to the subcarinal location of the mass. Alternatively, endoscopic ultrasound-guided fine-needle aspiration biopsy has shown promise in the diagnosis of mediastinal lesions located near the esophagus.33,34

**Figure 2.** Computed tomography scan of case patient 1 showing a subcarinal mass that is inseparable from the esophagus (solid arrow). The mass also demonstrates irregular enhancement with a central area of probable necrosis (dashed arrow).

**Figure 3.** Photomicrograph of a specimen of the subcarinal mediastinal mass from case patient 1. A single granuloma demonstrates central necrosis with surrounding palisaded epithelioid macrophages (hematoxylin and eosin-stained, 20×).

**Figure 4.** Photomicrograph of a specimen of the subcarinal mediastinal mass from case patient 1. A large area of necrosis is surrounded by a granulomatous chronic inflammatory infiltrate. Note the prominent giant cell (arrow) (hematoxylin and eosin-stained, 20×).

EBUS was probably not appropriate due to the subcarinal location of the mass. Alternatively, endoscopic ultrasound-guided fine-needle aspiration biopsy has shown promise in the diagnosis of mediastinal lesions located near the esophagus.33,34

**CASE PRESENTATION 2**

A 34-year-old African-American man with mild hypertension presents to the emergency department with acute-onset chest pain that began several hours prior to pre-sentation. He has no cough, dyspnea, fever, chills, night sweats, or weight loss. He is a lifelong nonsmoker. Physical examination reveals normal vital signs, no palpable lymph nodes, and clear lungs on auscultation.

An initial chest radiograph is normal. A CT angiogram of the chest does not demonstrate pulmonary embolism but does show a large anterior mediastinal mass (Figure 5).

- What diagnoses should be considered when evaluating an anterior mediastinal mass?

**DIFFERENTIAL DIAGNOSIS**

**Thymic Neoplasms**

The differential diagnosis of an anterior mediastinal mass is summarized in Table 1. Thymic tumors are the most common primary tumors of the anterior mediastinum, constituting 30% to 50% of all the masses in this location; thymomas are responsible for most of these.8,35–37 Most patients are adults older than 40 years, with equal sex predilection.35,36 Approximately 50% of patients with thymoma are asymptomatic at the time of diagnosis.8,39 At diagnosis, symptoms due to tumor-related syndromes or, more commonly, myasthenia gravis are present in up to one half of patients.40,41 Conversely, only 15% of patients with myasthenia gravis have a thymoma.42 All patients suspected to have thymoma, even if they are asymptomatic, should have a serum antiacetylcholine (Ach) receptor antibody level examined to exclude myasthenia gravis.43,44

Most thymomas arise in the upper anterior mediastinum but may project into the adjacent middle or...
Germ Cell Tumors

The anterior mediastinum is the most common extragonadal primary site of mediastinal germ cell tumors. These tumors account for 15% of anterior mediastinal tumors in adults aged 20 to 40 years and for 24% of tumors in children. Teratomas are the most common mediastinal germ cell tumors and they contain varying amounts of tissues derived from at least 2 of the 3 primitive germ layers: ectoderm (skin, hair, sweat glands, sebaceous material, or tooth-like structures), endoderm (respiratory or intestinal epithelium, or pancreatic tissue), and mesoderm (fat, cartilage, bone, or smooth muscle). Most teratomas are mature, without evidence of poorly differentiated or immature elements, and have little or no malignant potential. Patients are usually asymptomatic. Although rare, expectoration of hair (trichoptysis) or sebaceous debris is a pathognomonic sign of ruptured mediastinal teratoma. Rupture of the teratoma into the bronchi, pleura, pericardium, or lung can be precipitated by digestive enzymes secreted by intestinal mucosa or pancreatic tissue in the tumor. On chest radiograph, these tumors are rounded to lobulated, well-circumscribed...
antior mediastinal masses that often protrude into one lung field. On CT, mediastinal mature teratoma typically manifests as a heterogeneous anterior mediastinal mass with soft-tissue, fluid, fat, or calcium attenuation, or any combination of these findings. Fluid-containing cystic areas, fat, and calcification occur frequently. The findings of fat and fluid levels produced by high lipid content in the cyst fluid are diagnostic for teratoma but are rare.

Although primary mediastinal seminomas are uncommon, representing only 2% to 4% of all mediastinal masses, they account for 25% to 50% of malignant mediastinal germ cell tumors of single histology. Most patients are in their third and fourth decades, and about 30% are asymptomatic at the time of initial diagnosis. On radiologic imaging, seminomas manifest as a bulky lobulated homogeneous anterior mediastinal mass, infrequently invading adjacent structures.

Choriocarcinomas, embryonal carcinomas, endodermal sinus tumors, teratocarcinomas, and malignant teratomas are commonly grouped together as malignant germ cell tumors that are not pure seminomas. These rare malignant tumors are found in the anterior mediastinum, often in association with the thymus, and typically cause symptoms in young men. Radiologically, these are large, irregular masses, frequently with significant heterogeneous areas of low attenuation due to necrosis, hemorrhage, and/or cyst formation. Pleural and pericardial effusions are commonly present.

Lymphomas

Patients with HD typically present with cervical or supraclavicular lymphadenopathy. Patients with HD who present with mediastinal involvement are usually younger than those who present without mediastinal disease (29 years versus 38 years). Most patients with HD who have an abnormal chest radiograph have bilateral asymmetric nodal disease. The prevascular and paratracheal nodes are the most commonly affected nodes, and only 15% of patients with intrathoracic HD have enlargement of a single lymph node group. Bulky nodal mediastinal disease can be caused by both HD and NHL. NHL involves the anterior mediastinum less frequently than HD. Also, NHL has a greater tendency to noncontiguously spread to the middle and posterior mediastinum.

Goiter

Despite the frequency of goiter, mediastinal goiter represents only 10% of mediastinal masses in surgical series. Cervical goiters may descend into the thorax in 5% to 24% of cases, generally into the left anterior superior mediastinum. Primary intrathoracic thyroid mass, either benign or malignant, developing from heterotopic tissue is extremely unusual. In a study of patients with a substernal goiter, the most common symptoms were cervical mass (69%), dysphagia (33%), and dyspnea (28%); 13% of patients were asymptomatic. Most patients with a substernal goiter have a palpable cervical mass (goiter) on examination. Radiologically, mediastinal goiter is an encapsulated, lobulated, heterogeneous tumor. The diagnostic radiologic feature is the clear continuity with the cervical thyroid gland.

Parathyroid Adenoma

Only 10% of parathyroid adenomas are ectopic, and almost half occur in the anterior mediastinum, usually near or within the thymus. They are encapsulated and rounded, usually measuring less than 3 cm, and on CT they may resemble a lymph node.

DIAGNOSTIC TESTING

As in case 1, this patient’s mediastinal disease was not detected on the chest radiograph. The CT scan, however, clearly demonstrated the presence of the mass in the anterior mediastinum. Based on the differential diagnosis, malignancy appears to be of greatest concern. Indeed, anterior mediastinal masses are more likely to be malignant than masses found in the other mediastinal compartments. In one series of 400 patients with cysts and neoplasms of the mediastinum, 59% of anterior masses were malignant, versus 29% and 16% of middle and posterior mediastinal masses, respectively. This patient’s current CT excludes mature teratoma, mediastinal goiter, and parathyroid adenoma with confidence. The causes of anterior mediastinal masses presented in Table 1 but not discussed above are very rare; thus, the leading differential diagnoses at this point should be lymphoma, thymoma, and germ cell tumors.

Serologic evaluation for Ach receptor antibodies, AFP, and β-HCG should be performed to exclude myasthenia gravis and nonseminomatous malignant germ cell tumors. However, lack of myasthenia gravis does not rule out thymoma. Also, this patient’s mass is located just anterior to the aortic root, the most common location of thymomas. Complete surgical resection is the mainstay of therapy for thymomas. Often, patients with primary mediastinal masses and cysts undergo surgical resection.
be benign (i.e., lesions that appear as cysts) and masses likely to be thymomas (resectable and nonmetastatic). These patients should undergo surgical resection. However, the presence of lymphadenopathy, which suggests lymphoma and/or metastatic disease, or positive AFP or β-HCG serologic test results, precludes surgical excision, and limited biopsy specimens should be obtained. As lymphoma appears to be the leading differential diagnoses, a surgical biopsy is the procedure of choice in this patient.

**CASE 2: DIAGNOSIS**

Testing reveals normal levels of Ach receptor antibodies and AFP, and a test for β-HCG is negative. A thoracic surgeon performs a cervical mediastinotomy with biopsy of the superomedial aspect of the mass. A diagnosis of HD, nodular sclerosis type, is established based on histologic examination of the sample (Figure 6 and Figure 7; see page 7).

**POSTERIOR MEDIASTINAL MASS**

**CASE PRESENTATION 3**

A 60-year-old man with known neurofibromatosis presents with a 5-day history of dysphagia. He also has a chronic left facial palsy with dysarthric speech due to excision of a left acoustic neuroma 28 years prior. His physical examination is essentially normal, except for left facial palsy. A chest radiograph obtained as part of his work-up demonstrates a prominent superior mediastinum. A CT scan of the chest shows multiple masses involving the posterior and middle mediastinum (Figure 8).

- What diagnoses should be considered when evaluating a posterior mediastinal mass?

**NEUROGENIC TUMORS**

Neurogenic tumors represent approximately 20% of all adult mediastinal neoplasms and are the most common cause of a posterior mediastinal mass. These tumors occur mainly in the posterior mediastinum, and they account for three quarters of primary posterior mediastinal neoplasms.

**Peripheral Nerve Tumors**

Schwannomas are the most common mediastinal neurogenic tumors, being responsible for 50% of mediastinal neurogenic tumors in adults. Mediastinal benign schwannoma originates from Schwann cells; both schwannoma and solitary neurofibroma affect patients of both sexes predominantly in their third and fourth decade of life. Most patients are asymptomatic, and 30% to 45% of neurofibromas occur in patients with neurofibromatosis. On imaging studies, neurofibromas and schwannomas are generally well-circumscribed homogenous or heterogeneous, spherical, lobulated paraspinal masses.

**Malignant Tumor of Nerve Sheath Origin**

These are rare spindle cell sarcomas that typically arise from a simple or plexiform neurofibroma (well-defined, nonencapsulated tumor that usually infiltrates along an entire nerve trunk or plexus), and approximately 50% occur in patients with neurofibromatosis. These tumors are typically seen on CT as spherical well-demarcated posterior mediastinal masses.

**SYMPATHETIC GANGLIA TUMORS**

These tumors include ganglioneuroma, ganglioneuroblastoma, and neuroblastoma. They are rare tumors occurring mainly in children and are beyond the scope of this discussion.

**LATERAL THORACIC MENINGOCOELE**

Also known as intrathoracic meningocele, lateral thoracic meningocele is a protrusion of the spinal meninges through an intervertebral foramen, which is usually asymptomatic. Sixty to 75% of affected patients have neurofibromatosis. On chest radiography, lateral thoracic meningocele manifests as a well-defined paravertebral mass, usually associated with osseous abnormalities such as pressure erosion of the posterior...
Approach to Mediastinal Masses

vertebral body, widening of neural foramina, and kyphoscoliosis. The lesions typically measure 2 to 3 cm. On CT and MRI, continuity between the cerebrospinal fluid in the meningocele and that contained in the thecal sac as well as water attenuation or signal characteristics consistent with fluid can be demonstrated. The other causes of posterior mediastinal masses shown in Table 1 are quite rare.

- Are additional studies needed to diagnose this posterior mediastinal mass?

Multiple neurogenic tumors or a single plexiform neurofibroma is pathognomonic of neurofibromatosis. Considering the established diagnosis of neurofibromatosis, this posterior mediastinal mass as well as the other intrathoracic masses most likely represent neurofibromas, and tissue diagnosis is not necessary. Asymptomatic schwannomas and neurofibromas do not need to be treated. If symptomatic, the treatment of choice is complete surgical resection, either thoracoscopically or via thoracotomy. In this patient, it must be determined whether any of these intrathoracic tumors is responsible for his dysphagia.

CASE 3: DIAGNOSTIC TESTING

MRI of brain and neck demonstrates multiple mass-like lesions at the cerebellar pontine angle, jugular fossa, and left occipital areas, among others. It is felt that his posterior mediastinal mass is not responsible for his symptoms. The patient undergoes neurosurgical evaluation.

CONCLUSION

There are multiple causes of mediastinal masses, but the differential diagnosis can be narrowed based upon the compartment of presentation and the appearance of the mass on CT scan. When tissue diagnosis is required, selection from among the various biopsy procedures is based upon patient characteristics, the nature of the lesion, and its location.

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REFERENCES


