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EDITORIAL COMMENTARY

A posterior mediastinal mass is not always what it seems

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Central Message

A posterior mediastinal chordoma is a malignant tumor, which may be mistaken for a schwannoma. This tumor usually requires a combined anterior and posterior approach for complete resection.

See Article page e75.

When referred an adult patient with a posterior mediastinal mass, a thoracic surgeon will usually envision a rather simple operation for its removal. Indeed, this is commonly the case as most tumors in this location are benign schwannomas, which are relatively avascular and usually quite easy to separate from the spine. The primary approach for these tumors is often a minimally invasive one, and both video- and robotic-assisted thoracoscopic approaches have been described.¹⁻³

However, not all posterior mediastinal tumors in adults are benign neurogenic ones. One such example is a chordoma, which is a slow-growing, locally invasive malignant tumor that usually extends into surrounding structures such as the spinal cord and mediastinum. The key to preoperative diagnosis of chordoma is the absence of a plane between the spine and tumor on computed tomography and magnetic resonance imaging (MRI) scans. When suspected, a preoperative biopsy is indicated, as is the ruling out of distant metastasis. Surgery is the principal treatment for these radioresistant tumors, and en bloc resection of chordomas has been shown to be associated with increased patient

survival.⁴ It is of utmost importance to ensure complete removal whenever possible, as up to 40% of chordomas tend to recur locally.⁵

However, this resection is frequently quite challenging but is possible thanks to modern spinal instrumentation, which allows complete resection and reconstruction for tumors at all levels of the spine. Although descriptions of anterior or posterior resections alone have been described, a combined anterior and posterior approach is usually necessary for these large vascular tumors that often affect multilevel vertebral bodies and may also involve mediastinal structures such as the aorta.⁶ These combined

procedures can be done simultaneously or in a staged fashion. The posterior approach achieves stabilization of the spine with instrumentation, and parting of the tumor from the posterior vertebral column. Likewise, the anterior approach achieves separation of the tumor and vertebral body from the adjacent mediastinal structures in addition to resection of adjacent ribs if necessary. Traditionally, the anterior approach has been performed through a posterolateral thoracotomy, although thoracoscopic procedures have also been described.^{7,8} Preoperative embolization may also be considered to reduce intraoperative bleeding.⁹

Kim and colleagues¹⁰ present a case report of a posterior mediastinal mass, assumed to be a schwannoma, which was approached by thoracotomy but was noted to be arising from the spine. The procedure was aborted because of extensive bleeding, and biopsy showed this tumor to be a chordoma. After obtaining MRI and positron emission tomography scans, the tumor was then resected en bloc by a 2-stage procedure of posterior midline incision followed by left thoracotomy. As this paper elegantly advises, the message here is that these posterior mediastinal masses can behave differently based on their location and diagnosis. It highlights the fact that, in all cases of paraspinal posterior mediastinal tumors, it is important to determine if there is tumor involvement of 2 important structures: the neural foramen and the vertebral body. A surgical team that

includes both thoracic and spine surgeons should be involved in either situation. It is therefore extremely important that all such patients be carefully discussed by a multidisciplinary team.

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