Lateral Thoracic Meningoceles
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Section: Neuroradiology
Imaging Technique: CT
Imaging Technique: MR
Imaging Technique: MR
Case Type: Clinical Cases
Authors: A Hall
Patient: 75 years, female

Clinical History:
Ex smoker investigated for dyspnoea and discovered to have paraspinal mass on chest radiograph.

Imaging Findings:
This 75 year old lady was referred to a respiratory physician for investigation of dyspnoea. She had a history of hypertension and was an ex-smoker. A diagnosis of chronic obstructive pulmonary disease was made but in the course of the investigations, a plain chest radiograph (fig 1) showed a right sided soft tissue density lesion adjacent to the mediastinum. A CT scan (fig 2) showed that the lesion was paravertebral and of fluid density. The patient proceeded to an MRI of the spine which confirmed these findings and also demonstrated similar lesions of varying size at multiple levels throughout the thoracic spine on both sides (fig. 3-5). The lesions are seen to originate from within the intervertebral foramina but exiting nerve roots cannot be specifically identified within them. Review of the clinical history and examination findings revealed no evidence of collagen disorders, and in particular, no evidence of neurofibromatosis.

Discussion:
The differential diagnosis for paraspinal masses in adults includes vertebral neoplasia and abscess, extramedullary haemopoiesis, ganglion cell tumours, or as in this case, lateral meningocele. Lateral thoracic meningoceles are typically discovered during middle age as incidental paraspinal masses although they can cause intercostal pain. They can occur at all levels, but are most common in the thoracic region, and are multiple in approximately 10% of cases. They represent outpouchings of dura and arachnoid through the intervertebral foramen and are commonly associated with neurofibromatosis type 1 (2/3 of patients with these have NF1) and also collagen disorders such as Marfans syndrome. In addition, several cases have been described where lateral meningoceles are seen in association with multiple abnormalities including osteosclerosis in the absence of NF or Marfans (Lehman syndrome). Their aetiology is uncertain however. Associated kyphoscoliosis, posterior vertebral scalloping, and widening of the intervertebral foramina may be evident on plain radiographs. The meningoceles fill with contrast during myelography, but this is unnecessary in most cases as MRI usually demonstrates that the lesion arises from the intervertebral foramen and follows CSF signal. Arachnoid pouches/diverticula represent localised dilatations of the dura and arachnoid of nerve root sheaths and are also frequently multiple and fill at myelography. They may be indistinguishable from small lateral meningoceles. Large neurofibromas with central necrosis may occasionally appear as cystic masses arising from the intervertebral foramen but these enhance with IV contrast unlike meningoceles.
**Differential Diagnosis List:** Multiple Lateral Thoracic Meningoceles

**Final Diagnosis:** Multiple Lateral Thoracic Meningoceles

**References:**

Nonneoplastic disorders of the spine and spinal cord.
In Osborn AG. Diagnostic Neuroradiology.
Mosby, p843.

Gripp KW et al.
Lateral thoracic meningocele syndrome: three new patients and review of the literature.

Philip N et al.
Multiple lateral meningoceles, distinctive facies and skeletal anomalies: a new case of Lehman syndrome

Maiuri F, Corriero G, Giampaglia F, Simonetti L.
Lateral thoracic meningocele.
Description: Frontal chest radiograph shows a soft tissue density opacity projected immediately to the right of the heart. Origin:
**Figure 2**

**Description:** The CT scan shows that there are actually bilateral paravertebral lesions at the level of the mass identified on CXR. They are smooth in outline and of fluid attenuation. **Origin:**
**Description:** These sagittal T2 weighted images show that several intervertebral foramina contain abnormal fluid filled lesions. **Origin:**
Description: Signal intensity on T1 and T2 weighted images confirms that the lesions are fluid filled.
Origin:
Description: T2 weighted axial image at the level of the mass identified on CXR and CT. This again illustrates bilateral fluid filled paravertebral masses but also shows that they originate from the intervertebral foramina. Origin:
Description: Similar but smaller lesions at a different level in the thoracic spine. Origin: