Anterior Mediastinal Cystic Lesion: Excise Rather than Delay

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Anterior mediastinal space-occupying lesions are not rare in the pediatric population. The differential diagnosis is wide and includes thymic lesions such as cysts, lipomas, hemorrhage, teratoma or lymphoma; bronchogenic or duplication cysts, pericardial cysts and lymphangiomata [1-3]. Usually these lesions will be found on plain X-ray performed for dyspnea or intercurrent illness. Once discovered, further investigation consists of sonography, computed tomography and magnetic resonance imaging. Even after further imaging, the diagnosis is sometimes not clearly evident [4,5] and depends on tissue samples. When the lesion is mostly cystic, tissue or cytological samples may be misleading due to sampling errors. This leads to a dilemma since the treatment for the various entities in the differential diagnosis varies. According to the nature of the lesion, a delay in diagnosis may lead to progressive compression of vital neighboring structures. We present a case in which we faced such a dilemma.

Patient Description

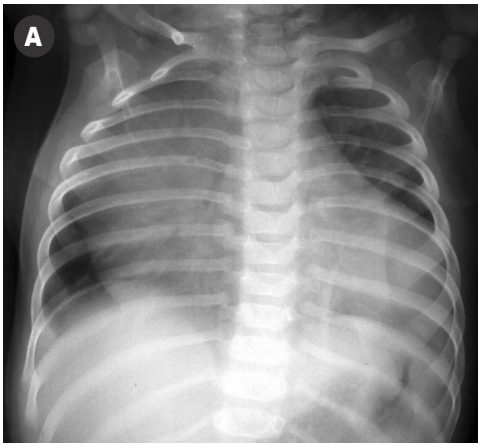
An 8 month old girl was diagnosed with an anterior mediastinal space-occupying lesion on plain radiograph performed for an unrelated viral illness [Figure A]. She was a previously healthy child born to unrelated parents. Her family history was normal except for pseudocholine esterase deficiency in one of her siblings. Further imaging studies at the referring hospital included sonography and computed tomography scan that showed a large anterior mediastinal, mostly cystic, mass with fluid of mixed consistency.

The primary diagnosis was of thymic lipoma or cyst and a course of steroids was initiated, with no effect. On subsequent CT scan the lesion appeared larger [Figure B] and compressed the bronchi, causing atelectasis. Because of the increase in size of the lesion and slight dyspnea, she was referred to our department. Physical examination on arrival revealed a slightly underweight baby who had minor dyspnea and pectus excavatum, but was otherwise normal. Routine blood analysis was unremarkable and pseudocholine esterase deficiency was ruled out. An echocardiogram demonstrated a mostly cystic septated anterior mediastinal mass enveloping the great vessels but not compressing the precordium. A right thoracotomy demonstrated a huge cystic lesion filled with "chocolate stained" fluid. Complete excision of the mass was achieved through this approach and the child recovered uneventfully. The pathology report was of a lymphangioma. At 12 months after the operation, the child is well with no evidence of recurrence.

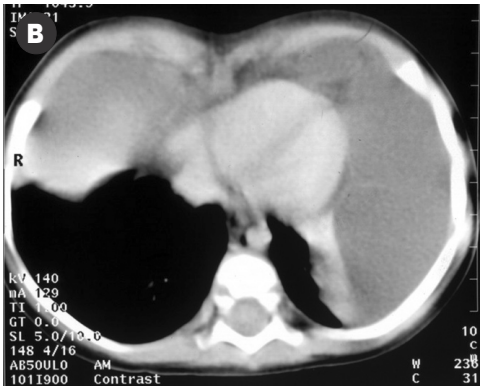
Comment

Anterior mediastinal masses discovered incidentally are not rare in the infant population. If further imaging is not conclusive, tissue diagnosis is imperative for deciding on the appropriate treatment since the differential diagnosis is wide [1-5]. If the lesion is mostly cystic, tissue or fluid sampling may be misleading, especially if the lesion is very large – as in our case. Also, these lesions may compress neighboring structures and in the event of rapid expansion they may become life threatening. Therefore, when faced with such a lesion, the treating physicians and surgeons should consider a prompt operation with excision as the primary management.

As seen in our case, delay in excision because of a presumed diagnosis based on imaging studies may be hazardous, since the diagnosis may be incorrect and the lesion may grow and become symptomatic. Surgical excision, even when the lesion is very large, is feasible in most cases and provides adequate tissue diagnosis. We



[A] Chest radiograph showing a large mildly radio-opaque mass occupying the anterior mediastinum bilaterally, obscuring the right and lower left heart border.



[B] Contrast-enhanced CT scan of the lower chest showing the large cystic mass containing high density fluid. The mass encircles the heart bilaterally and anteriorly, and a left lower lobe atelectasis is demonstrated along its posterior border on the left.

achieved the excision via a right thoracotomy and not a mid-sternotomy because of our experience with this approach and the ease of accessing the whole thorax of an infant through a thoracotomy, but the surgeon should choose the approach that will ensure the patient's safety and according to his or her own experience. In our case, since the lesion was benign, excision was also curative and prevented additional complications that may have arisen with further delay.

References

1. Sumner TE, Volberg FM, Kiser PE, Shaffner LD. Mediastinal cystic hygroma in children. *Pediatr Radiol* 1981;11:160–2.
2. De Caluwe D, Ahmed M, Puri P. Cervical thymic cysts. *Pediatr Surg Int* 2002;18:477–9.
3. Bees NR, Richards SW, Fearne C, Drake DP, Dicks-Mireaux C. Neonatal thymic hemorrhage. *Br J Radiol* 1997;70:210–12.
4. Swischuk LE, Hoeffel JC, John SD. Primary intrathoracic lymphangioma masquerading as teratoma. *Pediatr Radiol* 1996;26:827–9.
5. Shaffer K, Rosado de Christenson ML, Patz EF, Young S, Farver CF. Thoracic lymphangioma in adults: CT and MR imaging features. *Am J Roentgenol* 1994;162:283–9.

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