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
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

Correspondence: Dr. D. Arbell, Dept. of Pediatric Surgery, Hadassah University Hospital, P.O. Box 12000, Jerusalem 91120, Israel
Phone: (972-2) 677-6965
Fax: (972-2) 644-6483
email: arbell@hadassah.org.il

Capsule

Trends in teamwork

Currently, many scientists find themselves involved in team-based projects in their research, patenting, or writing. However, little is known regarding the effects of the extent of team participation. Wuchty et al. used data of 20 million scientific papers (appearing between 1955 and 2000) and 2 million patents (from 1975 to 1999) to investigate how the production of scientific knowledge and patents has changed with regard to teamwork. The size of research teams is growing and single-authored papers or patents are becoming rarer, not only in the sciences and engineering, the social sciences, and patenting, but also in areas that have traditionally been considered to be the domain of individuals, such as mathematics. The same trend is also becoming apparent in the arts and humanities. On average, teams produced more highly cited papers and patents, and this difference is increasing annually.

Science 2007;316:1036
Eitan Israeli

Pharmaceutical Medicine Program at the School of Continuing Medical Education, Tel Aviv University

The course will take place every Tuesday, between 14.00 and 20.00
Starting date: 30 October 2007

At present, a huge amount of basic research knowledge is available worldwide and specifically in Israel. Nonetheless, the process of translating this knowledge into medical products is going at too slow a pace, although the growth rate of the Israeli Biomedical Industry is among the highest in the world. The slow pace stems from the complexity of the process (harmonizing applicative research, regulation and business requirements) on the one hand, and the lack of qualified and trained people in the drug and device development process on the other. In order to address the Industry’s needs for qualified medical personnel, the Pharmaceutical Medicine Program of Tel Aviv University was created. Prominent figures from the academic world and the biomedical industry joined forces to create this unique, state of the art, comprehensive endeavor.

For the first time in Israel, the program provides its graduates with a possibility to integrate as leaders of today and tomorrow within the Israeli biomedical industry.

For more information: http://med.tau.ac.il/cme/doc/84.doc
Or call: 03-640-9228/9; 03-640-9795/7