Ege Journal of Medicine /Ege Tıp Dergisi 47(3):211-213,2008.

Organized pneumonia mimicking pediatric chest wall tumors

Göğüs duvarı tümörünü taklit eden organize pnömoniler

Mutafoğlu Uysal K[1] Güneş D[1] Uzuner N[2] Ölmez D[2] Babayiğit A[2]
Çakmakçı H[3] Özgüven A A[1] Özer E[4] Olgun N[1]

[1]Dokuz Eylul University Institute of Oncology, Department of Pediatric Oncology, İnciralti-İZMİR

[2]Dokuz Eylül University Department of Pediatric Allergy, İnciralti-İZMİR

[3]Dokuz Eylül University Department of Radiology , İnciralti-İZMİR

[4]Dokuz Eylül University Department of Pathology, İnciralti-İZMİR

Summary

Two patients were admitted with large anterior chest wall masses, approximately 10 cm in diameter. In both patients, radiological investigations showed a huge anterior mediastinal tumor invading the neighbouring lung, chest wall, initially suggesting a malignant tumor. Incisional biopsies revealed organized pneumonia in both cases. Although microbiologic documentation was not possible, empirical antibiotic treatment was successful in both cases and the masses showed complete regression. Any child presenting with an anterior chest wall mass should be examined for both neoplastic and non-neoplastic etiologies. It should be kept in mind that organized pneumonia may present as a chest wall mass and mimic a malignant tumor during the initial evaluation.

Key word: Anterior chest wall mass, Organized pneumonia, Childhood

Özet

İki çocuk hasta göğüs ön duvarında yaklaşık 10 cm çaplı kitle ile başvurdu. Her ikisinin radyolojik incelemelerinde de büyük çaplı ön mediasten kitlesinin, çevre akciğer, göğüs duvarı yapılarını infiltre eden malign bir tümör olabileceği düşünüldü. Her iki olguda da insizyonel biyopsiler organize pnömoni ile uyumlu idi. Enfeksiyöz etyoloji açısından mikrobiyolojik dokümantasyon yapılamamış olsa da, ampirik antibiyotik tedavisi ile başarılı yanıt alındı ve kitleler kayboldu. Ön göğüs duvarı kitlesi olan çocuklarda neoplastik ve non-neoplastik etyolojiler araştırılmalıdır. Böyle olgularda organize pnömoni akılda tutulmalı ve başlangıçta malign tümör görünümünü taklit edebileceği unutulmamalıdır.

Anahtar Kelimeler: *Göğüs ön duvarı kitlesi, Organize pnömoni, Çocukluk çağı*

Introduction

Chest wall masses in childhood have a wide range of differential diagnosis, including infections, malignant and benign tumors which may present with similiar clinical, laboratory and radiologic findings (1 - 6). They may even present coexistently, which makes the initial differential diagnosis problematic (3). Here we report two children with huge anterior chest wall mass (CWM) diagnosed as organized pneumonia only after histopathologic examination.

Case Report

Case 1: A 12-years-old girl was admitted with a right anterior CWM, weakness, night sweating, anorexia and weight loss for four weeks. She was on oral antibiotics for the last week. The physical examination showed fever (39℃) and a hard, tender mass of 6x5x1cm at the level of 2nd - 4th intercostal spaces, with no warmth or discoloration on it. Laboratory investigations showed Hb 12,4 g/dL, WBC 16.000/mm³, platelet 497.000/mm³ and a differential of 86% PMN leukocytes, 14% lymphocytes and ESR was 96 mm/h. A chest X-ray, computerized tomography (CT) and magnetic resonance imaging (MRI) of thorax showed a right parasternal solid mass which was 8x6x4 cm in size, originating from the right anterior CWM, extending to the medistinum (Figure 1 A-D). On admission, peroral (P.O.) Amoxicillin-Clavulanate was started because of fever. There was no growth in blood cultures. The bone marrow aspiration and biopsy findings were suggestive of an infection. Two different tru-cut biopsy specimens were consistent with inflammation and histopathologic examination of an incisional biopsy showed an organized interstitial pneumonia. No microorganism was yielded in these biopsy specimens either for aerobe pathogens or *Mycobacterium tuberculosis*. She had two BCG

Yazışma Adresi: Kamer Mutafoğlu Uysal, Dokuz Eylul University Institute of Oncology, Department of Pediatric Oncology, İnciralti-İZMİR-Makalenin Geliş Tarihi:14.11.2007; Kabul Tarihi: 26.08.2008

vaccinations and tuberculosis skin test was 12x12mm in size. Polymerase chain reaction (PCR) test for *Mycobacterium tuberculosis* and serum anti-mycoplasma Ig M and Ig G antibodies were negative. At the 14th day of P.O. antibiotic therapy, mediastinal mass regressed about 50%. The antibiotic therapy was then continued with parenteral (P.E.) imipenem and teicoplanin for 28 days and claritromycin for 14 days, so the total antibiotic therapy duration was six weeks. The mediastinal component of the mass radiologically disappeared at 8th week of the clinical course (Figure 1E).

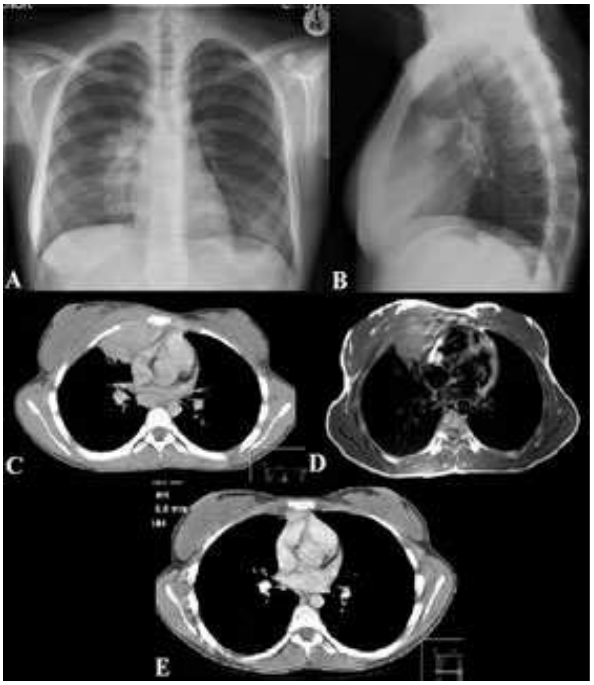

Figure 1. (A-B) Posteroanterior and lateral chest X-ray showing the right parasternal mass superposed to the lung parenchyma.
(C) CT showing a mass originating from the right anterior chest wall, 8x6x4 cm in size.
(D) MRI showing invasion of pectoral muscle and obliteration of epicardial fat tissue with neighboring parenchymal consolidation.
(E) CT image showing the complete regression of the mass at the 2nd month of the clinical course.

Case 2 An 11-years-old boy was admitted with non-productive cough and a right sided mass on the anterior chest wall for two weeks. He was on oral antibiotics for one week. On physical examination there was a mass 10x9x2 cm in size over the right 1st-4th intercostal spaces with warmth, tenderness, hyperemia and fluctuation on it. Laboratory investigations showed Hb 9,7 g/dL, WBC 13.900/mm³, platelet 708.000/mm³ and a differential of 82% PMN leukocytes, 12% lymphocytes, 6% monocytes without any malignant cells. ESR was 110 mm/h. A chest X-ray, CT and MRI of thorax showed a solid mass of 10x9x9 cm in size at the right apical hemithorax with intrathoracic and extrathoracic extensions (Figure 2 A-C). The bone marrow aspiration and biopsy findings were suggestive of an infection. A 39,5 ℃ fever developed on the second day and empirical P.O Ampicillin-Sulbactam therapy was started. A needle aspiration from the fluctuated mass showed *Gemella haemolysan* growth. Since this was a very uncommon etiologic agent for pneumonia in immunocompetent persons, a tru-cut biopsy was performed which revealed an organized abscess. An incisional biopsy at 12th day of treatment showed fibrinous pleuritis and interstitial pneumonia. There was no growth in either aerobe or *Mycobacterium tuberculosis* cultures from these specimens. The antibiotic therapy was continued with imipenem and claritromycin (P.E.) for 21 days, and amikacin for 10 days. Total treatment was six weeks and the mass disappeared at the 8th week of the clinical course (Figure 2D).

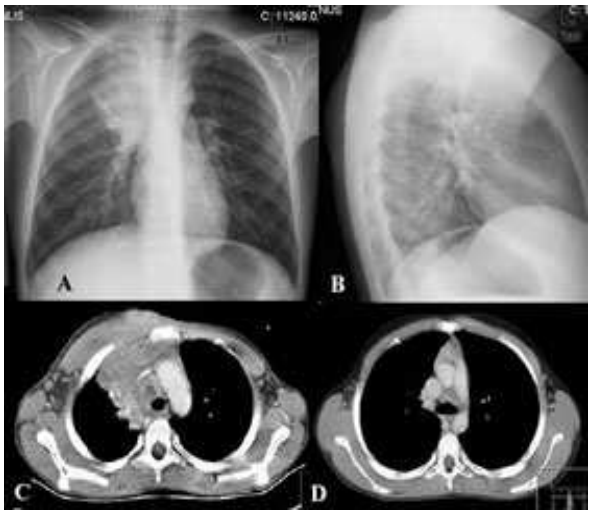

Figure 2. (A-B) Posteroanterior and lateral chest X-ray showing right apical mass and minor compressive changes in lung parenchyma.
(C) CT showing mass with intrathoracic and extrathoracic extensions.
(D) CT image showing the complete regression of the mass at the 2nd month of the clinical course.

Discussion

In any child presenting with a chest wall mass, infectious processes, bening or malign tumors should be considered in differantial diagnosis. In these cases, we initially searched for an infectious etiology but failed to show any infectious agent other than *Gemella haemolysans* in the second case. Although this could be an etiologic agent for pneumonia; these microorganisms are thought to be normal inhabitants of the oral cavity and upper respiratory tract (7,8). Although some cases have been reported in immunocompetent patients, infections with *Gemella* species are typically associated with predisposing conditions, including immunocompromised states (8). Our case had no underlying disease so this was

an unlikely infectious agent, but might represent a superficial infection of the mass which could have been masking the diagnosis for an underlying neoplastic lesion. Therefore we made an incisional biopsy from the intrathoracic portion of the mass. There was no growth in blood cultures and the incisional biopsies from both patients revealed an organized pneumonia. We couldn't document any specific agent for these patients. *Mycobacterium tuberculosis* and *Actinomyces* species should also be kept in mind as etiologic agents for organized pneumonia and chest wall masses (4-6). Investigations for tuberculosis were negative in our patients. For the diagnosis of actinomyces infection, we had no chance for anaerobic cultures. The pathologic examination was negative for sulphur granule staining which does not exclude the possibility of this infection. Thoracic actinomycosis is an unusual infection which is treated with penicilline. The empirical antibiotics we used were covering this microorganism and the clinical response was good. In conclusion, infectious processes may sometimes lead to tumoral masses which may mimic neoplastic diseases. It should be kept in mind that organized pneumonia may present as a chest wall mass and may raise questions about a malignant tumor during the initial evaluation.

References

1. Tateishi U, Gladish GW, Kusumoto M, et. Al. Chest wall tumors: radiologic findings and pathologic correlation: part 2. Malignant tumors. Radiographics. 2003;23:1491-508.
2. Tateishi U, Gladish GW, Kusumoto M, et. al Chest wall tumors: radiologic findings and pathologic correlation: part 1. Benign tumors. Radiographics. 2003; 23:1477-90.
3. Pandiyan MS, Kavunkal AM, Cherian VK, Christopher DJ. Chest wall mass with double pathology. Eur J Cardiothorac Surg. 2006;29:625-6.
4. Huang CY, Su WJ, Perng RP. Childhood tuberculosis presenting as an anterior chest wall abscess. J Formos Med Assoc. 2001;100:829-31.
5. Fatureto MC, Oliveira PF, Almeida CO, Fernandes LH. Lung actinomycosis with chest wall involvement. Rev. Soc. Bras. Med. Trop. 2007;40:82-5.
6. Pinarli F.G., Mutlu B., Celenk C., et al. Pulmonary *Actinomycosis* mimicking chest wall tumor in a child. Jpn. J Infect. Dis. 2005; 58: 247–249.
7. Eisenhut M., Jones C., Hughes D., Herrington S., Kokai G. Acute renal failure associated with *Gemella haemolysans* pneumonia. Pediatr. Nephrol. 2004; 19:448–450.
8. Le MR, Lee S-O, Kim S-Y, Yang SM, Seo Y-H, Cho YK. Brain abscess due to *Gemella haemolysans.* J. Clin. Microbiol. 2004; 42: 2338–2340.