Clinical Quiz

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Anterior midline neck swelling

Clinical Presentation

A 14-year-old girl was referred for evaluation of an anterior midline swelling of the neck at the suprasternal notch. This had gradually increased over a month, and was associated with an evening rise of low-grade fever and dry cough. Plain chest radiographs (postero-anterior and lateral) along with computed tomography (CT) of the thorax were carried out (**Figures 1 & 2**). Fine needle aspiration cytology from the lesion was performed.

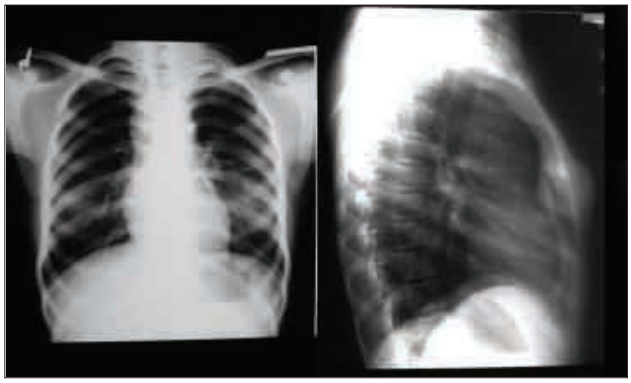

Figure 1 - Plain chest radiographs.

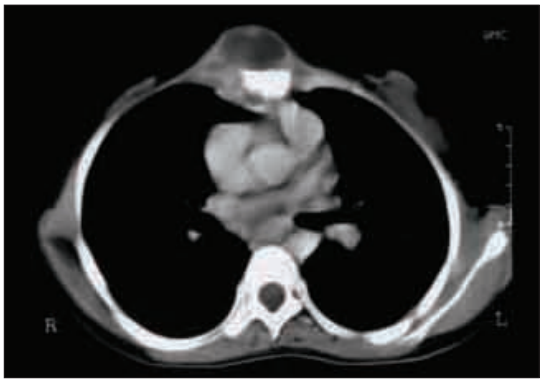

Figure 2 - Computed tomography of the thorax.

Questions

1. Describe the images.

2. Mention a differential diagnosis?

3. What is the likely diagnosis?

Answers

1. Plain chest radiograph shows right-sided paratracheal opacity. On lateral view, a soft tissue swelling is seen over the sternum, which extends posteriorly involving the sternal cortex. The CT reveals a hypodense midline lesion anterior to the sternum and extending into the soft tissue on the right side. Associated lytic destruction of the sternum is also evident.

2. The differential diagnoses include: intrathoracic goiter, osteomyelitis of the sternum, sternal tuberculosis.

3. Sternal tuberculosis: The diagnosis was established after fine needle aspiration cytology from the lesion, which showed acid-fast bacilli on ZN staining and well-formed epitheloid cell granulomas along with caseous necrosis. The tuberculin test was positive. The patient responded well to appropriate antituberculous therapy.

Discussion

The sternum, as a site of infection, is rarely encountered and sternal osteomyelitis of tuberculous origin is even less thought of. More than half-a-century ago, before the advent of antituberculous chemotherapy, it was reported that the sternum was involved in only 1.1% of more than a thousand patients with a bone and joint tuberculosis.[1] In 1984, Davies et al[2] reported only 2 cases of sternal tuberculosis in a review of 4172 tuberculosis patients, which included 198 with skeletal involvement. In contrast to pyogenic osteomyelitis, tuberculosis of the sternum presents insidiously, with pain, and swelling being the predominant symptoms. Imaging techniques, as seen in our case, play a crucial role in the diagnosis and follow-up. The initial assessment with plain chest radiography is helpful in identifying soft tissue shadows and bony involvement. This may be better visualized on a lateral view. The CT scan of the thorax is more sensitive for anatomical localization as well as in detecting osseous destruction, sequestrum and soft tissue abnormalities.[3] Ring-enhancing hypodense soft tissue lesion is the characteristic finding on CT-thorax. However, a recent report[4] suggests that magnetic resonance imaging may be useful in detecting early marrow, and soft tissue involvement. A definitive diagnosis is established either microbiologically or histopathologically.

References

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2. Davies PD, Humphries MJ, Byfield SP, Nunn AJ, Darbyshire JH, Citron KM, et al. Bone and joint tuberculosis. A survey of notifications in England and Wales. ***J Bone Joint Surg Br*** 1984; 66: 326-330.
3. Khalil A, Le Breton C, Tassart M, Korzec J, Bigot J-M, Carette M-F. Utility of CT scan for the diagnosis of chest wall tuberculosis. ***Eur Radiol*** 1999; 9: 1638-1642.
4. Atasoy C, Oztekin PS, Ozdemir N, Sak SD, Erden I, Akyar S. CT and MRI in tuberculous sternal osteomyelitis: a case report. ***Clin Imaging*** 2002; 26: 112-115.