Solitary bone plasmacytoma

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Plasma cell dyscrasias are a group of entities characterized by the neoplastic proliferation of a single clone of plasma cells, typically producing a monoclonal immunoglobulin. Fewer than 5% of patients with a plasma cell dyscrasia present with a single bone (solitary bone plasmacytoma [SBP]) or extramedullary lesion due to malignant plasma cell infiltrate without apparent evidence of systemic myeloma. Most often presenting as a painful lesion (but also asymptotically), as in the present case of a 64-year-old woman with an enlarging anterior chest wall mass over a six-month period, SBP may be diagnosed during routine clinical or radiological examination for other conditions (Figure 1). A soft tissue extension of the tumour may result in a palpable mass, particularly if a rib is involved. Pathological fracture of ribs and compression fractures of vertebral bodies, as well as cord compression, may be the other presenting features of SBP. For extramedullary plasmacytomas, the lesions may grow in the aerodigestive tracts and cause hoarseness, dyspnea and hemoptysis. Extramedullary

Figure 1) Clinical photograph of the huge, firm, nonpulsatile anterior chest wall mass

Figure 2) Contrast computed tomography image of lobulated osteolytic sternal lesion without sclerotic rim. Differential diagnoses may include chronic osteomyelitis, osteolytic metastasis, osteoid osteoma, osteoblastoma, brown tumour of hyperparathyroidism and aneurysmal bone cyst

Figure 3) Lesion biopsy. The specimen is highly cellular. It is composed of medium-size polygonal cells with hyperchromatic eccentric nuclei. Hematoxylin and eosin stain, original magnification $\times 400$

plasmacytomas involving the lung can present as pulmonary nodules and hilar mass. The peak incidence of SBP is in the fourth to sixth decades of life, and is more prevalent in men. The classical computed tomography (CT) scan shows a lobulated, osteolytic lesion without a sclerotic rim. These tumours are hyperdense on precontrast CT, and enhance markedly and homogeneously on postcontrast CT (Figure 2). Image-guided trucut biopsy provides diagnostic confirmation, revealing monoclonal plasma cell infiltration of the lytic sternal lesion (Figure 3). SBP may involve any bone but has a predisposition for red marrow-containing axial skeleton. The present case exhibited no additional lesions on bone scan or magnetic resonance imaging of the spine; clonal plasma cells were absent on random marrow sampling; and no evidence of systemic myeloma (normocalcemia, absence of anemia or renal disease attributable to myeloma) was present to enable the diagnosis of SBP. Radiotherapy totalling 45 Gy in 25 fractions is given for local control. The role of chemotherapy and surgery in SBP is unclear.

KEY LEARNING POINTS

- SBP is a rare diagnosis for an anterior chest wall mass.
- CT scan classically shows lobulated osteolytic lesion without a sclerotic rim.
- Diagnosis requires biopsy confirmation of a monoclonal plasma cell infiltrate from a single site.
- Bone and magnetic resonance imaging scans can aid in detecting the presence of other lesions.
- The treatment of choice is radiotherapy (>40 Gy) given with curative intent, resulting in long-term disease-free survival in approximately 30% of SBP patients.

The 'Images in Respiratory Medicine' section of the *Canadian Respiratory Journal* aims to highlight the importance of visual interpretation, whether physiological, radiological, bronchoscopic, surgical/thorascopic or histological, in the diagnosis of chest diseases. Submissions should exemplify a classic, particularly dramatic or intriguing presentation of a disease while offering an important educational message to the reader (insightful diagnostic pearls or differential diagnosis, etc). This section is not intended to be a vehicle for publication of case reports (see the Clinical-Pathologic-Conferences for case-based learning series).

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