Occult malignancy presenting as metastatic disease to the hand and wrist

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Abstract. Osseous metastases to the hand and wrist are uncommon. Most cases represent the manifestation of known malignancy with disseminated disease. Less commonly, acrometastases are the initial presentation of malignancy. In both instances, diagnosis of malignancy is frequently not considered either clinically or radiographically. This results in a delay in diagnosis and in inappropriate therapy. Three cases of occult malignancy presenting as acrometastases are reported. The author stresses the importance of considering this diagnosis when faced with any aggressive lytic or blastic lesion of the hand and wrist in a patient in the fifth decade of life or older.

Key words: Acrometastases – Occult malignancy

Occult malignancy presenting as osseous metastases to the distal appendicular skeleton is uncommon. It has been described in both the upper and lower extremity, though the upper extremity is more often involved [1, 2]. Patients are generally in their fifth decade of life or older, and usually present with pain, swelling, and erythema. Radiographically, the lesions are typically lytic. The clinical and radiographic appearances commonly mimic those of infection or other non-neoplastic processes, leading to a delay in diagnosis and inappropriate therapy. Three cases of metastatic disease to the hand and wrist representing the initial sign of malignancy are reported. The importance of recognition and inclusion of metastatic disease in the differential diagnosis is stressed.

Case reports

Case 1

A 62-year-old man presented to his physician complaining of pain in the right thumb that had started about 3 months previously. The patient had injured the hand several months prior to presentation when a freezer door closed on it. He also had a 50 pack-year smoking history. Physical examination showed mild to moderate swelling of the metacarpophalangeal articulation with decreased range of motion. Pinch was markedly decreased in strength and exquisitely painful. The joint was quite tender to palpation. Laboratory data were unremarkable.

Radiographs (Fig. 1) demonstrated an irregularly marginated erosive lesion along the dorsal and radial aspect of the proximal phalanx. It is notable that the subchondral bone was intact except for a minimally displaced pathologic fracture. No unusual calcifications were present.

The preliminary clinical diagnosis was post-traumatic osteoarthritis. Radiographically, however, the lesion was thought to be most consistent with inflammatory arthritis, such as rheumatoid arthritis or gout. Septic arthritis or foreign body reaction were also considered in the differential diagnosis. The patient was treated conservatively with anti-inflammatory medications for 4 weeks without relief. Due to the severity of the pain, an open biopsy was performed. Pathologic analysis of the removed bone revealed a mucin-secreting adenocarcinoma. Chest computed tomography
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(CT) subsequently demonstrated a spiculated mass with hilar and mediastinal adenopathy consistent with a diagnosis of bronchogenic carcinoma. Appropriate chemotherapy and radiation therapy were begun.

**Case 2**

A 63-year-old man presented to his physician with a swelling of the right hand of several months’ duration. Approximately 3 years prior to presentation, the patient had received a stab wound with a butcher knife in the affected hand. Twelve months prior to presentation, he struck a desk corner with his fist and noted swelling for the first time. He used the hand without restriction of motion. Past medical history was notable for a strong smoking history but was otherwise unremarkable. Physical examination demonstrated swelling of the right hand with visible varicosities. Range of motion was maintained though grip strength was decreased. Laboratory data including a chest radiograph were unremarkable.

Radiographs of the hand (Fig. 2) showed an expansile lytic lesion replacing the fourth metacarpal. No visible rim of cortication was present. The clinical diagnosis was post-traumatic arteriovenous malformation and the patient was referred to our institution for magnetic resonance (MR) imaging, to include an MR angiogram. The MR imaging (Fig. 3) revealed replacement of the fourth metacarpal by tissue of intermediate signal on T1-weighted images and heterogeneous but generally increased signal on T2-weighted images. The MR angiogram demonstrated a highly vascular mass, though no definite arteriovenous communications. The differential diagnosis included primary and metastatic neoplasms. Infection was considered much less likely. Because the radiographic findings were inconsistent with the clinical diagnosis, a metastatic evaluation was begun. Abdominal CT revealed a large right renal mass which proved to be renal cell carcinoma and appropriate therapy was begun.

**Case 3**

A 59-year-old woman presented with a 3-month history of wrist pain after lifting groceries. Past medical history included treatment for a distal radial fracture 5 years previously. Physical examination revealed the wrist and first carpometacarpal joint to be stiff and have decreased grip strength. Plain films of the affected wrist (Fig. 4) revealed marked osteopenia. Additionally, the lunate demonstrated collapse and absence of the subchondral bone along its distal articular surface, particularly at its ulnar aspect. Degenerative changes were incidentally noted at the first carpometacarpal articulation. The differential diagnosis included inflammatory arthritis, reflex sympathetic dystrophy syndrome, or possibly Kienböck’s disease. The patient was treated conservatively for 2 weeks without relief. Because of the unusual degree of osteopenia and somewhat atypical appearance of the lunate, biopsy of the lunate was performed. Pathologic evaluation revealed metastatic squamous cell carcinoma. The site of the primary tumor ultimately proved to be the lung.

**Fig. 2.** Case 2. Posteroanterior radiograph of the right hand demonstrates an expansile lytic lesion replacing the fourth metacarpal. No rim of cortication is visible and no calcified matrix was present.

**Fig. 3 A-C.** Case 2. A Coronal T1-weighted magnetic resonance imaging (MRI). Replacement of the fourth metacarpal by tissue of intermediate signal intensity is noted. Its margins are well delineated with surrounding soft tissue. B Axial T2-weighted MRI. The lesion demonstrates heterogeneous although generally increased signal intensity. Again, its margins are well defined relative to surrounding muscle and fat. The lesion is seen to abut the cortices of the third and fifth metacarpals. C Magnetic resonance angiogram. Arterial (left) and venous (right) images show a highly vascular mass without obvious arteriovenous communications.

**Fig. 4.** Case 3. Posteroanterior radiograph of the wrist shows marked osteopenia and a focal lytic area in the ulnar aspect of the lunate with absence of the subchondral bone at this site.