

Isolated Metastatic Lesion of the Trapezium

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Hand metastases are rare. Their incidence among all metastatic lesions is only slightly more than 0.1%. The distal phalanx is the most commonly involved site of hand metastases. Pancarpal involvement is more common than isolated carpal metastases. A solitary carpal metastasis can pose a diagnostic dilemma, as it mimics acute arthritis, osteomyelitis, and avascular necrosis, and, up to 16% of the time, it may be the first indication of a primary cancer elsewhere. An isolated metastatic lesion of the trapezium is reported for the first time.

CASE REPORT

A right-hand-dominant woman in her mid-40s, who had a history of active non-small cell lung carcinoma and was undergoing chemotherapy, presented with a 3-week history of increasing pain at the base of the right thumb. She had no history of trauma to the hand and no previous history of joint pain. Physical examination revealed point tenderness over the volar aspect of the thumb carpometacarpal (CMC) joint and pain with axial grind. There was no erythema or warmth at the base of the thumb, and the hand was neurovascularly intact. The physical examination was otherwise noncontributory.

A bone scan performed a week earlier showed increased uptake only in the area of the right wrist. Plain radiographs showed an osteolytic lesion in the trapezium with collapse consistent with a pathologic fracture (Figure 1). A computed tomography scan was then obtained, and it was consistent with this diagnosis (Figure 2).

The patient was placed in a short arm thumb spica splint for immobilization, but her pain persisted, and it was incapacitating. The options of radiation therapy and surgery (and their risks and benefits) were discussed with the patient. The patient chose operative intervention for pain relief. Trapezial excision with capsular interposition was performed. At time of surgery, there was no soft-tissue extension of the tumor.

After surgery, the patient reported marked wrist pain relief. Three months after surgery, she had excellent pain relief, but overall she continued to decline. Pathology of the excised trapezium was consistent with metastatic non-small cell carcinoma (Figure 3).

DISCUSSION

The hand is an uncommon site for metastases. Metastatic hand lesions represent only 0.1% of all metastatic lesions,¹⁻⁴ though some authors have suggested that this incidence may be an underrepresentation of the true incidence, as cases may go unnoticed or be subclinical in sick patients.¹ The most common site of hand metastases are the distal phalanges (51%),⁵ followed by the carpal bones (29.5%)⁵ and the metacarpals (27.6%).⁵ Lung carcinoma is the most common primary tumor (40%-52%)^{5,6} and carries a poor prognosis (mean survival time, 5-6 months).⁷

The diagnostic difficulty with hand metastases is secondary to their rarity coupled with clinical and radiographic similarity to more common hand disorders, such as acute arthritis, avascular necrosis, and osteomyelitis.^{1,7,8} A trapezium lesion may present in a fashion clinically similar to that of de Quervain's tenosynovitis, carpal tun-



Figure 1. Anteroposterior radiograph of right wrist shows a pathologic fracture of the trapezium with extensive fragmentation and collapse.

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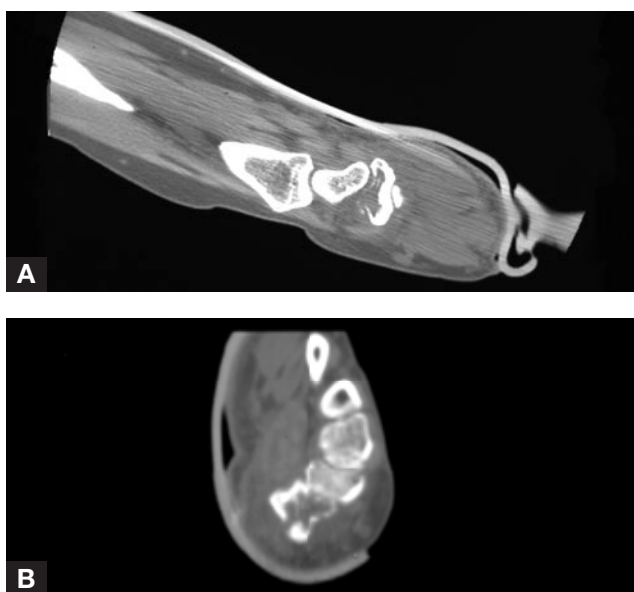


Figure 2. (A) Reformatted sagittal computed tomography image of right wrist shows extensive osteolysis of the trapezium with pathologic fracture. (B) Axial image shows the pathologic process in the trapezium.

nel syndrome, and CMC arthritis. Our patient's age, sex, and physical examination findings could easily have led a clinician to diagnose CMC arthritis had this been the initial manifestation of the patient's underlying disease.

For patients who present without a previous diagnosis of a primary cancer, metastatic involvement may be left out of the initial differential diagnosis. Previous investigators have found that up to 1 in 9 cases of hand metastasis were initially treated for an inflammatory condition.¹ In 11% to 16% of all cases of metastatic hand lesions, an isolated lesion was the initial presentation of a primary malignant cancer elsewhere.^{1,5,9,10} Given the gravity of misdiagnosis, metastatic lesions must be considered in the differential diagnosis of these more common hand disorders. The prognosis of cancer metastasized to the hand is the same as that of the primary metastatic cancer^{1,4,7,11}; hand involvement does not worsen or improve the outcome as compared with metastases elsewhere.

Trapezium excision with soft-tissue interposition has proved beneficial in relieving CMC arthritis pain and in managing primary benign and malignant lesions.¹²⁻¹⁴ In light of this success, simple excision, as opposed to curettage and bone grafting or cementation, should be considered, especially when the lesion is malignant. In our patient's case, excellent pain relief was obtained with simple excision. Because there was no extension of the tumor beyond the cortex of the trapezium, radiation for local control was not added. Although performed mainly as a palliative measure, excision of carpal lesions with treatment of the underlying disease has resulted in long-term disease-free survival.¹

Trapezium metastases should be considered in the differential diagnosis in patients with CMC pain, especially

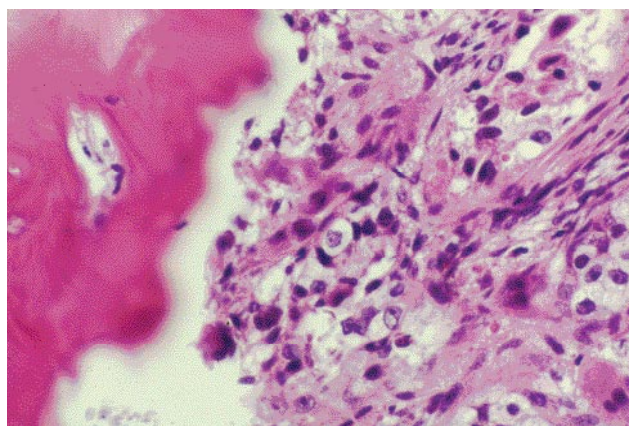


Figure 3. Poorly differentiated non-small cell carcinoma invading bone is consistent with the patient's diagnosis of adenocarcinoma metastasized from the lung.

with radiographic findings of collapse and fragmentation of the trapezium. Similar presentations in the hand must also raise a slight suspicion of hand metastases, especially when the patient presents with a history of a primary cancer. Keeping this diagnosis in mind, while considering the more common inflammatory afflictions of the hand, may reduce the number of metastatic lesions initially missed. The importance of this vigilance cannot be overstated: Hand metastases may be the first indicator of an underlying cancer, and learning of it early may give the patient more time to deal with the prognosis and consider treatment modalities.

AUTHORS' DISCLOSURE STATEMENT AND ACKNOWLEDGMENT

The authors report no actual or potential conflict of interest in relation to this article.

The authors thank Leslie Harper for her assistance with this project.

REFERENCES

- Amadio PC, Lombardi RM. Metastatic tumors of the hand. *J Hand Surg Am.* 1987;12(2):311-316.
- Clain A. Secondary malignant disease of bone. *Br J Cancer.* 1965;19:15-29.
- Gold GL, Reeve WE. Carcinoma and metastases to the bones of the hand. *JAMA.* 1963;184:237-239.
- Wu KK, Guise ER. Metastatic tumors of the hand: a report of six cases. *J Hand Surg Am.* 1978;3(3):271-276.
- Kerin R. Metastatic tumors of the hand. A review of the literature. *J Bone Joint Surg Am.* 1983;65(9):1331-1335.
- Chang HC, Lew KH, Low CO. Metastasis of an adenocarcinoma of the stomach to the 4th metacarpal bone. *Hand Surg.* 2001;6(2):239-242.
- Galmarini CM, Kertesz A, Oliva R, Porta J, Galmarini FC. Metastasis of bronchogenic carcinoma to the thumb. *Med Oncol.* 1998;15(4):282-285.
- Martin KA, Dove AF. Metastatic carcinoma of the hand. *Hand.* 1983;15(3):343-346.
- Kerin R. Metastatic tumors of the hand. *J Bone Joint Surg Am.* 1958;40(2):263-277.
- Kerin R. The hand in metastatic disease. *J Hand Surg Am.* 1987;12(1):77-83.
- Greene MH. Metastasis of pulmonary carcinoma to the phalanges of the hand. *J Bone Joint Surg Am.* 1957;39(4):972-975.
- Granberry WM, Bryan W. Chondrosarcoma of the trapezium: a case report. *J Hand Surg Am.* 1978;3(3):277-279.
- Hundley JD. Osteoid osteoma of the trapezium. First case report of roentgenographically demonstrated progression in the trapezium. *Clin Orthop.* 1976;(116):170-172.
- Murray PM, Berger RA, Inwards CY. Primary neoplasms of the carpal bones. *J Hand Surg Am.* 1999;24(5):1008-1013.