

CLINICAL PRESENTATION AND RADIOLOGY QUIZ QUESTION

A 55 year old man has a previous history of squamous cell carcinoma of the head with positive lymph nodes. He has new pain, including pain in the long finger of his right hand.

Which of the following imaging studies is the best first step in the evaluation of this patient's hand pain?

- (a) plain films of the hand
- (b) CT of the hand
- (c) MR of the hand
- (d) no imaging studies are necessary in this patient

RADIOLOGY QUIZ QUESTION, ANSWER, AND EXPLANATION

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- (b) CT of the hand
- (c) MR of the hand
- (d) no imaging studies are necessary in this patient

Answer: (a), plain films of the hand, is the correct response. The first step in patients with extremity pain is nearly always plain film examination.

CT of the hand is generally used for evaluation of complex fractures, and is not the best first with respect to imaging, and b) is not correct. MR of the hand may be very helpful for evaluation of the hand in certain circumstances, but is always done *after* and not *before* plain film examination, and C) is not correct. Imaging of some sort should certainly be performed in this patient, given the new onset of hand pain in a patient with known metastatic malignancy. Note, however, that metastatic deposit to the distal extremities is rare, and the plain films are done mainly to evaluate for other causes of pain such as arthropathy.

IMAGING STUDY AND QUESTIONS

The patient underwent imaging:



Imaging questions:

- 1) What type of study is shown?
- 2) Are there any abnormalities?
- 3) What is the most likely diagnosis?
- 4) What is the next step in management?

IMAGING STUDY QUESTIONS AND ANSWERS



Imaging questions:

- 1) What type of study is shown? Three view (AP, oblique, and lateral) plain film examination of the right long finger.
- 2) Are there any abnormalities? Yes. There is an aggressive, destructive lesion in the distal aspect of the proximal phalanx (arrows).
- 3) What is the most likely diagnosis? Metastatic disease, although rare in the extremities, would need to be given chief consideration given the patient's history of metastatic cancer.
- 4) What is the next step in management? Further imaging with MR or bone scan versus biopsy .

PATIENT DISPOSITION, DIAGNOSIS, AND FOLLOW-UP

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55 year old woman with metastatic squamous cell carcinoma to the long finger proximal phalanx. A-E. coronal T1 pre contrast, coronal T1 post-contrast, coronal T2, sagittal T1 post contrast, and sagittal T2 MR studies of the long finger show a marrow-replacing, contrast-enhancing lesion of the distal aspect of the proximal phalanx. F. Bone scan showing increased radiotracer localization of the distal aspect of the long finger proximal phalanx. G. Oblique view taken during fluoroscopically directed fine needle aspiration biopsy documents the needle tip in the lesion.

The patient underwent further imaging with MR, which confirmed a worrisome lesion of the proximal phalanx of the right long finger. A bone scan (done to document additional disease and stage the patient) showed activity at the same location (additional images of the remainder of the skeleton revealed no additional lesions). Biopsy was non-diagnostic, but the patient elected to undergo amputation because of severe pain and the lesion was a metastatic deposit from squamous cell carcinoma.

SUMMARY

Presenting symptom: The patient presented with hand pain. The initial imaging study of choice for the evaluation of extremity pain is almost always plain film evaluation.

Imaging work-up: In most patients with hand or finger pain, the clinical scenario along with the patient's history and physical examination results will be sufficient to determine a diagnosis and plan appropriate therapy. When an unusual finding is encountered, such as in this patient, options for further evaluation include additional imaging and biopsy. The patient first underwent MR, which confirmed that the lesion did not represent a simple cyst but rather showed an aggressive appearance with destruction of the cortex and intense contrast enhancement. The bone scan was performed to evaluate for additional lesions typical of metastatic disease, but no further lesions were identified on the remainder of the skeletal study.

Establishing the diagnosis: Biopsy is generally required to identify the cause of the lesion in such cases, although in this case there was a strong suspicion of malignancy. While the initial biopsy material obtained from a fine needle aspirate did not provide a final diagnosis, the patient's severe pain and lack of good options for reconstruction (as well as his limited long-term prognosis) resulted in amputation being performed. Evaluation of the lesion in the amputated finger demonstrated that the lesion represented metastatic malignancy.

Take-home message: The initial study for evaluation of extremity pain is plain film radiography.

FURTHER READING

Helfgott SM. Evaluation of the adult with monoarticular pain. UpToDate, accessed 11/16/09.

Renfrew, DL. Single joint pain. Chapter 14 of *Symptom Based Radiology*, Symptom Based Radiology Publishing, Sturgeon Bay, WI, 2010, available for no charge at www.symptombasedradiology.com.