

# Acrometastasis to the finger from hepatocellular carcinoma mimicking a glomus tumour: A case report

Hari Prasad V<sup>\*</sup>, Philip P. Puthumana, Joji Krishnan<sup>®</sup>

Department of Orthopaedics, Government Medical College, Thiruvananthapuram, Kerala, India

## ARTICLE INFO

### Keywords:

Acrometastasis  
Hand  
Hepatocellular carcinoma  
Glomus tumour

## ABSTRACT

**Background:** Acrometastasis refers to the uncommon phenomenon of metastasis occurring to distal part of extremities from different primary malignancies predominantly lungs, breast, and thyroid. Digital acrometastases to fingers as a presentation of hepatocellular carcinoma (HCC) are extremely rare.

**Case presentation:** A 70-year-old male patient presented to the orthopaedic casualty with a history of fall and sustained a supracondylar fracture of the humerus which was treated conservatively. Incidentally, the patient was noted to have a swelling of the left ring finger with a history of bleeding. A provisional diagnosis of glomus tumour was made. Imaging studies of the left hand were suggestive of a large glomus tumour/malignant neoplasm with destruction of the underlying phalanx. The lesion over the fingertip was excised and histopathological examination revealed a metastatic tumour which was confirmed to be hepatocellular carcinoma.

**Conclusions:** This case report presents an unusual and rare presentation of HCC and reiterates the need to have a high index of suspicion while treating atypical lesions in the hands.

## 1. Background

Metastases to the bones, particularly the spine and long bones, are known in several malignancies. However, acrometastases (AM) refer to a unique group of secondaries occurring distal to the elbow and knees, contributing to around 0.1 % of all bone metastases.<sup>1</sup> The primary tumour is most common in the lungs (>50 %), followed by the breast, thyroid, and gastrointestinal tumours.<sup>2</sup> Regarding HCC, the most common sites of extrahepatic spread are to the lungs, abdominal lymph nodes, and bones (ribs, spine, pelvis, and long bones).<sup>3,4</sup> Metastases from HCC to hands are rarely reported. In about 10–15 % of cases, acrometastases may be the first sign of an underlying occult primary neoplasm, although more commonly they occur in oncology patients under follow-up where they almost always represent a widely spread tumour. Regardless of the presentation, these lesions usually represent a grave prognosis with a mean life expectancy of about 6 months.<sup>1,5</sup>

## 2. Case presentation

A 70-year-old man presented to the Orthopaedic casualty with an alleged history of fall and sustained trauma to his left elbow. A radiographic examination revealed a supracondylar fracture of the left

humerus which was planned for conservative management considering his age and comorbidities. On general examination, the patient was found to have a swelling over the tip of his left ring finger with a history of bleeding, from 3 weeks prior to the fall. There was no history of trauma or previous surgery on the finger. On examination, an erythematous, warm subungual swelling was noted over the ring fingertip with yellowish haemorrhagic crusting and positive Love's test (pinpoint tenderness). The nail plate was intact entirely (Fig. 1).

Radiographic examination revealed a soft tissue enlargement at the tip of the left ring finger with the destruction of the underlying distal phalanx (Fig. 2). A working diagnosis of glomus tumour was made. Despite the classic location and most clinical features of the glomus tumour, the patient had no complaints of cold hypersensitivity in the swelling which prompted further investigation. An MRI of the left hand was taken which showed an irregular T2 hyper-intense lesion with a post-contrast enhancement of soft tissue mass (2.5 × 1.9 × 1.8cm) in the distal ring finger with complete destruction of the head of the underlying phalanx and fingernail embedded in the dorsal aspect of the lesion (Fig. 3). The final impression was suggestive of a large glomus tumour or a malignant neoplasm.

On detailed history taking, patient was noted to have multiple episodes of ascites in the past year with tapping done elsewhere. Medical

<sup>\*</sup> Corresponding author.

E-mail addresses: [hariprasad1994@gmail.com](mailto:hariprasad1994@gmail.com) (H.P. V), [p3puthumana@gmail.com](mailto:p3puthumana@gmail.com) (P.P. Puthumana), [dr.jojikrishnan@gmail.com](mailto:dr.jojikrishnan@gmail.com) (J. Krishnan).

<https://doi.org/10.1016/j.jorep.2025.100591>

Received 10 December 2024; Accepted 29 January 2025

Available online 4 February 2025

2773-157X/© 2025 The Authors. Published by Elsevier B.V. on behalf of Prof. PK Surendran Memorial Education Foundation. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



Fig. 1. Erythematous subungual swelling with haemorrhagic areas over dorsum of left ring finger tip. Nail plate is seen to be uninvolved.

gastroenterology opinion was taken and suggested contrast-enhanced CT abdomen (CECT). It showed heterogeneously enhancing soft tissue density lesions with evidence of central necrosis noted involving left lobe of liver with heterogeneous enhancement on arterial phase with progressive enhancement in portal phase and subsequent washout in venous phase and appears isodense on delayed phase. The report suggested a possibility of hepatocellular carcinoma arising in the background of liver parenchymal disease with satellite lesions.

After obtaining anaesthesia fitness, the left ring finger was disarticulated at the level of the proximal interphalangeal joint (Fig. 3). Considering the history of chronic liver disease and MRI and CECT suggesting a malignant neoplasm, the surgically excised specimen was sent for histopathological examination (HPE) with special emphasis on immunohistochemistry (IHC).

HPE report showed an *infiltrating neoplasm* composed of cells arranged in a trabecular pattern intervened by endothelium-lined dilated vascular spaces. Cells exhibit a well-defined outline, moderate to abundant eosinophilic granular cytoplasm, round vesicular nuclei showing mild to moderate *nuclear atypia* with prominent eosinophilic nucleolus. *Mitotic figures*- 4-5/50 high power field (Fig. 4). The margin of resection was free of neoplasm.

IHC showed neoplastic cells with diffuse cytoplasmic positivity for *HepPar-1*; cells lining vascular spaces showed positivity for *CD-34*; *SMA*-positive cells were noted intervening the neoplastic cells and surrounding vascular spaces (Fig. 4).

Correlating clinical, radiological, and histological findings, a final diagnosis of *subungual metastasis from hepatocellular carcinoma* was made.

A repeat X-ray of the humerus fracture at 8 weeks interestingly



Fig. 2. Lateral and Anteroposterior views of X-ray left hand showing thickened soft tissue shadow over tip of left ring finger with destruction of underlying distal phalanx head (blue arrow).

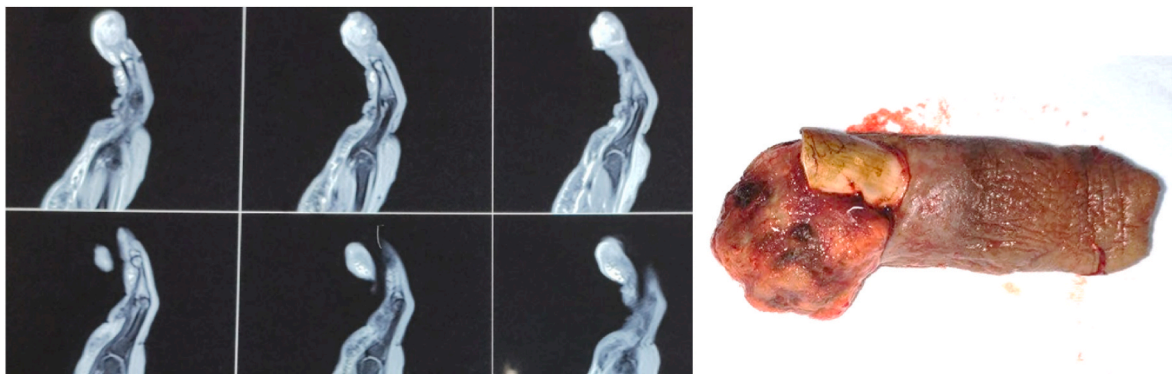
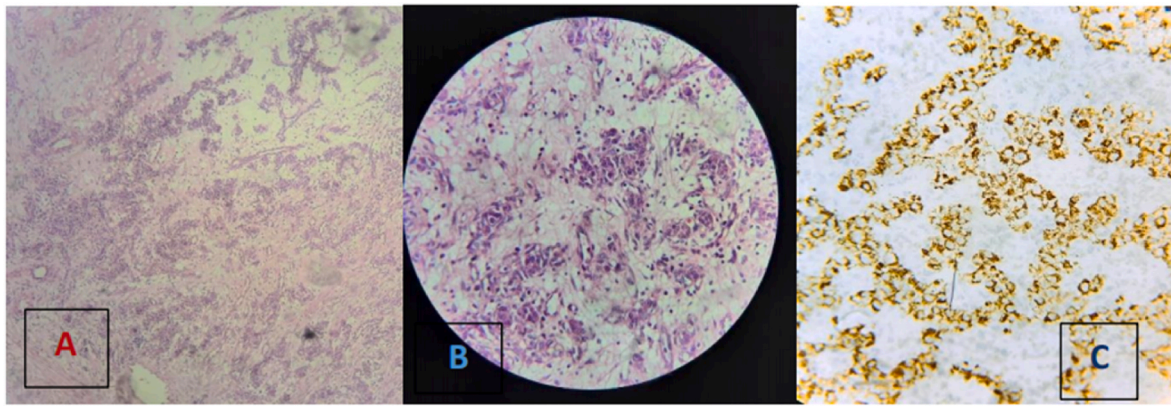


Fig. 3. T2-weighted MRI showing an irregular hyper-intense lesion in the tip of left ring finger with destruction of underlying phalanx (left); surgically excised left ring finger specimen (right).



**Fig. 4.** HPE showing neoplastic cells arranged in trabecular pattern with intervening dilated vascular spaces under low magnification(A); under high magnification (B), the cells are noted to have abundant cytoplasm, vesicular nucleus with nuclear atypia and mitotic figures; diffuse cytoplasmic positivity for Hep-Par1 on IHC (C).



**Fig. 5.** Initial X-ray of left humerus fracture at presentation (left); follow up X-ray after 2 months of conservative management showed extensive bone resorption at the fracture site with minimal callus (right).

revealed that it was in fact a pathological fracture (Fig. 5).

The patient was referred to medical gastroenterology and subsequently to radiotherapy and was undergoing treatment. Unfortunately, the patient expired 10 months from the time of final diagnosis.

### 3. Discussion

Acrometastases are an extremely rare phenomenon, the pathophysiology of which has been poorly understood. Secondaries to the bone usually have a predilection towards bones with abundant red marrow such as vertebral bodies and to bones with low blood flow within capillaries.<sup>6</sup> As a result, AM to hands is uncommon.

The most acceptable theories regarding the pathophysiology are of hematogenous spread of tumour micro emboli and repetitive microtraumas. Such embolization easily occurs from pulmonary tumours, whereas for it to occur from visceral tumours like HCC is difficult as it must go through pulmonary filtration first.<sup>5</sup> Repetitive microtrauma causes the release of chemotactic factors and prostaglandins which favour tumour cell adhesion. This combined with the slow blood flow within the capillaries of the distal phalanx explains the predominance of acrometastases in them.

Acrometastasis from HCC presents as rapidly growing masses with bleeding owing to the hypervascular nature of the tumour. On X-ray they are predominantly lytic although MRI is the gold standard imaging modality for diagnosis. Several other conditions can mimic an acrometastasis owing to the vague clinical picture of red, painful swelling, such as osteomyelitis, ganglion cysts, acute paronychia infections, tuberculous dactylitis, erysipelas, or some skin tumours making the diagnosis quite challenging.<sup>7</sup>

The treatment of AM presents a clinical dilemma. It is important to understand that AM occurs mostly at the terminal stage of malignancy

and has poor prognosis. In advanced patients; treatment is mostly palliative; aimed at controlling pain and regaining function. For limited lesions of the distal phalanx as in our case, amputation is an option.

### 4. Conclusions

This case reports presents a rare clinical manifestation of acrometastasis from hepatocellular carcinoma. Acrometastasis is notorious in mimicking various other conditions leading to difficult diagnosis. Here a case initially thought to be glomus tumour finally turned out to be a subungual metastasis which indicates a grave prognosis for the patient. This case report reiterates the need to exercise high index of suspicion while evaluating lesions of the hand, especially with a background of HCC.

#### Guardian/patient consent

No patient consent needed as this article does not contain any experimental/interventional studies with human or animal subjects performed by any of the authors.

#### Ethics statement

This article does not contain any experimental/interventional studies with human or animal subjects performed by any of the authors.

#### Consent for publication

Not applicable.

**Availability of data and material**

Not applicable.

**Credit author statement**

Hari Prasad V and Philip P. Puthumana have contributed equally to this study under the able guidance of Joji Krishnan. All authors read and approved the final manuscript.

**Funding statement**

This case report did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Declaration of competing interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

**Acknowledgment**

I would like to express my gratitude to all those who have contributed to this case report in various ways. While no individual is singled out for acknowledgment, the collective efforts of everyone involved are deeply appreciated. Thank you for your support and collaboration

throughout this endeavor.

**List of abbreviations**

HCC	Hepatocellular carcinoma
AM	Acrometastases
MRI	Magnetic resonance imaging
CECT	Contrast enhanced Computed Tomography
HPE	Histopathological examination
IHC	Immunohistochemistry

**References**

1. Kerin R. Metastatic tumors of the hand. A review of the literature. *J Bone Jnt Surg Am.* 1983;65:1331–1335.
2. Mavrogenis AF, Mimidis G, Kokkalis ZT, et al. Acrometastases. *Eur J Orthop Surg Traumatol.* 2014;24(3):279–283.
3. Katyal S, Oliver III JH, Peterson MS, Ferris JV, Carr BS, Baron RL. Extra hepatic metastases of hepatocellular carcinoma. *Radiology.* 2000;216:698–703.
4. Kuhlman JE, Fishman EK, Leichner PK, Magid D, Order SE, Siegelman SS. Skeletal metastasis from hepatoma frequency, distribution and radiographic features. *Radiology.* 1986;160:175–178.
5. Flynn CJ, Danjoux C, Wong J, et al. Two cases of acrometastasis to the hands and review of the literature. *Curr Oncol.* 2008;15:51–58.
6. Umana GE, Scalia G, Palmisciano P, et al. Acrometastases to the Hand: a systematic review. *Medicina.* 2021;57(9):950. <https://doi.org/10.3390/medicina57090950>.
7. Sahoo TK, Das SK, Majumdar SK, Senapati SN, Parida DK. Digital acrometastasis as initial presentation in carcinoma of lung: a case report and review of literature. *J Clin Diagn Res.* 2016;10:XD01–2. <https://doi.org/10.7860/JCDR/2016/16063.7951>.