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## Case Report

# Finger foot phalanx metastasis revealing occult pulmonary adenocarcinoma: A case report and review of the literature

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Even if the skeleton is the third preferential metastatic site after the liver and the lung, digital metastases are rare, even more as initial sign of lung adenocarcinoma. Usually finger metastases present with swelling, warmth and dull pain that becomes throbbing with time. Because of the rarity of acrometastases, especially as the presenting lesion, they are often misdiagnosed as a benign condition. Amputation of the involved finger is by far the most frequent surgical methodology. Unfortunately, at this time, the primary tumor has invariably spread to diffusely involve other organs and usually patients' survival is only few months. Management should be targeted to patient's comfort, prevention of infections, and maintenance of function. In this report we present a case of a 66-years old caucasian male in which initial sign of a lung adenocarcinoma was metastasis to the fourth toe. The patient was affected by non-insulin dependent diabetes and had a 3-months history of "infection" in the fingernail. The lesion was managed for 8 weeks as a diabetic ulcer. Finger metastasis is associated with poor prognosis and, due to the scarcity of cases, no standard management protocol exists. Acrometastasis may be the first manifestation of an occult cancer; it is important to optimize care with a systematic approach in order to make a timely diagnosis and initiate a proper treatment.

**Keyword:** acrometastasis, lung adenocarcinoma, finger.

## INTRODUCTION

The first case of bony metastasis to the foot was reported by Bloodgood in 1920 and occurred in a metatarsal bone (Healey et al., 1986). While digital metastases from central malignancies are a well documented phenomenon and they show up at the end-stage of the cancer, a single digital tumor as the initial sign of an underlying cancer is rare. Because of the continuously improving cancer treatments and the increasing patient lifespan, the foot specialist should think at this possible

presentation of tumors. We present a case of lung adenocarcinoma metastasis to the fourth finger of the left foot that was originally confused and treated as a diabetic complication.

## CASE PRESENTATION

A 66-years old caucasian male affected by non-insulin dependent diabetes come to our department with a chronic non healing lesion, on the tip of the fourth left finger foot. The patient reported a 3-months history of "infection" in the fingernail, with increasing pain, not responsive to the conventional analgesic therapy. The

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**Figure 1.** Clinical aspect of the lesion. Note the necrotic mass beneath the nail plate and extending over the finger tip

lesion was managed for 8 weeks as a diabetic ulcer and then, due to the lesion worsening and the increased pain, he was referred to the orthopaedic department. The patient denied recent fever, weight loss (12-15 Kg), increasing of cough, night sweats, and chronic fatigue. He used to smoke 30-35 cigarettes/day for 20 years and he stopped to smoke 15 years before. The patient was diabetic but without any complication and he worked in a glassware for 40 years. He referred an allergy to iodine contrast.

On physical examination the patient had continuous severe pain surrounding the fourth finger of the left foot with limitation of the range of motion. There was surrounding erythema, warmth and edema. A necrotic mass was immediately noted beneath the nail plate and extending over the finger tip (Figure 1). There were no palpable popliteal or inguinal lymph nodes. Standard radiographs of the left foot showed osteolysis of the distal and medial phalanx of the fourth finger (Figure 2).

We performed a chest X-ray because we were suspicious about his increasing cough, and what we found was: "big mediastinal expansive lesion on right chest, with an ipsilateral pleural effusion" (Figure 3 A, B).

The patient was immediately sent to our oncological pneumologist and underwent total body CT-Scan (Figure 3 C, D) and full body Technetium-99m scintigraphy. These examinations showed a big mediastinal mass (max diam 9 cm) and increased radiopharmaceutical uptake in the cervical spine, in the right cerebral

hemisphere and in many ribs. A cranium and cervical spine CT were performed and other small metastases were found. The thoracic surgeon denied any surgical procedure, so the patient was followed only by the oncologist.

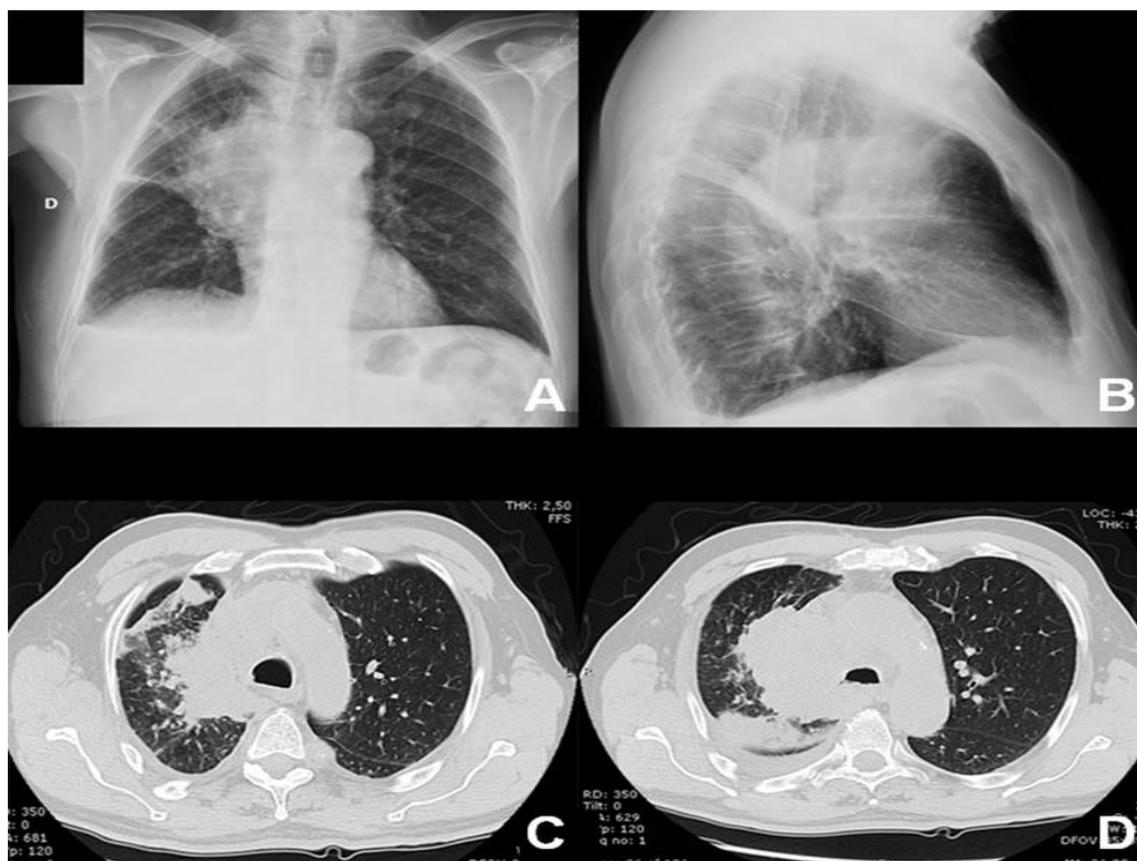
Considering the patient's poor prognosis and pain, the patient's inability to bear weight and the continuous need of medication, it was decided to proceed with amputation rather than other treatments such as external beam radiation therapy. A full fourth finger amputation was done and this led to quick recovery for the patient, relieving his pain and allowing a better ambulation. The specimen was sent in toto for anatomico-pathological evaluation. On macroscopic examination, there was a well circumscribed mass with two browned areas and complete avulsion of the fingernail. The bone surgical margins were free (MR1), subcutaneous margins were infiltrated by malignancy (MR2). The immunohistochemical phenotype showed: Ckpan, CK7 positive, PSA negative, TTF-1 negative, CK20 negative, napsin slightly positive. These features lead to the diagnosis of metastatic lung adenocarcinoma.

During the follow up visit, fifteen days after the surgical treatment, the patient was completely free from pain and the stitches were removed.

The patient was referred back to his oncologist and he died by respiratory insufficiency 6 months after the atypical presentation of the tumoral disease.



**Figure 2.** (A) Anterior to posterior and (B) oblique radiographs of the left foot shows osteolysis of the distal and medial phalanx of the fourth finger



**Figure 3.** (A) Anterior to posterior and (B) lateral Chest X-rays show “a big mediastinic expansive lesion on right part, with an ipsilateral pleural effusion”; (C, D) chest TC shows mediastinic mass (max diam 9 cm).

## DISCUSSION

Prostate, breast and lung are the most common tumors that metastasize to bone; these commonly involve the pelvic bone, vertebrae, ribs, skull, upper and lower limb; other common primary sites are carcinomas of the kidney and thyroid and melanomas (American Cancer Society, 2007; Coleman, 2001).

Even if metastatic bone tumors are the most common malignant bone tumors in man (Mandeep and Jay, 2007), skeletal metastases to the foot are very rare; but when they do it may be a revealing clinical finding.

Foot pain is usually the presenting symptom, and occasionally may be the first sign of an occult visceral malignancy. The diagnosis of acrometastasis should always be considered when evaluating the foot and ankle differential diagnoses were osteomyelitis, septic arthritis, gout, diabetic foot, primary bone tumor, and metastatic carcinoma.

The patient in this case report, was treated as a diabetic foot complication. This case demonstrates the level of importance of a thorough history and physical examination for all patients.

The digital metastases secondary to occult lung cancer are very rare. Chung et al. reported that bony metastases occur in approximately 20-30% of malignancies, of these, 0.0007% to 0.3% are acrometastases (Chung, 1983).

In the foot, proximal locations are most common: 50% in tarsal bone, the calcaneus is involved in 45%, then 23% in metatarsal bone while only 17% occur in phalanx (Maheshwari et al., 2008; Zinderick et al., 1982).

Due to the scarcity of cases, no standard management protocol exists. While many patients receive an initial diagnosis of infection, poor response to antibiotic (or antimicrobial) therapy, following adequate incision and drainage, needs further evaluation (Madji et al., 2009). Although local curettage and tumor excision (Vanhootehem et al., 1999) have been used in attempts to save the finger, amputation is by far the most frequent surgical methodology (Lookingbill et al., 1990).

## CONCLUSIONS

Finger metastasis is associated with poor prognosis, with typical survival periods of only a few months; in addition to metastasizing to the distal finger, the primary tumor has invariably spread to diffusely involve other organs (Cohen, 1996).

The diagnosis of a bone tumor, especially metastasis, should always be in the differential diagnosis list. The diagnosis of acrometastasis is important, because it may be the first manifestation of an occult cancer, or it may signify the appearance of widespread metastasis (Trinidad et al., 2012).

The role of the orthopaedic surgeon in evaluating patients with skeletal metastasis is likely to increase; it is important to optimize care with a systematic approach in order to make a timely diagnosis and initiate a proper treatment.

## REFERENCES

- American Cancer Society (2007). Cancer Facts and Figures 2007. Atlanta: American Cancer Society <http://www.cancer.org/downloads/STT/CAFF2007PWSecured.pdf>
- Chung TS (1983). Metastatic malignancies to the bones of the hand. *J. Surg. Oncol.* 24:99-102.
- Cohen PR (1996). Cutaneous manifestations of internal malignancy. In: Callen JP, Bone RC, editors. *Current practice of medicine*, vol.2. Philadelphia: Current Med. 19:1-13.
- Coleman RE (2001). Metastatic bone disease: clinical features, pathophysiology and treatment strategies. *Cancer Treat. Rev.* 27:165-176. doi: 10.1053/ctrv.2000.0210.
- Healey JH, Trumbull AD, Miedema B, Acrometastasis Lane JM (1986). A study of twenty nine patients with osseous involvement of the hands and feet. *JBJS Am.* 68:743-746
- Lookingbill DP, Spangler N, Sexton FM (1990). Skin involvement as the presenting sign of internal carcinoma: a retrospective study of 7316 cancer patients. *J. Am. Acad. Dermatol.* 22:19-26.
- Madji A, Cole P, Laucirica R (2009). Digital acrometastasis: a rare initial sign of occult pulmonary squamous cell carcinoma. *J. Plastic, Reconstructive and Aesthetic Surgery.* 62: e365-e367.
- Maheshwari AV, Chiappetta G, Kugler CD, Pitcher JD Jr, Temple HT (2008). Metastatic skeletal disease of the foot: case reports and literature review. *Foot Ankle Int.* 29:699-710.
- Mandeep S, Virk, Jay R, Lieberman (2007). Tumor metastasis to bone. *Arthritis Res. Ther.* 9(Suppl 1): S5. Published online 2007 June 29. doi: 10.1186/ar2169
- Trinidad J, Kaplansky D, Nerone V, Springer K (2012). Metastatic adenocarcinoma of the foot: a case report. *The J. foot and ankle surgery* 51: 345-351.
- Vanhootehem O, Dumont M, Andre J, Leempoel M, de la Brassine M (1999). Bilateral subungual metastasis from squamous cell carcinoma of the lung: a diagnostic trap!. *Rev. Med. Liege.* 54:653-654.
- Zinderick MR, Young MP, Daley RJ, Light TR (1982). Metastatic tumors of the foot. *Clin Orthop*; 170:219-25).