

# Bone marrow metastasis of cutaneous angiosarcoma: magnetic resonance imaging findings of a case

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## SUMMARY

Cutaneous angiosarcoma most frequently occurs in the scalp and facial skin of elderly men and rarely on the extremities. A few previous articles have reported upper limbs. In this case report a rare finding of bone marrow metastasis from a cutaneous angiosarcoma involving the cruris of an 85-year-old man is reported.

**Key words:** *Cruris, cutaneous angiosarcoma, lower extremity, magnetic resonance imaging, metastasis*

## ÖZET

**Kütanöz anjiyosarkomda kemik iliği metastazı: bir olgunun manyetik rezonans görüntüleme bulguları**

Kütanöz anjiyosarkom en sık yaşlı erkeklerde yüz ve kafa derisinde görülmekte olup, nadiren ekstremiteleri tutar. Literatürde az sayıda üst ekstremitede bildirilmiştir. Bu yazıda 85 yaşında bir erkek hastada alt ekstremitede görülen kütanöz anjiyosarkomun kemik iliği metastazı sunulmuştur.

**Anahtar kelimeler:** *Kruris, kütanöz anjiyosarkom, alt ekstremitede, manyetik rezonans görüntüleme, metastaz*

## Introduction

Cutaneous angiosarcoma (CA) is a rare, aggressive endothelium-derived sarcoma that occurs most frequently in the scalp and facial skin of elderly men. They rarely occur on the extremities, and a few previous reports interest upper limbs (1,2). In this study, magnetic resonance (MR) imaging findings of an elderly male who had CA in his cruris with its metastases to bone and bone marrow is reported. In addition to splenic angiosarcomas in which previous reports proposed to have a virtually unique propensity for infiltration in the bone marrow (3), this case shows that CAs can also metastasize to the bone.

## Case Report

An 85-year-old, otherwise healthy male presented with large blue-purple colored, exophytic, nodular and fixed masses on his right cruris. The lesions had appeared gradually and grew slowly but continuously in a relatively short period of time. In order to demonstrate the likely extension of the tumors to deep soft tissues, an MR imaging was planned. MR images revealed nodular lesions in cutaneous and subcutaneous tissues, hyperintense on T2 weighted images with contrast enhancement on T1 weighted sequences. Lesions with same intensity characteristics and dimensions were also seen within the medulla of crural bones (Figures 1,2,3). The biopsy of the primary lesion, accomplished after MR imaging, revealed a malignant mesenchymal tumor with prominent epithelioid features, and most of the neoplastic cells showed immunoreactivity against CD31, a marker of endothelial differentiation (Figure 4). The lesions with the same dimensions and signal intensity characteristics seen in the bone marrow was interpreted as metastasis of the CA.

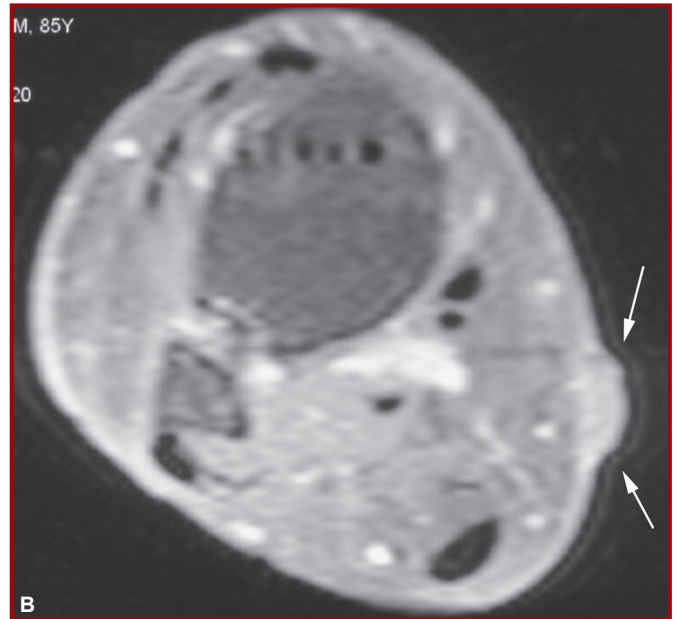
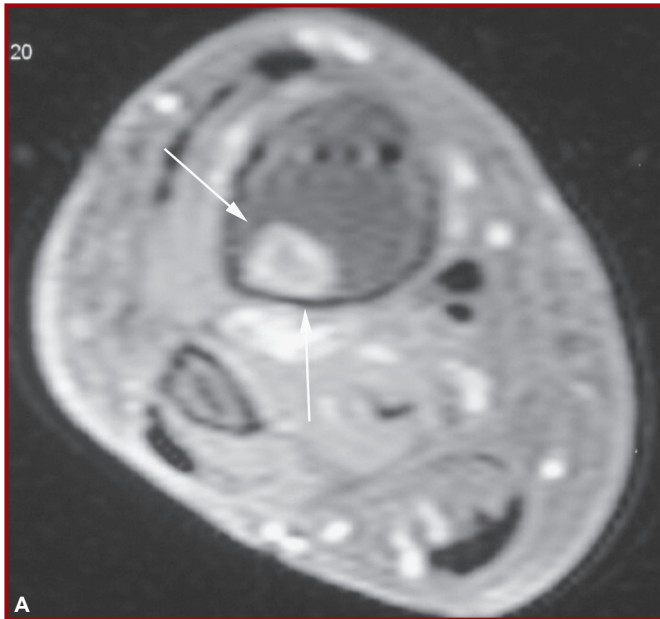
## Discussion

CA is most commonly seen on the scalp of elderly men with an average age of 75 years (2). In their

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**Figure 1.** Lesions on the cruris of a 85-year-old patient with cutaneous angiosarcoma. Magnetic resonance images of the distal cruris and foot. In axial gradient-echo series (640/18, flip angle 30°) lesions on both skin **A.** and subcutaneous tissue (arrows) and **B.** in the bone marrow (arrows) have high intensity as compared with normal bone marrow

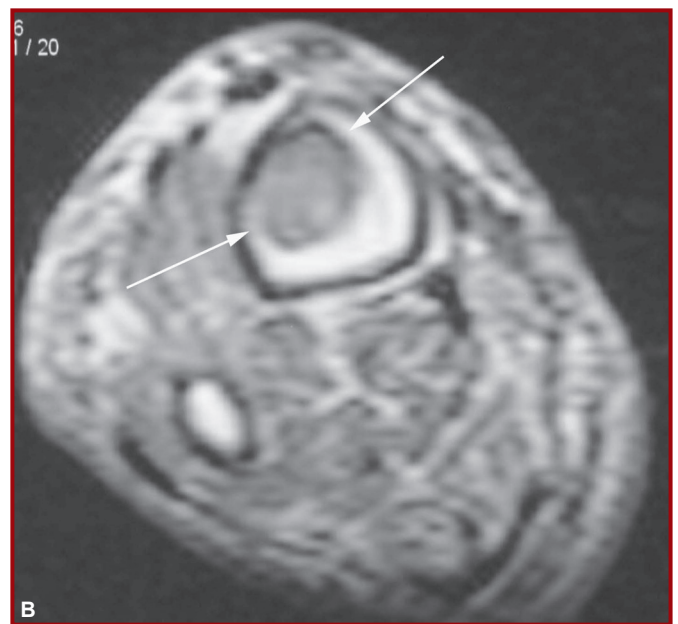
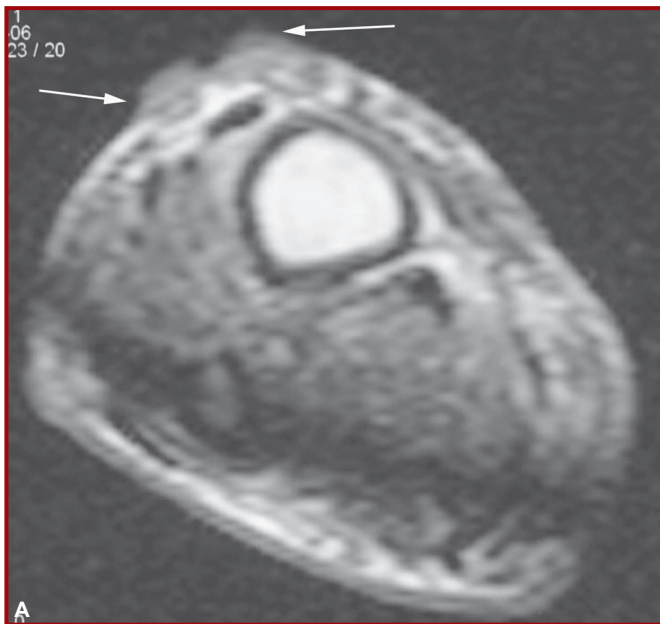


**Figure 2.** Sagittal T1-weighted (440/12) image demonstrates two distinct hypointense lesions in the diaphyseal bone marrow of tibia consistent with metastasis from cutaneous angiosarcoma

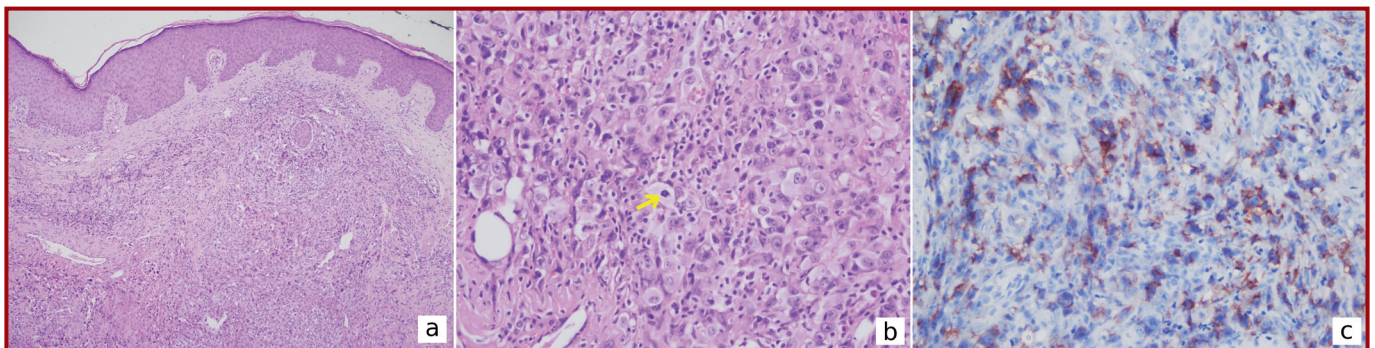
47 case series of CA, Morgan et al. have reported the most common location as the head and neck region (a ratio of 96%) with a single case involving the arm and shoulder (2). Nilles et al. and Bock et. al have separately reported two distinct cases of CA involving the distal forearm (1,4). In this case the lesions were involving the distal cruris. Though excessive UV light exposure to head and neck area has been proposed as one risk factor (2), this was not completely possible for our case. These lesions are reported to be clinically pre-

diagnosed as angiosarcoma, metastases, lymphoma, squamous/basal cell carcinoma, pyogenic granuloma, and ecchymosis/bruise mistakenly (2). Patients may present not only with a single lesion but multifocal or satellite lesions may also be seen as in our case (5). Studied head and neck CAs are reported to metastasize most commonly to lungs, followed by the liver, cervical lymph nodes, spleen, and, rarely, the heart and brain (2). Wang et al. have found that although metastases occur commonly, bone marrow findings have been rarely documented (3). In their splenic angiosarcoma case, on observing metastasis to bone with 2 other cases that have been reported previously, they have concluded that splenic angiosarcomas have a virtually unique propensity for infiltration in the bone marrow. Nonetheless, our case shows that CAs can also metastasize to bone. MR imaging may define the extent of the tumor (5). Similar to previous reports on scalp CAs, lesions in our case were hyperintense on T2-weighted images with distinct borders, enhancing on postcontrast T1-weighted images. On MR images, lesions with similar imaging characteristic were revealed also within the bone marrow in our case.

In conclusion, metastasis to bone marrow from a CA can be observed though previous reports claim metastasis to bone is unique to splenic angiosarcoma. Awareness of the disease in spite of the rare location may hinder delay in diagnosis. If CA is diagnosed with histopathology, the probable metastases to bone should be evaluated either by scintigraphy or MR imaging.



**Figure 3.** Transverse T1-weighted image following the administration of intravenous contrast media demonstrates contrast enhancement both **A.** in the cutaneous lesions (arrows) and **B.** lesion in the bone marrow (arrows)



**Figure 4.** **a)** Low-power view from the primary tumor showing infiltrative growth pattern in the dermis and invading the structures up to the subepidermal areas by forming nodular masses (x100, H&E) **b)** High magnification revealed the epithelioid characteristics, such as big, round to oval nuclei and abundant cytoplasm of the neoplastic cells (x400, H&E). Arrow indicates a mitotic figure **c)** Most of the tumor cells showed strong immunoreactivity against CD31 (x400, DAB)

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