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**Thiago Alexandre Martins Marques**  
Colorectal surgeon at the  
Department of Surgery, State  
Servers Hospital, Recife,  
Pernambuco, Brazil

**Ana Carolina Branco Neves Silva**  
Clinical Oncologist at Department  
of Clinical Oncology, State Servers  
Hospital, Recife, Pernambuco,  
Brazil

**Diego Laurentino Lima**  
Assistant Professor of Surgery,  
Center of Biological Sciences and  
Health, Catholic University of  
Pernambuco. Assistant professor of  
surgery, University Center  
Mauricio de Nassau. Masters  
student at University of  
Pernambuco. Recife, Brazil

**Raquel Nogueira Cordeiro**  
Medical Student, Pernambuco  
Health College, Recife, Brazil

**Mariana de Albuquerque Borges**  
Pathologist, Pernambuco Cancer  
Hospital, Recife, Brazil

**Marconi Roberto de Lemos Meira**  
Professor of Surgery, Department  
of Surgery, State Servers Hospital,  
Recife, Brazil

**Corresponding Author:**  
**Diego Laurentino Lima**  
Assistant Professor of Surgery,  
Center of Biological Sciences and  
Health, Catholic University of  
Pernambuco. Assistant professor of  
surgery, University Center  
Mauricio de Nassau. Masters  
student at University of  
Pernambuco. Recife, Brazil

## Acral injury as the first manifestation of colon cancer: case report

**Thiago Alexandre Martins Marques, Ana Carolina Branco Neves Silva,  
Diego Laurentino Lima, Raquel Nogueira Cordeiro, Mariana de  
Albuquerque Borges and Marconi Roberto de Lemos Meira**

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### Abstract

During the diagnosis of the primary CRC, about 20% of patients have already developed metastatic diseases, and the most common metastatic sites include the liver and lungs. Bone metastasis (BM) is rare and is reported only in 10–15% of patients with CRC. We describe a case of a patient who presented with a bone lesion on his right foot which was later diagnosed as a metastatic lesion from a gastrointestinal cancer.

**Keywords:** colon cancer, metastasis, gastrointestinal tumor

### Introduction

Colorectal cancer (CRC) is the third most commonly diagnosed cancer in the general population in the United States <sup>[1, 2]</sup>. During the diagnosis of the primary CRC, about 20% of patients have already developed metastatic diseases <sup>[3]</sup>, and the most common metastatic sites for CRC patients include the liver and lungs <sup>[4, 5, 6]</sup>. Bone metastasis (BM) is quite rare and is reported only in 10–15% of patients with CRC <sup>[7]</sup>. The prognosis of patients with bone metastasis is very poor, with a 5-year survival rate less than 5% <sup>[8, 9]</sup>. Moreover, many kinds of skeletal-related events (SRE) such as severe bone pain, pathologic fracture, spinal cord compression, and hypercalcemia may occur in these cases <sup>[10]</sup>. Acral metastasis are quite rare, located in the hand in 0.1% of cases. They showed more preference for fingers (86%) than toes and were in the thumb and distal phalanx <sup>[11]</sup>. The characteristics associated with bone metastasis originated from CRC are not clear <sup>[12]</sup>.

### Case report

We report a case of a male patient, 55 years-old, who went to the orthopedic trauma center after a trauma in his right foot, followed by edema and hyperemia. (Figure 1). The patient denied having other symptoms. An X-ray showed a tarsus fracture, following which he was treated conservatively with immobilization. The patient had no improvement of the edema, pain or hyperemia and returned to the orthopedist. He was, subsequently, submitted to an MRI (magnetic Resonance Imaging) of the foot which showed an image suggestive of bone fractures, compromising the medial cuneiform of tarsus and other areas of the medullar bone edema (Figure 2).

The patient continued to be administered to conservative treatment. However, he was not able to properly perform physical therapy due to local pain for 3 months. A new CT scan of the right foot showed an extensive lysis with an expansive effect compromising predominantly of the medial cuneiform bone and the basis of the first metatarsus, with components of the soft parts associated exerting clear obliteration of the adjacent muscular and fatty tissues. The aspects of the lesion were compatible with aggressive neoplastic lesion. (Figure 3).

The biopsy of the lesion showed a metastatic carcinoma. The immuno-histochemistry suggested a metastatic adenocarcinoma originating from the gastrointestinal tract. Two months later, patient exhibited fever, pain in the lower abdomen and constipation. A CT scan showed a solid and concentric parietal thickening in the transition of the descending to the sigmoid colon, which could correspond to a primary neoplasia. (Figure 4). A colonoscopy confirmed the findings of

the CT scan, identifying, 14 to 16 cm from the anal margin, a vegetative and infiltrative lesion occluding almost completely the lumen of the organ, preventing the passage of the instrument (Figure 5). Pathology showed a villous colonic adenoma with high grade dysplasia.

The patient was submitted to a surgical procedure with the coloproctology and urology teams. A block resection was performed (R0), and the descending colon, sigmoid and part of the bladder were resected, with reinsertion of the ureter due to tumoral extension. Moreover, a distal colostomy was performed in the left lower quadrant. The patient was discharged after a few days and was followed-up by the coloproctology, urology, orthopedic and oncology teams. The CEA level remained elevated (6,1 reference: 5 mcg/l) after the surgery.

The patient was submitted to chemotherapy for 6 months with FOLFOX and showed a major improvement of the pain in his right foot. A bone scintigraphy procedure showed an extensive osteogenic activity in his right tarsus compatible with the hypothesis of tumor, with no known etiology. (Figure 6)

A new CT scan of the right foot showed a lytic lesion with areas of sclerosis compromising the medullar and cortical areas of the cuneiform bone and basis of the first metatarsus, with important expansive periosteal component with extension to soft parts measuring 7 x 5 cm. The lesion showed growth when compared to the previous study. (Figure 7)

The team opted together with the patient and his family for the amputation of his inferior right limb below the knee. The procedure was uneventful, and the histologic examination of the right foot showed a well-differentiated metastatic adenocarcinoma compatible with intestinal origin. (Figure 8) The lesion was present in the bone and soft parts. The immuno-histochemistry confirmed it, and it was declared positive for CEA and CDX2.

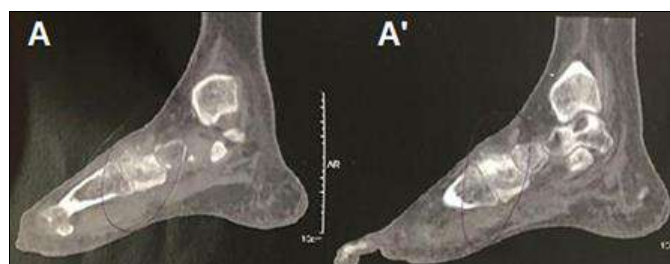
After the amputation of the limb, the CEA level decreased (1.3 mcg/l). A CEA curve during the treatment can be seen in Table 1. Currently, the patient continues his follow-up with the surgical and oncology teams and shows no signs of recurrence.



**Fig 1:** Right foot with edema and hyperemia after trauma.



**Fig 2:** MRI of the foot which showed an image suggestive of bone fractures, compromising the medial cuneiform of tarsus and other areas of the medullar bone edema.



**Fig 3:** CT scan of the right foot showed an extensive lysis with an expansive effect compromising predominantly of the medial cuneiform bone and the basis of the first metatarsus, with components of the soft parts associated exerting clear obliteration of the adjacent muscular and fatty tissues. The aspects of the lesion were compatible with aggressive neoplastic lesion.



**Fig 4:** CT of total abdomen scan showed a solid and concentric parietal thickening in the transition of the descending to the sigmoid colon, which could correspond to a primary neoplasia.



**Fig 5:** Colonoscopy: 14 to 16 cm from the anal margin, a vegetative and infiltrative lesion occluding almost completely the lumen of the organ, preventing the passage of the instrument.

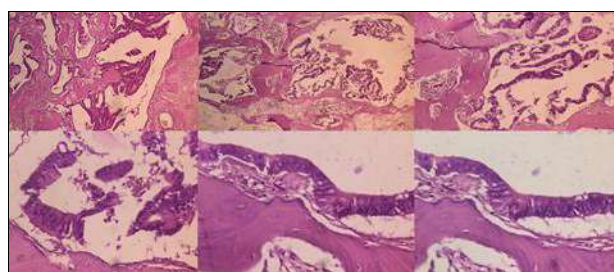




**Fig 6:** Bone scintigraphy showed an extensive osteogenic activity in his right tarsus compatible with the hypothesis of tumor, with no known etiology.



**Fig 7:** A new CT scan of the right foot showed a lytic lesion with areas of sclerosis compromising the medullar and cortical areas of the cuneiform bone and basis of the first metatarsus, with important expansive periosteal component with extension to soft parts measuring 7 x 5 cm.



**Fig 8:** The histologic examination of the right foot showed a well-differentiated metastatic adenocarcinoma compatible with intestinal origin. The lesion was present in the bone and soft parts.

**Table 1:** CEA leves during the patient's follow-up.

| Date | Before        | After     | 5 months  | 6 months | 7 months | After      | 1 year              |
|------|---------------|-----------|-----------|----------|----------|------------|---------------------|
|      | first Surgery | colectomy | follow-up |          |          | amputation | after first surgery |
| CEA, | 1.3           | 4.2       |           | 4.6      | 5.5      | 1.3        | 0.8                 |

## Discussion

The common sites for bone metastasis from CRC are the spine, pelvis and long bones<sup>[13]</sup>. This happens due to the spreading of the tumor via arterial blood and Batson's plexus<sup>[14]</sup>. Isolated skeletal metastasis is quite rare, occurring in only 1.1%<sup>[15]</sup>. Isolated scapular metastasis has also been reported<sup>[16]</sup>. Our patient experienced isolated bone metastasis without lung or liver metastasis. Other studies have showed cases of patients with only BM with no other metastasis<sup>[17, 18]</sup>.

However, Roth *et al.* (2009) conducted a study using Positron emission tomography (PET)/CT evaluation of colorectal cancer patients and did not find patients with isolated BM. Thus, they found that metastasis in liver and or lung were always present before the involvement of the bone. They were usually at an early stage, asymptomatic, which is different from BM.<sup>8</sup> The case reported in this example had an isolated BM with no lesion found in liver and lung with CT scan and were not submitted to a PET.

The prognostic factors associated with BM are synchronous BM, multiple BM, extra-BM, osteolytic lesions and high levels of CEA<sup>[12]</sup>. SRE are correlated with significant reduced survival, requirement for supportive care and decreased quality of life<sup>[10]</sup>. Usually, patients stop the systemic chemotherapy<sup>[10]</sup>. The complications related to BM originated from CRC are similar to those present in patients with BM from other solid tumors<sup>[10]</sup>.

Our patient has a good quality of life, with a guaranteed survival of 1 year after the first surgery.

In our case, the rarity of this event caused many difficulties in the diagnosis. The patient was treated conservatively with a fracture in his foot which wouldn't improve after months. This delayed the right therapeutic procedure, which couldn't be compromised.

Kawamura *et al.* (2018) showed that radiotherapy (RT) is associated with longer survival. RT is the approach mostly used to treat pain from BM<sup>[12]</sup>. The patient reported in this paper had no RT and did not stop chemotherapy. However, Suresh *et al.* (2017) reported that chemotherapy administration did not show any survival significant results<sup>[19]</sup>. Jimi *et al.* (2013) showed that survival was related to the CEA levels and lung involvement<sup>[18]</sup>. Our patient had low CEA levels only after the amputation of the leg. Another option for the management was the use of bisphosphonates for the systemic treatment of BM, the prevention of SREs and the control of pain in these patients<sup>[20, 21]</sup>. The use of zoledronic acid increases the median time for the first SRE in patients with BM from CRC<sup>[13]</sup>. However, our patient did not take any bisphosphonate because it would not reduce the tumor.

## Conclusion

The rare presentation of a metastatic colon cancer can mimic more inoffensive illnesses and delay the proper therapeutic procedure. Physicians should be aware of this very rare presentation in their arsenal of differential diagnosis.

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