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## Case Report

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# Coexistence of Prostate Cancer, Gynecomastia, Renal Failure, Melanonychia, and Wrist Lump

Vitorino Modesto dos Santos MD PhD<sup>\*\*\*</sup>, Rodrigo Abdalla de Vasconcelos MD<sup>\*\*</sup>,  
Fernando Henrique de Paula MD<sup>\*\*</sup>, Paulo Victor Alves Tubino MD<sup>\*\*</sup>,  
Thiago Zavascki Turra MD<sup>\*\*</sup>, Ivan Gagliardi Castilho<sup>\*</sup>

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Although prostate cancer is among the most frequent malignancies in the elderly, this tumor may be under-reported, and it seems that its socioeconomic burden is not well-estimated. Chronic urinary obstruction caused by the cancer may cause renal failure, with hemorrhagic tendency, neurologic disturbances, cutaneous disorders, and diverse fingernail changes. Black or brown nail pigmentation has been associated with benign and malignant conditions, including antineoplastic drugs' side effects, subungual metastases, and melanoma. Metastasis of fingernail melanoma can affect lymph nodes from the wrist to elbow and axillary regions. Coexistent melanonychia and wrist lump, mimicking melanoma with sentinel lymph node is reported. It is recommended to consider the differential diagnosis of nail changes due to chronic renal failure.

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**Keywords:** Chronic renal failure • cancer • gynecomastia • melanonychia • prostate cancer

### Introduction

Prostate cancer is a very common malignancy among old males; however, the epidemiologic data are not well-known and this tumor has been underestimated in developing countries.<sup>1</sup> Longstanding hormone therapy for advanced prostate cancer can cause gynecomastia which further contributes to the development of breast cancer,<sup>2</sup> that can metastasize to nails.<sup>3</sup> Obstructive uropathy due to prostate cancer may cause chronic renal failure, which is frequently associated with specific half-and-half, or nonspecific changes in the fingernails.<sup>4,5</sup> In patients with malignant conditions, melanonychia usually is associated with side effects of antineoplastic drugs or melanoma. A Mexican study about nail tumors in 234 patients disclosed the following diagnoses: fibrous (29%), osteocartilaginous (21.8%), myxoid pseudocysts

(12%), and melanoma (9.8%).<sup>6</sup> Nevertheless, because of the lack of specific characteristics, in addition to the usual under-reporting in developing countries, the real frequency of nail tumors is not well-established. Subungual metastases are rare, but can occur in oncologic patients or in malignancies not yet diagnosed (44% of cases). Most of these metastases may remain unrecognized because symptoms such as pain, erythema, and reddish or violaceous nodes are easily mistaken by trauma or local infection.<sup>3</sup> The purpose of this study was to describe a finger melanonychia coexistent with a lump in the wrist, which suggested a nail melanoma with a sentinel lymph node. It is recommended to consider the differential diagnosis of nail changes associated with chronic renal failure. Case reports could favor a higher awareness and better understanding about real burden of prostate cancer and related conditions.<sup>1</sup>

### Case Report

A 74-year-old Brazilian male with chronic renal failure and advanced prostate cancer presented with asthenia, weight loss (4 kg in three months), pain in the legs, and mental confusion. On

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**Authors' affiliations:** \*Catholic University Medical Course, Brasilia-DF, \*\*Armed Forces Hospital, Brasilia-DF, Brazil.

**Corresponding author and reprints:** Vitorino Modesto dos Santos MD PhD, SMPW Quadra 14 Conjunto 2 Lote 7 Casa A. 71.745-140, Brasilia-DF, Brazil.

Tel: +61-338-026-66, Fax: +61-323-315-99

E-mail: vitorinomodesto@gmail.com

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**Figures 1A and B.** Bilateral gynecomastia on physical examination and chest X-ray.

admission, he did not remember which appeared first; melanonychia or wrist lump. His prostate cancer (Gleason 6) was diagnosed eight years ago, initially treated with goserelin and bicalutamide. As the tumor was androgen-refractory, doxorubicin and cyclophosphamide was prescribed unsuccessfully that were converted into mitoxantrone and prednisone. Chronic renal failure developed secondary to urinary obstruction and a total prostatectomy was performed three years ago. Nowadays, he is under hemodialysis schedule. Physical examination showed: body mass index (BMI): 24.16 kg/m<sup>2</sup>, temperature: 36.4°C, blood pressure: 140/90 mmHg, heart rate: 106 bpm, respiratory rate: 19 irpm, and gynecomastia (Figures 1A and 1B). There was a painless and hyperchromic irregular lesion in the third right fingernail, which sized about 5×3 mm (Figures 1C and 1D). Moreover, a painless and fixed fibrous node of 1.5 cm in diameter was palpated in flexor surface of the right wrist (Figure 1C). No other organ or lymph node enlargement was found by clinical examination. Laboratory blood tests revealed: red cell count: 2.89×10<sup>6</sup>/mm<sup>3</sup>, hemoglobin: 8.6 g/dL, hematocrit: 25.3%, MCV: 88.0 fl, MCH: 34.2%, leukocyte count: 10.1×10<sup>3</sup>/mm<sup>3</sup> (bands: 1,441, segmented: 10,611, lymphocytes: 786, monocytes: 262), platelets: 227×10<sup>3</sup>/mm<sup>3</sup>, iron: 33 mcg/dL, iron saturation: 22%, TIBC: 147.3 mcg/dL, ferritin: 5,699 ng/mL,

ESR: 17 mm/hour, C-reactive protein: 12.2 mg/dL, folate: 11 ng/mL, cyanocobalamin: 345 pg/mL; urea: 292.5 mg/dL, creatinine: 9.5 mg/dL, uric acid: 13.7 mg/dL, AST: 25.3 U/dL, ALT: 23.4 U/dL, alkaline phosphatase: 42.1 U/L, glucose: 87 mg/dL, sodium: 139 mEq/L, potassium: 5.1 mEq/L, calcium: 0.96 mEq/L, phosphorus: 7.5 mg/dL, magnesium: 1.7 mg/dL, total cholesterol: 190 mg/dL, triglycerides: 161 mg/dL, TSH: 0.64 mIU/mL, free T4: 1.1 ng/dL, parathyroid hormone: 360 pg/mL, and homocysteine: 10.8 μmol/L. The urinalysis was unremarkable and cultures were negative.

The total bone scanning with Tc99m-MDP showed multiple osteoblastic metastases in the hip, vertebral column, and ribs. The radiographic study of the hand and wrist bones were normal (Figure 1E). Finally, the ultrasonographic imaging of the right wrist revealed the typical features of a synovial cyst with approximately 1.0 cm<sup>3</sup> fluid (Figure 1F).

## Discussion

This old man was admitted with advanced prostate cancer and end-stage chronic renal failure. He presented with finger melanonychia, which is not usually common in these conditions. Half-and-half nails and nonspecific changes like Beau, Mees, or Muehrcke lines, clubbing, longitudinal



**Figures 1C and D.** The right wrist subcutaneous node (arrows) and pigmented change in the middle finger; the subungual pigmented change in detail.



**Figures 1E and F.** Normal radiography of bones in the right hand and wrist; the synovial cyst revealed by ultrasound imaging (arrows).

ridging, onychomycosis, koilonychia, onychodystrophy, pincer deformity, peeling and pitting of nails, absence of lunula, subungual hyperkeratosis, and splinter hemorrhages have been frequently reported in chronic renal patients under hemodialysis.<sup>4,5,7,8</sup> The gynecomastia due to hormone therapy highlighted the hypothesis of breast cancer.<sup>2</sup> Although this tumor causes up to 9% of nail metastases, the main sources of these implants are lung cancer (41%) and genitourinary cancers (17%), and 11% out of these are renal.<sup>3</sup> Nail pigmentation occurred solely in one of the fingernails, as found in metastases (92%).<sup>3</sup> The subcutaneous node in the ipsilateral wrist enhanced the diagnostic challenges. In this patient, lymph node metastasis from prostate cancer was a probability but this site is very rare.<sup>9</sup> Another probability was about an eventual sentinel lymph node from a subungual melanoma. An epidemiologic study including 1,124 Iranians revealed a mean skin cancer frequency of 28.6%, mostly in the seventh and eighth decades of life, and melanoma was found in 2.7% of the cases, being 1.5 times higher in males.<sup>10</sup> However, the large node in the wrist and the absence of palpable lymph nodes in the elbow and axilla, did not favor this hypothesis.<sup>11</sup> Ultrasound imaging disclosed a synovial cyst (Figure 1F) and cleared the origin of the node. This kind of cyst is a very common cause of wrist lumps, while malignant tumors are rare. Because the patient refused the excision of his cyst, only a needle aspiration was performed. The hypothesis of breast cancer was ruled out by the absence of parenchyma and areolar changes. In addition to melanoma, this melanonychia could be due to the prostate cancer treatment. However, digital images from the nail lesion, in the special pseudopod feature (formed by red cells entrapped between the layers of the unguis plate), contributed to the differential diagnosis among drug effects,

melanoma, and hemorrhage due to a previous trauma.<sup>12,13</sup> Actually, the patient's friend had testified the occurrence of a nail trauma one week before. Patients with uremia may present with hemorrhagic tendency as well as memory disturbances which can explain why the patient did not recall the true origin of his nail lesion. This report also aims to emphasize the following points for daily practice in primary care services: 1) the possibility of incorrect diagnosis between melanoma and diverse benign nail changes; 2) the importance of considering a broader differential diagnosis in patients with nail-pigmented lesions; and 3) the need for higher awareness about nail changes in patients with chronic renal failure.

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