Subungual Metastasis of an Adenocarcinoma of the Prostate in a Finger

Ramón García-Galaviz^a Judith Domínguez-Cherit^a Claudia Caro-Sánchez^b
Elizabeth Salazar-Rojas^c

^aDermatology Department, Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán, Mexico City, Mexico; ^bPathology Department, Instituto Nacional de Cancerología, Mexico City, Mexico; ^cSkin and Soft Tissue Department, Instituto Nacional de Cancerología, Mexico City, Mexico

Established Facts

- Subungual metastasis is a very rare condition with a poor prognosis.

Novel Insights

- This is the first case report of an adenocarcinoma of the prostate with subungual metastasis in a finger.

Keywords

Adenocarcinoma of the prostate · Dermatologic surgery · Dermoscopy · Nail bed tumor · Nail tumor · Subungual metastasis

Abstract

Cutaneous metastasis is a rare event occurring most frequently in patients previously diagnosed with cancer. However, subungual metastases are even less frequent. The most common neoplasms associated with the latter are lung, kidney, and breast neoplasms. Lung cancer is the main cause of subungual metastases in the fingers, and genitourinary tract tumors are the main cause of subungual metastases in the toes. This is the first case report of an adenocarcinoma of the prostate with subungual metastasis. © 2018 S. Karger AG, Basel

Introduction

Cutaneous metastases are defined as neoplastic lesions affecting the skin that originate from a primary tumor at a different site. They are rarely the initial presentation of a previously undiagnosed tumor and typically occur in patients with an established diagnosis of malignancy and, therefore, indicate either progression or recurrence of the cancer [1].

Case Report

We present the case of a 66-year-old male diagnosed with metastatic cribriform adenocarcinoma of the prostate 2 years earlier. He was treated with bicalutamide and tamsulosin. During follow-up, prostate-specific antigen levels rose from 95 to 191 ng/dL and

Fig. 1. a A painful enlargement on the nail plate of the fourth right finger, with violaceous discoloration, without destroying the nail plate. **b** Onychoscopy showed non-melanocytic black pigmentation of the nail bed, with hematomas and vascular-like nodules, as well as dilated blood vessels. The nail plate was unremarkable.

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Fig. 2. Partial avulsion of the nail plate was performed showing a friable, poorly defined tumor with many vascular-like and purpuric areas.

free prostate-specific antigen from 17 to >30 ng/dL. A painful enlargement on the nail plate of the fourth right finger was also noted, with violaceous discoloration, without destroying the nail plate (Fig. 1a). Onychoscopy showed nonmelanocytic black pigmentation of the nail bed, with hematomas and vascular-like nodules, as well as dilated blood vessels. The nail plate was unremarkable (Fig. 1b).

A digital nerve block and a tourniquet were applied in the fourth finger. Partial avulsion of the nail plate was performed showing a friable, poorly defined tumor with many vascular-like and purpuric areas (Fig. 2). A 4-mm punch was taken from the nail bed. Histopathology showed the neoplasia affecting the nail bed, with a cribriform pattern (Fig. 3a) and rigid lumina of varying size (Fig. 3b). High-power view demonstrated cuboid cells with an ovoid nucleus, granular chromatin, and prominent nucleolus (Fig. 3c). Mitoses were present. Immunostain was diffusely positive for prostate-specific antigen (Fig. 3d).

On follow-up, metastatic disease was found on many sites such as bone, liver, and rectum. The disease was castrate resistant, and docetaxel-based chemotherapy was initiated, but disease progression was noted, and the patient died 6 months after evaluation.

Discussion

Cutaneous metastases may precede, accompany, or follow the diagnosis of the primary tumor. They are more often found in older patients and classically present as multiple painless nodules near the primary site. It is a rare event occurring only in 5–10% of patients already diagnosed with any kind of cancer, and 0.8–3.5% occur as the first sign of malignancy [2]. Most skin metastases manifest at end-stage disease of the primary neoplasm or during treatment [3]. They are more common in men, and the mean age of presentation is 55 years [4].

Although the biomolecular basis of metastasis is complex and poorly understood, there are 3 basic patterns of metastatic mechanisms reported: (1) mechanical tumor

Fig. 3. Microphotographs show the neoplasia affecting the nail bed, with a cribriform pattern (HE, $\times 100$) (**a**) and rigid lumina of varying size (HE, $\times 200$) (**b**). **c** High-power view demonstrated cuboid cells with an ovoid nucleus, granular chromatin, and prominent nucleolus (HE, $\times 400$); mitoses were present (arrow). **d** Immunostain was diffusely positive for prostate-specific antigen.

stasis: anatomical proximity and lymphatic drainage; (2) organ-specific factors: selective affinity of tumor cells to a specific organ; and (3) nonselective factors: independent of mechanical and organ-specific factors [5].

Metastases affecting the nail apparatus, also called acral or subungual metastases, are extremely rare. They represent only 0.1% of cutaneous metastases. The most common cause is direct extension from a bony lesion beneath the nail plate. In contrast to cutaneous metastasis, subungual metastasis may be the initial manifestation of a previously undiagnosed cancer in 44% of patients [6].

The clinical findings should be distinguished from other nail diseases, such as infections, inflammatory dermatoses, primary nail tumors (benign and malignant),

and, as in our case, traumatic hematomas. It may be possible to identify an erythematous-violaceous nodule below the nail plate (the most frequent location), and periungual lesions may be the result of direct extension of subungual metastasis. The symptoms will depend on the tumor extension, infiltration to the nail bed, and bone invasion, ranging from an asymptomatic to a very painful nail, most commonly the latter. The most frequent location is a single finger, but either a single digit of the foot or multiple digits of the same hand or foot and/or both hands or feet have been described previously.

In a review of the literature, Cohen [6] reported 133 patients with subungual metastases, with the lung as the main primary tumor site (41%), followed by the kidney

(11%) and breast (9%). No primary tumors of the prostate were reported in this review. Lung cancer was the main cause of subungual metastases in the fingers, and genitourinary tract tumors were the main cause of subungual metastases in the toes.

The diagnosis should be confirmed through histopathologic and radiologic examination. X-ray films will show osteolysis of the affected phalange, while the joint cartilage and space are spared [7]. Histopathologic examination will reveal tumor cells from another primary neoplasm and, sometimes, will require immunohistochemistry in order to clarify the origin of tumor cells.

Treatment of subungual metastases should be tumor directed, either local therapies or incorporated into systemic treatment, or both. Systemic chemotherapy, nail avulsion and curettage of the tumor, excision of the tumor, amputation of the digit containing the tumor, and radiotherapy have been used.

The presence of cutaneous metastasis is a sign of advanced disease and therapeutic fail and/or recurrence, and survival will depend on the primary tumor type. If there is acral or nail apparatus involvement, the longest survival reported was 14 months.

To our knowledge, this is the first case report of an adenocarcinoma of the prostate with subungual metastasis as a sign of disease progression, with poor prognosis.

Statement of Ethics

The patient gave his informed consent for the use of anonymized photographs for research purposes.

Disclosure Statement

The authors declare no conflicts of interest.

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