

Onycholysis With the Appearance of a “Sunset” Secondary to Capecitabine

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Capecitabine is an antineoplastic agent that is currently the only effective treatment for patients with advanced or metastatic breast cancer in whom anthracycline or taxoid treatment has failed. Dermatologic side effects have included hand-foot syndrome and one case of onycholysis. We report a case of onycholysis with appearance of a “sunset” induced by capecitabine.

Cutis. 2003;72:234-236.

Many chemotherapeutic agents have been reported to cause nail changes. These changes include hyperpigmentation, Beau's lines, growth reduction, nail loss, nail shedding, onychodystrophy, Muehrcke's lines, onychodermal bands, Mee's lines, acute paronychia, subungual erythema or edema, and onycholysis.¹ We report a case of onycholysis induced by capecitabine, a novel antineoplastic agent. Interestingly, the associated varying bands of unguis erythema were reminiscent of a sunset.

Case Report

A 39-year-old White woman diagnosed with advanced-stage breast cancer was treated with modified radical mastectomy, radiotherapy, and multiple chemotherapeutic agents without success. She then underwent a trial of chemotherapy with the agent capecitabine. After the second dose of capecitabine, she developed painful subungual erythema progressing to onycholysis involving all her fingernails and both great toenails. After a treatment interval of 6 weeks, slight improvement was noted; however, similar nail changes occurred after a second course of treatment.

On physical examination, the patient had separation of the nail plate to approximately the distal edge of the lunula. Beginning at the lunula, there was a 1-mm band of bright erythema and edema distally that blended into a gradient of yellowish discoloration, similar to a sunset (Figure 1). Her great toenails demonstrated more typical dystrophy with distal separation of the nail plate from the nail bed (Figure 2). Results of a potassium hydroxide examination of the nails did not show fungal hyphae.

Comment

Capecitabine is currently the only effective treatment for women with advanced or metastatic breast cancer in whom anthracycline or taxoid treatment has failed.²⁻⁶ Capecitabine is an orally-administered fluoropyrimidine carbamate that utilizes a 3-step process to metabolize to the active agent fluorouracil. The final step of the process occurs preferentially in malignant tissue, allowing for fewer systemic toxic effects.³⁻⁵ Common adverse effects include gastrointestinal disorders (diarrhea, nausea, vomiting, stomatitis, mucositis), hematologic disorders (neutropenia, anemia, thrombocytopenia), hand-foot syndrome (painful erythema and swelling of the hands and/or discomfort with everyday activities), hyperbilirubinemia, dermatitis, and fatigue.²⁻⁵ To our knowledge, there is only one other report of capecitabine-induced onycholysis and onychomadesis in which the patient developed changes involving all of her digits after 16 weeks of treatment.²

Other chemotherapeutic agents have been implemented in causing onycholysis, most commonly bleomycin, cyclophosphamide, docetaxel, doxorubicin, etoposide, hydroxyurea, fluorouracil, and methotrexate.¹ In one study of 140 cases of chemotherapy-induced onycholysis, etoposide and fluorouracil were implicated as the agents most likely to cause the nail changes. The great toenail was mostly and sometimes solely involved.⁷

The etiology of chemotherapy-induced onycholysis is unclear. Theories include immunosuppression

Accepted for publication May 28, 2003.

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The authors report no conflict of interest.

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Figure 1. “Sunset” onycholysis of the fingernails (A and B).

that leads to colonization of the nail bed, changes in the nail plate that leaves nails thin and brittle and makes them prone to trauma, disruption of the nail plate secondary to medication effects on cellular maturation, subungual edema that leads to a pressure phenomenon that causes rupture of the bond between the nail plate and the nail bed, or photo-induced changes in the cellular matrix that leads to disruption of the nail plate.^{1,2,7}

The unusual sunset appearance of onycholysis in our patient’s nails may be the result of the offending agent, capecitabine, causing subungual erythema, edema, and hemorrhage on 2 separate

occasions. Subungual edema and secondary hemorrhage most likely lead to painful disruption of the nail plate, causing onycholysis. Because the nail plate did not completely separate to cause total disruption, the second course of therapy caused repeated edema and hemorrhage that lead to a second disruption to the nail, possibly causing the sunset appearance.

Conclusion

Capecitabine is a new chemotherapeutic agent that is expected to be more readily used in the future. Clinicians should be aware of the possible clinical side



Figure 2. Onycholysis and onychodystrophy of the great toenail.

effects of this medication so that they can discuss them with their patients. Onycholysis can be very painful and distressing to a patient; thus, proper patient education can help lessen patient anxiety.

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