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LETTER TO THE EDITOR

Transverse leukonychia (Mees' lines) associated with docetaxel

Dear Editor,

The nail abnormalities encountered in patients with various malignancies likely represent side-effects of many antineoplastic agents.[1] Docetaxel is a relatively new chemotherapeutic agent of the taxane family widely used in the treatment of various malignancies including breast, ovarian, lung, head and neck cancers.[2] Taxanes probably cause nail changes more often than other drugs.[3] Various nail side-effects have been described in association with docetaxel.[2–5] However, in our search through the English-language published work (on PubMed using the key words Mees' lines, transverse leukonychia and docetaxel), we could not find any report of Mees' lines associated with docetaxel. Herein, we describe a patient with metastatic non-small cell lung cancer who developed Mees' lines after docetaxel therapy.

A 46-year-old woman was referred to our clinic in February 2009 for the evaluation of the nail color changes that involved all fingernails. The clinical history revealed that, in April 2008, the patient had suffered from metastatic non-small cell lung cancer (NSCLC) (stage IV) treated with three courses of cisplatin/gemcitabine and a total of 3000 cGy palliative radiotherapy for cervical vertebral metastases. Because of the disease progression in spite of the first-line chemotherapy, the patient received four courses of docetaxel 75 mg/m^2 every 3 weeks between November 2008 and January 2009. After two courses of docataxel therapy, the patient noticed white color changes on the nail plates of both hands. She also confirmed that there were no nail changes before the docetaxel treatment, and she was taking no other concomitant medication which might have caused the white bands. Physical examination at the time of admission revealed three white transverse bands, approximately 1 mm in width, on each of her fingernails (Fig. 1). The white bands did not disappear with pressure. The surface of the nail plates was smooth and no brittleness was present. The nail plate curvature and cuticles of all fingernails were also normal and she had no white bands on her toenails. It was observed that transverse white nail bands moved distally in time and completely disappeared 3 months after the cessation of the docetaxel treatment.

Docetaxel, a semi-synthetic taxoid, is a potent antitumor agent that promotes microtubule polymerization and inhibits tubulin de-polymerization, resulting in the inability of cells to replicate.[3] Nail toxicity is one of the more frequent non-hematological adverse reaction seen following docetaxel therapy.[5] Nail changes are described in different series and case reports, but real incidence of this side-effect is probably underestimated.[2–5] In a review by Minisini *et al.*,[3] who performed a Medline search of the published work, the overall incidence of taxane-induced nail changes was as high as 44%. Previous studies and case reports concerning docetaxel and nail changes have also showed that the nail abnormalities occur in

Figure 1. Transverse white bands are clearly visible on the fingernails.

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the range of 6–51%.[2–5] These abnormalities related to docetaxel include onycholysis, Beau's lines, subungual hemorrhage, subungual hematoma, subungual hyperkeratosis splinter hemorrhage, hypo- and hyperpigmentation, paronychia and onychomadesis.[2,4,5] In most cases, nail abnormalities occurring during docetaxel treatment are not serious, but acute painful paronychia and subungual abscesses can lead to important morbidity.[3] To our best knowledge, Mees' lines, as a nail side-effect of docetaxel therapy has not been reported previously in the published work.

Transverse white lines of the nail plate (transverse leukonychia), also known as Mees' lines, was first described by Mees in 1919, as an associated finding of arsenic intoxication.[6] Although these are classically associated with arsenic intoxication, various conditions such as trauma, nutritional deficiencies, systemic illness, infectious diseases and medications may also lead to transverse leukonychia.[6,7] Thus, some authors call the overall clinical manifestation of transverse leukonychia as Mees' lines,[8] whereas others use the term only in association with arsenic poisoning.[7] Siragusa and Alberti[9] described the case of a 41-year-old man affected by psoriasis, who developed Mees' lines caused by cyclosporine. Shelley *et al.*[8] reported transverse lines of leukonychia in a 7-year-old boy following a 10-day course of daunorubicin given for the treatment of lymphoblastic leukemia. Recently, Parakh and Kocchar[10] reported a case of a 16-year-old boy with acute lymphoblastic leukemia, who developed Mees' lines on the nail plates of all fingers 20 days after completion of daunorubicin therapy. They thought that Mees' lines result from abnormal keratinization of the nail plate due to drug-induced transient matrix injury.[8–10] As seen in our patient, Mees' lines are usually transitory and disappear with the cessation of therapy and/or nail growth.[6,8,9] Clinically, Mees' lines may be confused with Muehrcke lines, the difference being that they grow out distally and do not resolve with normalization of the serum albumin. Muehrcke lines represent an abnormality of the vascular nail bed and disappear while the nail is depressed and blood is squeezed from the vessels beneath the nail. Because the lesion is in the nail bed, it does not move with nail growth. These characteristics distinguish Mees' lines from Muehrcke lines.[9,10]

As is well known, the nail matrix epithelium, formed by highly proliferating cells that differentiate and keratinize to produce the nail plate, is very susceptible to toxic agents.[6] In our case, the drug may probably interfere with the cornification process of the nail matrix. Therefore, abnormal keratinization, arising from acute damage of the nail matrix epithelium caused by docetaxel, may result in whitening of the nail plate.

By reporting this first case of Mees' lines on an every 3-week regimen of docetaxel, we want to point out that clinicians should be aware of this side effect of docetaxel. Physician awareness of docetaxel-induced transverse white color changes of the nail is important to provide reassurance to the patient and avoid unnecessary diagnostic procedures.

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