

Nail Toxicity Associated With Paclitaxel Treatment for Ovarian Cancer

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A 57-year-old woman named C.B. began experiencing abdominal pain and bloating. She presented to her primary physician with these symptoms, and her physician palpated an adenexal mass on pelvic examination. That prompted a computed tomography (CT) scan of the abdomen and pelvis, which demonstrated omental thickening as well as a mildly enlarged left ovary. After initial consultation with a gynecologic oncologist, C.B. was taken to surgery and a total abdominal hysterectomy, bilateral salpingo-oophorectomy, omentectomy, partial bowel resection, and pelvic and periaortic lymph node dissection were performed. C.B. was diagnosed with stage IV ovarian cancer involving the omentum, pelvic lymph nodes, and bowel wall and was subsequently referred for postoperative chemotherapy.

C.B. was offered the option of participating in the Gynecologic Oncology Group 262 study, a phase III randomized study comparing dose-dense weekly paclitaxel to every three weeks paclitaxel in combination with carboplatin and consolidation bevacizumab (National Institutes of Health, 2012). She decided to participate in the study and was randomized to the dose-dense weekly

paclitaxel at 80 mg/m² plus carboplatin (area under the curve = 6) every 21 days for six cycles. In addition, she received carboplatin and bevacizumab every three weeks.

She began chemotherapy treatment in January and, by mid-April, at the beginning of treatment cycle 5, she began experiencing soreness in her fingertips and under her nail beds. The discomfort was not severe at that time, and her chemotherapy dose and schedule were not changed. At the beginning of cycle 6, she was re-evaluated and, at that time, she experienced dark discoloration under the nail beds and several of her fingernail beds were starting to lift up (see Figure 1). She also reported crusty green drainage from around some of her fingernails.

A dermatologist was consulted and cultures of the drainage were performed. The dermatologist recommended that C.B. soak her fingernails in a tablespoon of white vinegar (acetic acid) in a bowl of water (1:10 ratio) for 30 minutes every evening to help treat the presumed infection. He also prescribed thymol 4% in alcohol topical solution liquid application to C.B.'s nails and along the nail bed two times a day. C.B. was instructed to wear gloves whenever she did household chores involving soaking her hands in water, such as washing the dishes or laundry. In a follow-up appointment two weeks later, the infection under the fingernails appeared to be resolving and the pain was minimal, but several of the nail beds were loose. C.B. wore a bandage on the affected fingernails because they "felt like they were going to fall off" and interfered with basic daily tasks such as dressing and bathing. All of the nails on both hands changed significantly in appearance; they were thick, lined with deep grooves, and had yellow and dark discoloration. She also experienced discoloration of her toe-

- **Beau's lines:** deep grooved ridges that span from side to side on the fingernail
- **Hemorrhagic onycholysis:** collection of blood in the space beneath a nail bed that causes detachment of the nail bed
- **Onycholysis:** nail disorder characterized by detachment of the nail plate starting at the distal margin and progressing proximally
- **Paronychia:** swelling and redness of the skin alongside the fingernails or toenails
- **Subungual suppuration:** formation or discharge of pus beneath a nail bed

Figure 2. Definitions of Nail Toxicity Conditions Related to Chemotherapy

Note. Based on information from MedicineNet, 1996–2012.

nails and the right great toenail became loose and fell off.

Epidemiology

Nail toxicity is associated with certain chemotherapy drugs such as docetaxel, paclitaxel, and anthracyclines (Chew & Chuen, 2009; Gilbar, Hain, & Peereboom, 2009; Gori et al., 2004). An estimated 40% of patients who receive docetaxel and about 2% of patients who receive paclitaxel have nail toxicity (Bristol-Myers Squibb, 2011; Sanofi Oncology, 2012). However, rates of nail toxicity may be much higher when paclitaxel is administered weekly than when administered every three weeks (Chitapanarux et al., 2012; Markman et al., 2002; Mauri et al., 2010). Prolonged treatment of taxanes also increases the likelihood of experiencing nail toxicity (Shin et al., 2000; Sorbe et al., 2012); one study found that nail toxicity developed about 10–13 weeks after the first weekly dose of paclitaxel (Flory et



Figure 1. Nail Toxicity

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