

# Palmar erythema as a sign of cancer



**FIGURE 1.** The patient had symmetrical palmar erythema, especially in the thenar and hypothenar eminences. This cutaneous sign was accompanied by a sensation of warmth, but no pain or pruritus.

**A**N 83-YEAR-OLD MAN presented with fatigue and anorexia. Two years earlier, a small lung nodule had been found that was suspected to be primary lung cancer; however, he had refused surgical treatment or chemotherapy because of his age.

Aminotransferase and alkaline phosphatase levels had been normal, and results of serologic testing for hepatitis viruses were negative, making chronic liver disease unlikely. He was not a habitual drinker and was not taking any medications.

Physical examination revealed mild dehydration and abdominal tenderness in the left upper quadrant, and prominent palmar erythema without pain or dysesthesia was noted (**Figure 1**). He had no erythema on his soles, and no facial rash or periungual erythema. He also had no muscle pain, arthralgia, Gottron papules, heliotrope rash, or shawl sign. Therefore, dermatomyositis, which could manifest as a paraneoplastic syndrome, seemed unlikely.

Laboratory and imaging studies revealed lung cancer with hepatic metastasis complicated by severe hypercalcemia. The estradiol level was normal, but the

serum vascular endothelial growth factor (VEGF) concentration was high.

## PALMAR ERYTHEMA AND SYSTEMIC DISEASE

Palmar erythema syndrome is characterized by reddening of the palmar skin, especially in the thenar and hypothenar areas, the distal portion of the palm, and the fingertips; the dorsal surface of the hand is rarely affected.<sup>1</sup> The affected areas are typically not pruritic or painful.

### Conditions in the differential diagnosis

The differential diagnosis of palmar erythema includes allergic drug eruptions, contact dermatitis, erythema multiforme, cellulitis, dermatomyositis, and palmo-plantar pustulosis. Hand-foot syndrome and hand-foot skin reaction are other important conditions to consider in cancer patients undergoing chemotherapy.<sup>2</sup> Hand-foot syndrome and hand-foot skin reaction can present as palmoplantar erythema and are usually accompanied by dysesthesia and swelling.

Palmar erythema can develop in either primary or secondary forms as a result of an underlying systemic disease.<sup>2</sup> Although the pathogenesis is not fully understood, the impaired degradation or increased production of angiogenic factors appears to be essential. The hormone estrogen can induce vascularization<sup>3</sup> and is known to cause palmar erythema in pregnant women and patients with cirrhosis. Because estradiol is metabolized in the liver, increased levels of estrogen are associated with hepatic decompensation in cirrhosis.<sup>4</sup>

Neoplasm can cause palmar erythema.<sup>2,5</sup> In a clinicopathologic study of brain tumors, palmar erythema was recognized in 27 (25%) of 107 patients.<sup>5</sup> Histologic examination in that study demonstrated that the intensity of erythema correlated with both cutaneous vessel dilation and prominent vascularization in the patients' brain tumors, suggesting the role of circulating angiogenic factors such as VEGF. VEGF is a potent mediator of angiogenesis, which is critical for tumor development and growth.<sup>6</sup>

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Our patient had a metastatic hepatic tumor, a normal estradiol level, and an increased level of VEGF, suggesting that the VEGF produced by the neoplasm promoted the development of palmar erythema.

The presence of palmar erythema in cancer patients is likely underestimated<sup>2</sup> and may suggest the presence of malignancy when it develops in the elderly.

In our patient, intensive hydration and intravenous bisphosphonate administration rapidly corrected the malignancy-associated hypercalcemia. However, he was severely debilitated during the hospital stay and developed aspiration pneumonia repeatedly. Thereafter, he was transferred to hospice care. The palmar erythema remained after the electrolyte disorder was corrected. ■

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