

# Letter to the Editor

## Half and Half Nails: A Past and Present Snapshot

To the Editor:

Although nail abnormalities have been reported in different systemic disorders, most of these abnormalities are nonspecific. It is important to understand the nature of a nail abnormality when a systemic disorder is present because it allows appropriate workup and avoids incorrect treatments.

Sometimes a nail abnormality may be a clue for a systemic disorder, thus helping the clinician in performing the correct diagnosis. Examination of all 20 nails is mandatory, especially fingernails; trauma may mask signs and symptoms in fingernails less than in toenails. Detection of the chronologic sequence of events also is important (ie, the onset of the nail abnormality before, during, or after the systemic illness). A myriad of nail abnormalities have been described with chronic renal failure, but it has been stated that only half and half nails are the most notable findings.<sup>1,2</sup>

Half and half nails initially were considered specifically associated with chronic renal failure,<sup>1</sup> but they also have been reported in Kawasaki disease, hepatic cirrhosis, Crohn disease, and zinc deficiency, and after systemic cancer therapy.<sup>3,4</sup> Half and half nails have been detected in 10% to 26% of patients with chronic renal disease with all 20 nails involved.<sup>1,2,5</sup> They seem to be more common in men (male to female ratio of 2 to 1).<sup>5</sup> We are not aware of a correlation between nail changes and the age of the patient or duration of hemodialysis (this treatment does not improve nail changes, even though transplantation does). In addition, no evidence exists of a remarkable relationship between nail changes and both hemoglobin and albumin levels.<sup>6-8</sup>

Clinically, the proximal portion of the nail bed is white (apparent leukonychia with absence of the lunula) and the distal portion is pink or reddish brown (subungual erythema) with a sharply demarcated contrast between the 2 zones (Figure). It has been stated that if the distal portion is less than 20% of the total nail length, Terry nails is the culprit and not half and half nails.<sup>9</sup>

Half and half nails were described for the first time in 1962 by Bean<sup>10</sup> in patients with azotemia.

Lindsay<sup>11</sup> believed that the constricting venous return in the nail bed is caused by the reddish distal band. Because the bands do not move with nail growth, it is believed that the nail bed is the primary pathologic site.<sup>11</sup> Leyden and Wood<sup>12</sup> have found by biopsy that the color of the distal band is due to melanic pigmentation. They suggested that the renal decomposition may account for the stimulation of matrix melanocytes and subsequent pigment formation and deposition. Bencini et al<sup>13</sup> regarded the nail color changes as part of the diffuse skin hyperpigmentation observed in patients with chronic renal failure and attributed to the poorly dialyzable high tissue level of  $\beta$ -melanin-stimulating hormone.

Despite these reports, the pathogenesis of half and half nails remains unclear and has not been connected to a particular abnormality in renal status or treatment. It also remains unclear why the melanic pigment is not visible throughout the proximal part of the nail plate. It has been hypothesized that the nail plate has a looser attachment



Half and half nails.

to the nail bed in this area. The Tyndall effect also may play a role.

Different causes of nail discoloration could mimic half and half nails, especially Terry nails,<sup>14</sup> the erythematous crescent,<sup>1,2,15</sup> and the pseudo-half and half nails described in nail psoriasis<sup>16</sup> or associated with systemic drugs (5-fluorouracil, androgens).<sup>17</sup> Terry nails occurs when the apparent leukonychia involves more than 80% of the entire nail length. The erythematous crescent is a probable prominent onychodermal band, which is more of a structural abnormality than a sign of systemic disease.<sup>15</sup> The pseudo-half and half nails described in psoriasis are due to a brownish discoloration proximal to the distal onycholysis. Other skin/nail signs of psoriasis help in performing the correct diagnosis.

Sincerely,  
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The authors report no conflict of interest.

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