

Martorell Hypertensive Ischemic Leg Ulcer

A Model of Ischemic Subcutaneous Arteriolosclerosis

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Objectives: To better define the diagnosis and treatment of Martorell hypertensive ischemic leg ulcer (HYTILU) and to compare Martorell HYTILU with calciphylaxis (calcific uremic arteriopathy) and non-uremic forms of calciphylaxis.

Design: Retrospective study from 1999 through 2007.

Setting: Department of Dermatology, University Hospital of Zurich, Zurich, Switzerland.

Participants: Of 330 patients with leg ulcers, 31 had a clinical diagnosis of Martorell HYTILU confirmed by dermatopathologic examination.

Main Outcome Measures: Clinical features, suspected diagnosis at initial presentation, cardiovascular risk factors, findings from vascular examination and histologic analysis, specific medical and surgical management, and outcome.

Results: Of the 31 patients, all presented with 1 or multiple painful necrotic skin ulcers on the laterodorsal part

of the leg, with bilateral involvement in 16 of 31 cases (52%), and 16 were referred with suspected pyoderma gangrenosum. All patients had arterial hypertension, and 18 (58%) had diabetes. All patients had subcutaneous stenotic arteriolosclerosis on histologic analysis, with medial calcification in 22 of 31 of cases (71%). Martorell HYTILU, calciphylaxis, and nonuremic forms of calciphylaxis shared identical histologic features. Of the 31 patients, 29 (94%) were successfully treated with surgical debridement and split-thickness skin grafting. Three patients (9%) died of sepsis, 2 of whom were undergoing immunosuppressive treatment for wrongly diagnosed pyoderma gangrenosum.

Conclusions: Ischemic subcutaneous arteriolosclerosis is the hallmark of Martorell HYTILU, calciphylaxis, and the nonuremic forms of calciphylaxis. All patients are hypertensive and approximately 60% are diabetic. Martorell HYTILU can easily be confused with pyoderma gangrenosum, which can be detrimental, since the 2 diseases require a completely different treatment strategy.

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MARTORELL HYPERTENSIVE ischemic leg ulcer (HYTILU) was originally described by Fernandes Martorell in 1945 in Barcelona, Spain.¹ Martorell described 4 obese, hypertensive female patients with painful leg ulcers on the lateral aspect of their legs. One year later, Hines and Farber and coworkers^{2,3} reported an association of such leg ulcers with the histologic presence of hypertrophic stenotic subcutaneous arterioles and coined the term *hypertensive-ischemic ulcer*. In 1966, Schnier et al⁴ reported a series of 40 patients with HYTILU, pointing out the very characteristic location of the principal lesion on the laterodorsal lower leg. In 1995, Lazareth and Priollet⁵ described the benefit of skin grafting for the treatment of *Pangiodermite nécrotique*, the term used by the French to describe HYTILU, which was confirmed by Henderson et al⁶ in a survey on 16 patients. The literature on HYTILU is otherwise scarce,⁷ and to our knowledge, studies ana-

lyzing the clinical and dermatopathologic characteristics and possible therapies on a significant number of patients do not exist.

For editorial comment see page 1026

At our department, Martorell HYTILU has become one of the leading causes of chronic leg ulceration in the past 10 years. Martorell HYTILU shares striking clinical and histopathological similarities with calciphylaxis (calcific uremic arteriopathy)⁸⁻¹¹ and eutrophication in morbid obesity.¹² The latter has recently been referred to as "calciphylaxis with normal renal and parathyroid function"¹³ or "calciphylaxis from non-uremic causes."¹⁴ This study of a large series of patients with Martorell HYTILU defines common pathophysiologic hallmarks of 4 entities that are linked to ischemic subcutaneous arteriolosclerosis (**Table 1**) and outlines treatment protocols.