Stewart-Treves syndrome: a diagnosis to keep in mind

Francisco Gil[1] MD, Isabel Andrade[2] MD

Affiliations: [1]Department of Dermatology, Hospital de Santarém EPE, Santarém, Portugal, [2]Department of Pathological Anatomy, Hospital de Santarém EPE, Santarém, Portugal

Corresponding Author: Francisco Gil, Department of Dermatology, Hospital de Santarém EPE, Avenida Bernardo Santareno, 2005-177 Santarém, Portugal, Tel: 351-24330020, Email: franciscosgil@gmail.com

Keywords: Stewart-Treves, lymphedema, angiosarcoma

To the Editor:

An 84-year-old woman with a history of cancer of the right breast, treated with a radical mastectomy, radiation, and chemotherapy 8 years before, presented to our department with a 10-month history of an indurated poorly circumscribed violaceous plaque on the upper third of the right forearm; she had longstanding, persistent lymphedema of that arm as a consequence of her cancer treatment. More recently, roughly three months prior to presentation, the patient developed coalescing papules and nodules, some of them ulcerated, painful, and occasionally hemorrhagic within the plaque (**Figure 1**). Besides the previous invasive ductal carcinoma, significant medical history included dyslipidemia and major depression.

Two incisional biopsies were performed, showing a complex infiltrative vascular proliferation dissociating the dermal collagen. Atypical vascular spaces, of varied shape and dimensions, were lined by tumefact endothelial cells, with round-to-irregular vesicular nuclei and occasional prominent nucleoli. Immunostaining for human herpesvirus 8 was negative. Based on the clinical and pathologic findings, a diagnosis of cutaneous angiosarcoma was made. The patient was referenced to the soft-tissue sarcoma multidisciplinary committee.

Cutaneous angiosarcoma is a rare malignant tumor, derived from endothelial cells from blood or lymphatic vessels, that can develop de novo, in irradiated skin, or in areas of chronic lymphedema [1,2]. Stewart-Treves syndrome refers to the association between angiosarcoma and chronic lymphedema [3]. It has historically been associated with mastectomy in women treated for breast cancer who develop lymphedema as a result of lymph node dissection. Therefore, the angiosarcoma generally presents in the upper limbs [3,4]. More rarely, the syndrome can occur in the setting of lymphatic malformations, chronic infections, chronic venous stasis, morbid obesity, malignant obstruction, and surgical procedures that disrupt lymphatic flow [1].

In Stewart-Treves syndrome, the time between development of lymphedema and appearance of the tumor can range between one and 26 years [4]. The pathophysiology is unclear but it is hypothesized that the disruption of lymphatic flow leads to the accumulation of fluids rich in proteins and growth factors and impairs the regional immune system, causing local immunodeficiency and promoting atypical angiogenesis and malignancy [1,3,5,6]. Angiosarcoma occurring in a background of radiation dermatitis or chronic lymphedema typically presents with multicentric red-purple papules and nodules [1]. Tumors can range from

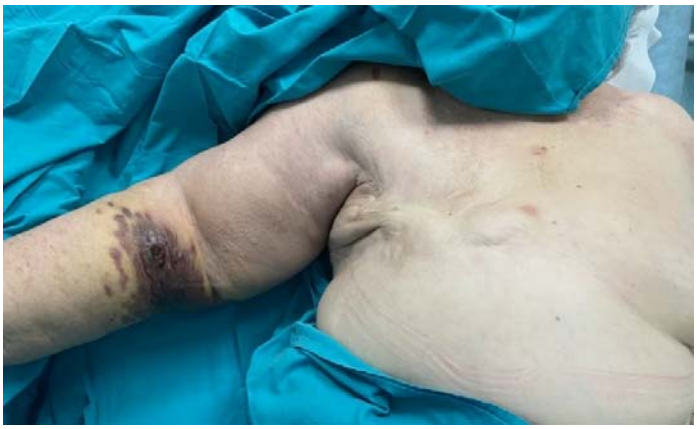

Figure 1. *Violaceous plaque with superimposed nodules on the right forearm in a diffusely edematous right upper extremity.*

well-differentiated to poorly differentiated subtypes. An infiltrative network of sinusoidal vessels invading the dermal collagen with large pleomorphic and hyperchromatic cells lining the endothelial lumen are histologic features consistent with cutaneous angiosarcoma [1]. The course of the disease is usually aggressive, with a high rate of local recurrence and metastases [2,3]. There is no consensus on the optimal management of angiosarcoma in Stewart-Treves syndrome and treatment options are limited [3,4]. Chemotherapy, immunotherapy, and radiation therapy can be used as stand-alone treatment or as an adjuvant to wide local excision but overall prognosis is poor [3]. A multidisciplinary approach is vital in the care of these patients [4]. Lymphedema treatment of the limbs should be optimized to prevent the development of angiosarcoma; measures including weight loss, pressure garments, physiotherapy, and compressive devices should be encouraged [2,5,6].

Potential conflicts of interest

The authors declare no conflicts of interest.

References

1. Whitney K, Schapiro B, LaFond A. An unusual presentation of Stewart-Treves syndrome on the lower extremity. *JAAD Case Rep*. 2016;2:397–9. [PMID: 27766300].
2. M.T. Sánchez-Medina, A. Acosta, J. Vilar, J. Fernández-Palacios. Angiosarcoma en linfedema crónico (síndrome de Stewart-Treves). *Actas Dermosifiliogr*. 2012;103:545-7. [PMID: 22365100].
3. Gill J, Kaila V. Stewart Treves Syndrome: A Life Threatening Complication of Chronic Lymphedema. *Int J Clin Med Imaging*. 2019.6:642. [DOI: 10.4172/2376-0249.1000642].
4. Randhawa A, Paul M, Lo Steven, Wylie G. Cutaneous angiosarcoma with lymphoedema: the Stewart-Treves syndrome. *BMJ Case Reports*. 2019;12.e229101. [DOI: 10.1136/bcr-2018-229101].
5. Berebichez-Fridman R, Deutsch Y, Joyal T, et al: Stewart-Treves Syndrome: A Case Report and Review of the Literature. *Case Rep Oncol*. 2016;9:205-11. [PMID: 27099606].
6. McKeown D, Boland P. Stewart-Treves syndrome: a case report. *Ann R Coll Surg Engl*. 2013;95:e80-2. [PMID: 23838488].