Elephantiasic Pretibial Myxedema with Graves' Disease: Spontaneously Induced and Dramatically Resolved after Radioiodine Treatment

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Keywords

Graves' disease · Pretibial myxedema · Radioiodine

Pretibial myxedema (PTM) is an uncommon autoimmune manifestation of Graves's disease. It is commonly associated with ophthalmopathy and typically localized in the pretibial region [1]. It is speculated that thyroid-stimulating hormone receptor antibody (TRAb) plays an important role in the pathological mechanism. TRAb can trigger an autoimmune response, leading to the inflammatory and infiltrative process with the production of large amounts of hyaluronic acid and glycosaminoglycans in the dermis and subcutaneous tissue [2]. High TRAb values and antigen release from thyroid cells may induce PTM [3]. Elephantiasic PTM is rare (5%) [4]. The management of elephantiasic PTM remains a challenge because of the poor patient response and high rate of recurrence.

A 53-year-old Chinese man was admitted to our hospital in December 2012 because he presented a 14-year history of uncontrolled hyperthyroidism. The exophthalmos and dermopathy were not observed. The patient does not smoke. Abnormal laboratory tests included high free thyroxine and free triiodothyronine levels, a mark-

edly low thyrotropin titer, thyroperoxidase antibody (TPOAb) level of >6,500 IU/mL (reference range, 0–100 IU/mL), and TRAb level of >40 IU/L (reference range, <1.75 IU/L). He received radioiodine treatment (518 MBq) without steroids. He complained of severe itching and burning of his lower legs and feet after 5 months, and pretibial swelling had gradually increased. During this time, he denied any trauma and maintaining a standing posture for prolonged periods. The patient refused skin biopsy and any treatment for PTM. He was administered a second round of radioiodine (370 MBq) therapy without steroids 8 months later. His TPOAb and TRAb levels were >6,500 IU/mL and >40 IU/L, respectively. However, his lesion progressed to elephantiasic PTM during this time. Cutaneous examination showed multiple bilateral, symmetric, indurated nonpitting verrucous plaques with an orange peel-like appearance on both lower legs and the dorsum of his feet (Fig. 1a). He developed hypothyroidism and subsequently achieved euthyroidism via oral administration of L-euthyroxine for 4 years. Although no additional treatment for PTM was used, his symptoms significantly improved, and the nonpitting edema and all varicose plaques spontaneously disappeared gradually. The skin on his lower legs and dorsum of his feet became smooth and began to appear normal, and only rare hyper-

Fig. 1. a Clinical appearance of elephantiasic pretibial myxedema in the patient after radioiodine treatment, revealing multiple indurated nonpitting verrucous plaques with an orange peel-like appearance on his lower legs and dorsum of the feet. **b** Anterior appearance of both lower legs and dorsum of the feet without additional treatment, demonstrating that these areas became smooth and appeared normal and that only rare hyperpigmentation remained after 4 years of follow-up.

pigmentation remained (Fig. 1b). No recurrence or exophthalmos was observed during the 4 years of follow-up. His TPOAb and TRAb levels gradually decreased to 385 IU/mL and 8.35 IU/L, respectively.

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Statement of Ethics

This work was approved by the Ethics Committee of the First Affiliated Hospital, College of Medicine, Zhejiang University. Written informed consent for publication of the clinical details and images was obtained from the patient.

Disclosure Statement

The authors have no conflicts of interest to declare.

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Author Contributions

Jun Yang and Meng-Jie Dong were involved in acquisition of data and drafting the manuscript. Qin Xu is the corresponding author and organized the study. All authors read and approved the final manuscript.

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