De Novo Appearance of Pre-Tibial Myxedema After Radioactive Iodine Therapy for Graves' Disease

Sir,

Though worsening of extra-thyroidal manifestations of Graves' disease following iodine ablation is well known, de novo appearance or worsening of pre-tibial myxedema (PTM) in this setting is very rare.

We report the case of a 49-year-old lady who presented with thyrotoxicosis of two years duration which was being treated with carbimazole. Past medical history was insignificant. She was noted to have lid retraction and lid lag; however, no significant exophthalmos or PTM was present. Clinical activity score of the thyroid eye disease was zero and European Group on Graves' Orbitopathy (EUGOGO) severity scale mild. There was no evidence of thyroid acropachy. Thyroid gland was asymmetrically enlarged with no audible bruits. Laboratory tests revealed Thyroid Stimulating Hormone (TSH) less than 0.005 microIU/ml (Normal: 0.30–4.50 mIU/mL), Free T4 7.54 ng/dL (Normal: 0.7–1.9 ng/dL) and Free T3 18.09 pg/ml (Normal: 2.3–4.1 pg/mL). Other biochemical parameters were within normal limits. The TSH receptor antibody level was more than 40 IU/ml (Normal: <1.8 IU/mL). After control of toxicosis with carbimazole, she was referred to another centre for radionuclide uptake study. The images taken after 20 min of injection of sodium pertechnetate showed diffusely increased uptake in both lobes of the thyroid at 21.2% (Normal: 1–4%). The presence of cold nodules in the gland was also noted, suggestive of nodular Graves' disease. She was administered 15 mCi of radioactive iodine 131 orally without any corticosteroids.

On review, three months after the ablation, she complained of painless swelling of the lower limbs with minimal itching. Physical examination revealed the presence of slightly

Figure 1: Pretibial myxedema - anterior view

Figure 2: Pretibial myxedema - involving lower leg

asymmetrical, non-tender, indurated, non-pitting edema on the lower legs, ankles and dorsum of both feet suggestive of elephantiasic type of PTM [Figures 1 and 2]. There was no worsening of the eye disease noted. Investigations done for ruling out other causes of pedal edema were within normal limits including renal parameters, cardiac function and serum albumin. The patient was unwilling for a biopsy of the lesion. PTM was conservatively managed with local steroid application and supportive measures. The edema gradually decreased over the next six months though it did not disappear completely even after a year of the ablation. Though the severity of her toxicosis had reduced, she continued to require low doses of carbimazole to maintain euthyroidism.

Thyroid dermopathy or PTM was described in literature as early as 1895 as a complication of Graves' disease.[1] Diagnosis of this relatively rare (prevalence of 1.5–1.7%) manifestation is clinical though specific histological criteria include the presence of normal collagen bundles in the papillary dermis separated by copious quantities of glycosaminoglycans.[2-4] De novo appearance or paradoxical worsening of PTM after radioactive iodine has rarely been described in literature.[5-7] This could be attributed to the activation of T lymphocytes due to the release of thyroid auto antigens and thyroid stimulating hormone receptor antibodies along with elevation of thyroid stimulating hormone following radioactive iodine ablation. Though the condition may be self-limiting, topical or intra-lesional mid-potency steroids have been used with or without occlusive/compressive dressing with variable effect.

In conclusion, development of PTM following radioactive iodine therapy is a rare complication induced by the release of autoantibodies and consequent deposition of glycosaminoglycans. The patients need to be primed about this rare phenomenon prior to undergoing radioactive iodine therapy. The condition is primarily a cosmetic concern and treatment is essentially symptomatic.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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Submitted: 12-Mar-2022 **Revised:** 18-May-2022
Accepted: 21-Jul-2022 **Published:** 20-Sep-2022

Access this article online

Quick Response Code:

Website: www.ijem.in

DOI: 10.4103/ijem.ijem_115_22

How to cite this article: Kuriakose CK, Cherian KE. De novo appearance of pre-tibial myxedema after radioactive iodine therapy for Graves' disease. Indian J Endocr Metab 2022;26:393-4.