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An Unusual Presentation of Autoimmune Thyroid Disease

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Abstract

Introduction: Autoimmune thyroid diseases (AITD) are the most common causes of thyroid gland dysfunctions and non-endemic goiter, which result from dysregulation of the immune system leading to an immune attack on the thyroid. We present a case of an unusual presentation of AITD of a patient presented with pyrexia of unknown origin.

Case Presentation: A 40-year previously well female presented to the Professorial Medical Unit Peradeniya with six weeks of bilateral lower limb pain with eight weeks of fever which subsided two weeks before the presentation, associated with lethargy, tiredness, and intermittent episodes of sweating. On examination, her blood pressure was 120/80 mmHg, pulse rate was 80 bpm, and she had tenderness over bilateral thighs and calves. The diagnostic workup revealed low TSH 0.004 µIU/L, T4 20.93 µIU/L, ESR 90 mm/h, CRP 45.1 mmol/L, and anti-thyroid peroxidase antibody (Anti-TPO) level was positive with 32 IU/ml. Therefore, the patient was treated as hyperthyroidism with autoimmune thyroid disease, and she improved with one week of treatment with carbimazole and prednisolone. After two weeks, a free T3 level was done on the review, which revealed a low value indicating Hashitoxicosis as the possible diagnosis.

Conclusion: Anti-TPO antibodies can be positive in Hashimoto's thyroiditis, and Graves' disease and differentiation can be done using other clinical parameters and preferably by radionuclide studies. Autoimmune thyroid diseases could be presented with unusual manifestations where fever and myalgia would be the only presentation. Therefore, it is essential to have a prompt clinical suspicion and perform serum investigations to exclude any thyroid disease.

Keywords: autoimmune; thyroid disease; immune system; peradeniya

Introduction

Autoimmune thyroid diseases (AITD) result from a dysregulation of the immune system leading to an immune attack on the thyroid [1]. The human AITDs broadly include Graves' disease (GD) and Hashimoto's thyroiditis (HT), the most common causes of thyroid gland dysfunctions and non-endemic goiter. These conditions arise from complex environmental and genetic factors interactions and are characterized by reactivity to self-thyroid antigens expressed as distinctive inflammatory or anti receptor autoimmune diseases [2]. We present a case of an unusual presentation of AITD of a patient presented with pyrexia of unknown origin.

Case Presentation

A 40-year previously well female presented to Professorial Medical Unit Peradeniya with a six-week history of bilateral lower limb pain and an eight-week history of fever. The lower limb pain was gradual in onset, precipitated by walking and standing, and relieved by rest. The pain was predominantly on bilateral calves and thighs without any joint involvement. She had been treated for fever that began eight weeks back, lasted for six weeks, and subsided two weeks ago, mild to moderate in severity, gradual onset, intermittent type, and fever episodes occurring every evening, subsided by the morning associated with sweating in the evening. The family physician had treated her fever with oral antibiotics suspecting a urinary tract infection. On direct inquiry, she complained of weight loss over the past two months, lethargy, and tiredness as mixed symptoms of hyper/hypothyroidism. There were no other hypo/hyperthyroid symptoms. She had a previous history of hemorrhoids where sclerotherapy was done

and had heavy menstrual bleeding for the past two cycles where she had not sought any medical advice.

On examination, the patient had tenderness over bilateral calves, mild swelling over fingers of bilateral hands, and inability to grip by both hands due to pain. Pulse rate 80 bpm and blood pressure 120/80 mmHg. All other examination findings were unremarkable.

The diagnostic workup was done to find a cause for bilateral lower limb pain and fever. Full blood count showed hypochromic microcytic anemia with Hb 9.5 g/dL, MCV 79.7 fL, and MCH 24.8 pg. Iron studies showed serum iron 13.5 µmol/L (12.5-32), TIBC 25 µmol/L (10-47), transferrin saturation 52% (15-50) and serum ferritin 49.5 ng/mL (10-120). Despite these results, she was treated with oral iron supplements, folic acid, and mebendazole. Liver enzymes were slightly elevated ALT 64.2 mmol/L and AST 51.1 mmol/L. C-reactive protein level and the ESR were 45.1 mmol/L and 90 mm in the 1st hour, respectively. Creatine phosphokinase (CPK) level was slightly elevated; 131.4 µg/L. Urinalysis showed 10-12 pus cells and organisms positive, but urine culture was negative. However, she was commenced with intravenous co-amoxiclav 1.2 g 8 hourly. Mantoux tuberculin skin test was done to exclude tuberculosis which came as negative, and sputum for acid-fast bacilli was also negative for three consecutive samples. The ultrasound abdomen was normal. Although she did not have symptoms pointing towards either hyper or hypothyroidism alone, she had a mixture of symptoms. Therefore, thyroid function tests were done, which gave serum-free T4 of 20.93 pmol/L (10-20) and TSH 0.004 µIU/ml (0.4-4). Therefore, she was diagnosed with (subclinical) hyperthyroidism and started on carbimazole 10 mg TDS. Because of high ESR, autoimmune thyroiditis was suspected, and she was started on prednisolone 30 mg mane. Blood was sent for anti-thyroid peroxidase antibody, positive with 32 IU/mL (>30). Two weeks after reviewing, TSH, free T4, and T3 were 1.21 µIU/ml, 13.8 pmol/L, and 2.82 pmol/L (3.8-6.0) respectively, and ANA later became negative. After one week of treatment in the ward, the patient clinically improved and was completely free of symptoms on review in two weeks.

Discussion

Autoimmune thyroid diseases (AITD) are the most prevalent organ-specific autoimmune diseases (ADs) and affect 2 - 5% of the population with significant variability between the sex (i.e., women 5–15% and men 1–5%). AITD includes Graves' Disease (GD) and Hashimoto Thyroiditis (HT). HT and GD are the significant causes of hypothyroidism and hyperthyroidism, respectively. They reflect the loss of immunological tolerance and share cell and humoral immune response against antigens from the thyroid gland with reactive infiltration of T cells and B cells, autoantibody generation, and, subsequently, the development of clinical manifestation [3].

Hashimoto's thyroiditis is prevalent in regions where dietary iodinated salt intake is high. Also, smoking increases the risk of autoimmune thyroiditis. Goiter can be seen on presentation, but thyroid atrophy is common. In polyglandular autoimmune failure syndrome, Hashimoto's thyroiditis is associated with other endocrine diseases (Addison's disease, type 1 diabetes mellitus, and hypogonadism). The diagnosis is made by clinical features, elevated TSH, low thyroid hormone levels, and the presence of anti-thyroid peroxidase antibodies (anti-TPO) (2). Anti-TPO autoantibodies are found in over 90% of patients with autoimmune hypothyroidism and Graves' disease. Together with thyroglobulin (TG) antibodies, the predominant antibodies in autoimmune hypothyroidism (AH) [2]. Hashitoxicosis is the initial hyperthyroid phase in chronic autoimmune thyroiditis. It occurs due to the release of preformed thyroid hormones from the inflamed thyroid gland. Classically, patients present with mild or moderate hyperthyroidism. Palpation of the thyroid gland may reveal a goiter that is firm and non-tender. Classically, the painful, tender goiter and the history of antecedent viral infection are lacking. Unlike the classical diffusely enlarged, lobular, bruit-associated goiter described with classical Graves' disease, the goiter is minor, diffuse, and often firm in these cases. However, clinical features are only subtle pointers in the diagnosis (4).

Graves' disease involves the binding of autoantibodies to the TSH receptor, which leads to stimulation. It is the most common cause of thyrotoxicosis. Receptor activation stimulates thyrocyte growth and function. The disease is more common in Whites and Asians, and the incidence is lower in African Americans, and the female-to-male ratio is 3.5: 1. Graves' disease features include swelling over the anterior shin (pretibial myxoedema), thyroid eye disease (prominence of eyes, lid lag, globe lag, exophthalmos, lid edema, chemosis, and extraocular muscle weakness), and increased pigmentation and vitiligo [2].

Anti-TPO antibodies are considered diagnostic of AITD. They are present in the majority of both HT (i.e., >90%) and GD (i.e., 40–70%) [3]. While anti-TPO antibodies may act cytotoxic on thyrocytes in HT, they do not have an established role in GD [5]. The annual risk for progression to overt hypothyroidism in women with anti-TPO antibodies is 2.1%, which is correlated with the titer of the antibody, whether it is weakly, moderately, or strongly positive (23%, 33%, and 53%, respectively). Like antithyroglobulin antibodies, anti-TPO antibodies are found in other ADs and the general population [3].

The clinical presentations of autoimmune thyroid disease can be varied. Cases have been reported in the literature with AITD where the initial presentations were weight loss [6], dyspnoea, palpitations, and edema [7], excessive drowsiness, decreased oral intake and ptosis [8], diplopia [9], fatigue (10), headache, oligomenorrhoea, and constipation [11]. Ju et al. have reported a case of Hashimoto's thyroiditis presented with diplopia for 1 year [9], and another case has been reported of a young man who presented with fatigue for one year and was later found to have rhabdomyolysis with acute kidney injury [10]. Another case has been reported in a 14-year-old girl who presented with oligomenorrhea, constipation, and headache later diagnosed with Hashimotos thyroiditis [11]. Bilateral lower limb pain has been reported as a presentation of AITD by Ataallah et al. in a 56 male who also had generalized weakness and recurrent falls (12). In several cases, musculoskeletal pain has been reported as a non-specific symptom in AITD [13,14]. Although pyrexia of unknown origin has been reported as a presentation of AITD [15,16], the simultaneous occurrence of fever and lower limb pain has not been reported previously in the literature.

Our patient did not have any goiter, and her complaints were only bilateral lower limb pain with six weeks history of low-grade fever. At the same time, she did not have any hyperthyroid symptoms. However, high free T4, low TSH, and positive anti-TPO antibody levels correlate with AITD, causing hyperthyroidism. The two possibilities are either Hashitoxicosis or Grave's disease, although no other clinical evidence exists. Low free T3 level found on later investigations favors the diagnosis of Hashitoxicosis, although anti-thyroid treatment in mild Grave's disease also can give these results. Therefore, this case can be considered an unusual presentation of autoimmune thyroid disease giving rise to hyperthyroidism, possibly Hashitoxicosis, or mild Grave's disease. In this case, due to biochemical hyperthyroidism, the patient was treated with Carbimazole and Prednisolone. She clinically improved one week after treatment.

Hashitoxicosis is differentiated from Graves' disease by radionuclide studies where low radioiodine uptake by the thyroid gland in Hashitoxicosis is a possible investigation to come to a definitive diagnosis (17). There are many genetic and factors that contribute to the occurrence of AITDs. The primary triggers of AITD include iodine, medications, infection, smoking, stress, and genetic predisposition to AITD, which lead to novel putative mechanisms by which the genetic-environmental interactions may lead to the development of thyroid autoimmunity [1].

Conclusion

Autoimmune thyroid diseases could be presented with unusual manifestations without any clinical features suggestive of hypothyroidism or thyrotoxicosis. Fever and myalgia would be the only presentation in some patients with autoimmune thyroid diseases. Therefore, prompt clinical suspicion and performing serum investigations to exclude any thyroid disease is essential in patients presenting with those complaints.

Abbreviations

TSH	-	Thyroid Stimulating Hormone
ESR	-	Erythrocyte Sedimentation Rate
CRP	-	C-Reactive Protein
MCV	-	Mean Corpuscular Volume
MCH	-	Mean Corpuscular Haemoglobin
ANA	-	Antinuclear Antibody
TIBC	-	Total Iron Binding Capacity
ALT	-	Alanine aminotransferase
AST	-	Aspartate aminotransferase
TDS	-	Three times daily

Informed Consent

Informed written consent was obtained from the patient to publish this case report.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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Author Contribution

All authors were involved in managing the patient, generating the concept and intellectual contribution, and writing the paper. All authors read and approved the final manuscript.

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References

1. Antonelli A, Ferrari SM, Corrado A, Di Domenicantonio A, Fallahi P. (2015). Autoimmune thyroid disorders. Autoimmunity Reviews. 14(2):174-180.
2. Brown R, Francis GL. (2011). Autoimmune thyroid disorders. Journal of Thyroid Research.
3. Franco J-S, Amaya-Amaya J, Anaya J-M. (2013). Thyroid disease and autoimmune diseases. In: Anaya JM, Shoenfeld Y, Rojas-Villarraga A et al., editor. Autoimmunity: From Bench to Bedside. Bogota (Colombia): El Rosario University Press.
4. Unnikrishnan A. (2013). Hashitoxicosis: A clinical perspective. Thyroid Research and Practice. 10(4):5.
5. Fröhlich E, Wahl R. (2017). Thyroid autoimmunity: Role of anti-thyroid antibodies in thyroid and extra-thyroidal diseases. Frontiers in Immunology.
6. Amory JK, Hirsch IB. (2011). Hyperthyroidism from autoimmune thyroiditis in a man with type 1 diabetes mellitus: A case report. Journal of Medical Case Reports, 5(1):1-4.
7. Baagar KA, Siddique MA, Arroub SA, Ebrahim AH, Jayyousi AA. (2017). Atypical Complications of Graves' Disease: A Case Report and Literature Review. Case Reports in Endocrinology, 1-6.
8. Jain D, Aggarwal HK, Dahiya S. A Case Report on Severe Hypothyroidism Associated With Complete Bilateral Ptosis: A Rare Presentation. Journal of the ASEAN Federation of Endocrine Societies, 31(1):65.
9. Ju C, Zhang L. (2017). Diplopia in a patient with Hashimoto's thyroiditis: A case report and literature review. Medicine, 96(26).
10. Ahmed GS, Zaid HM, Moloney M. (2014). Case Report: Hashimoto's thyroiditis presenting as Hoffman's syndrome, rhabdomyolysis and acute kidney injury. BMJ Case Reports.
11. Ivonne G-RR, Irma J-E, Lorena H-D, Pedro G-C, Conde-Lozano, Adriana. Hashimoto's Thyroiditis in a Female Adolescent-Case Report. Archives of Clinical and Medical Case Reports, 3(5):222-227.
12. Ataallah B, Abdulrahman M, Kulina G. (2021). A Case of Rhabdomyolysis in a Patient With Hashimoto's Thyroiditis. Journal of the Endocrine Society, 5(S1):909-910.
13. Ersoy B, Seniha KY, Kızılay D, Yılmaz M, Coşkun Ş. (2016). Diagnostic difficulties by the unusual presentations in children and adolescents with Hashimoto thyroiditis. Annals of Pediatric Endocrinology & Metabolism, 21(3):164.
14. Jordan B, Uer O, Buchholz T, Spens A, Zierz S. (2021). Physical fatigability and muscle pain in patients with Hashimoto thyroiditis. Journal of Neurology, 268(7):2441-2449.
15. Housin A, Pusztaszeri MP, Tamilia M. (2021). Fever of unknown origin as the major manifestation of subacute thyroiditis. Endocrinology, Diabetes & Metabolism Case Reports.
16. Dalugama C. (2018). Asymptomatic thyroiditis presenting as pyrexia of unknown origin: A case report. Journal of Medical Case Reports, 12(1):1-3.
17. Dunne C, De Luca F. (2014). Long-Term Follow-Up of a Child with Autoimmune Thyroiditis and Recurrent Hyperthyroidism in the Absence of TSH Receptor Antibodies. Case Reports in Endocrinology, 1-4.

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