Chronic urticaria and angioedema associated with Hashimoto’s thyroiditis in a child: A case report

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ABSTRACT

Introduction: The association between chronic urticaria and Hashimoto’s thyroiditis has been rarely reported in children. Case Report: We are reporting a case of an eight-year-old girl with chronic urticaria unresponsive to antihistaminic therapy, who was subsequently diagnosed to have Hashimoto’s thyroiditis. Patient’s urticarial lesion remitted after treatment with levothyroxine. Conclusion: We emphasize to consider testing for Hashimoto’s thyroiditis by thyroid autoantibodies and thyroid profile in cases of chronic urticaria, and starting the patient on levothyroxine for the symptomatic improvement of both chronic urticaria and Hashimoto’s thyroiditis.

Keywords: Angioedema, Chronic urticaria, Hashimoto’s thyroiditis, Levothyroxine

INTRODUCTION

Hashimoto’s thyroiditis is an organ specific autoimmune disease characterized histologically by lymphocytic infiltration of the thyroid gland. This disorder is 2–4 times more frequent in girls than in boys. Most of the affected children are euthyroid and asymptomatic. The most common clinical manifestations are goiter and growth retardation secondary to hypothyroidism. Thyroid anti peroxidase antibody (TPO Abs) and antithyroglobulin antibodies are present in 90% of the affected children [1].

Childhood chronic urticaria is a common disorder characterized by the appearance of hives for more than six weeks [2, 3]. The pathogenesis of chronic urticaria is poorly understood and the cause is unknown in majority of cases [4]. A subset of patients with chronic urticaria has been classified as autoimmune on the basis of association with thyroid autoimmunity and anti-IgE and/or anti-IgE receptor antibodies [5].

As per literature review, an association has been found between Hashimoto’s thyroiditis and chronic urticaria in adults [6], but there are only a few cases reported in children [7]. Hence, we are presenting a case of an eight-year-old girl with chronic urticaria and Hashimoto’s thyroiditis who became asymptomatic after treatment with levothyroxine.

CASE REPORT

An eight-year-old Hispanic girl referred by immunologist to our pediatric endocrinology clinic in month of September 2010 with abnormal thyroid function test and chronic urticaria. On August 2010,
patient was presented to immunology clinic with a two-
month history of recurrent urticarial lesions over face,
trunk and extremities accompanied by swelling of lips
and tongue which were non-responsive to antihistamine
treatment. Patient also complained of weakness, fatigue
and significant weight gain over the period of six months.
In the immunology clinic routine laboratory analysis,
allergy tests and thyroid function tests including thyroid
autoantibodies were performed. Patient was found to
have high TSH 9.8 mIU/mL (<4.6 mIU/mL), free T4
0.5 ng/dL (normal limit 0.7–1.5 ng/dL), high anti-TPO
antibodies 352 IU/mL and positive anti-Fc epsilon
Receptor (anti-FCER) antibody. Routine laboratory
analysis and total serum IgE was within normal limits.
Allergic testing to common food allergens was negative.

On examination in pediatric endocrinology clinic,
patient’s vital signs were normal, weight 46.03 kg (>95
percentile), height 133.5 cm (75–90 percentile) and
BMI- 25.83 (>97 percentile). Her physical examination
showed multiple urticarial lesions over the face, trunk
and extremities, thyroid gland was not palpable. Systemic
examination was unremarkable. Patient was started on
levothyroxine 100 µg/day and antihistamine as needed
for urticaria and angioedema. Patient was followed-up in
February 2011; urticarial lesions were completely remitted
during the visit while on levothyroxine with normal
thyroid function. Patient was continued to follow-up at
regular interval in our endocrinology clinic and remained
asymptomatic after one year on hormone replacement
therapy with normal thyroid function test (Table 1).

Table 1: Changes in thyroid function test with treatment

<table>
<thead>
<tr>
<th>Thyroid Function Tests</th>
<th>Prior to levothyroxine treatment</th>
<th>4 months after treatment</th>
<th>12 months after treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSH (mIU/mL)</td>
<td>9.8</td>
<td>2.16</td>
<td>4.15</td>
</tr>
<tr>
<td>Free T4 (ng/dL)</td>
<td>0.5</td>
<td>1.7</td>
<td>1.6</td>
</tr>
<tr>
<td>Anti-TPO antibodies (IU/mL)</td>
<td>352</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

DISCUSSION

Chronic urticaria is a common clinical condition
whose etiology in about 75% of cases is unknown. A
link between chronic urticaria and autoimmune thyroid
diseases such as Hashimoto’s thyroiditis has been
proposed and studied [8]. Approximately one-fourth of
chronic urticaria patients have serological evidence of
thyroid autoimmunity suggesting association between
them. There are various hypotheses on how these two
entities might be related:

(a) Immune complexes produced in the course of
Hashimoto’s thyroiditis are trapped in the skin
and may cause urticaria.
(b) Inflammatory cells activated in the thyroid are
directed toward a cross-reactive antigen existing
in the skin.
(c) There is no direct relationship between the
inflammation in the thyroid and the skin, but
autoimmunity directed toward FeCE coexists with
autoimmunity directed toward the thyroid gland
in susceptible patients.
(d) There is no relationship between chronic
urticaria and Hashimoto’s thyroiditis, but they
are both common disorders coexisting in a small
percentage of patients [9].

Hashimoto’s thyroiditis with chronic urticaria in
children is rare with only a few reported cases. A study
by Levy et al. described eight female patients in the age
group of 7–17 years with chronic urticaria and positive
thyroid autoantibodies. Two of the eight patients were
hypothyroid and were started on thyroxine without
any improvement in urticaria [7]. In our patient, the
common causes of chronic urticaria like allergy to
external agents, hereditary angioedema and occult
infections were excluded and the patient was diagnosed
to have Hashimoto’s thyroiditis based on high TPO
antibodies titers and abnormal thyroid profile. The
patient was started on levothyroxine therapy. After
four months of treatment with levothyroxine, urticarial
lesions disappeared without any recurrences noticed
over the one year follow-up. This was in contrast with
the two hypothyroid patients studied by Levy et al. whose
urticaria did not respond to thyroxine treatment.

Therefore, we assume an association between
chronic urticaria and Hashimoto’s thyroiditis with
clinical remission of resistant urticarial lesions after
levothyroxine treatment.

CONCLUSION

We recommend considering testing for Hashimoto’s
thyroiditis by thyroid autoantibodies and thyroid profile
in cases of chronic urticaria and starting levothyroxine in
a hypothyroid patient with Hashimoto’s thyroiditis for
its symptomatic improvement as well as for ameliorating
chronic urticaria.

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Drafting the article, Critical revision of the article, Final approval of the version to be published
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Guarantor
The corresponding author is the guarantor of submission.

Conflict of Interest
Authors declare no conflict of interest.

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REFERENCES