A CHILD WITH ANTI-THYROID ARTHRITIS SYNDROME

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INTRODUCTION

Anti-thyroid arthritis syndrome (AAS) is a rare complication that may occur in patients treated with anti-thyroid drugs.

Presentation is variable and may include myalgia, arthralgia, skin rash, high fever, and polyarthritis.

Herein, we present a girl diagnosed with AAS.

CASE REPORT

A 9-year-old girl was admitted to emergency complaining of fever and arthralgia. She was the second child of non-consanguineous healthy parents. She had been diagnosed with Graves' disease (GD) 40 days earlier at another hospital. At GD diagnosis, thyroid function tests (TFTs) showed free thyroxine (fT4) and, free triiodothyronine (fT3) were elevated at 2.62 ng/dL (0.61-1.2) and 11 pg/mL (2.6-4.37), respectively, concurrent with suppressed thyroid stimulating hormone (TSH) <0.01 µIU/mL. Furthermore, TSH receptor antibody 2.62 IU/L (0-0.1) was elevated together with anti-thyroperoxidase antibody 655 IU/ml (0-9) and anti-thyroglobulin antibody 141 IU/ml (0-4). Methimazole was prescribed at 20 mg/day.

Twenty days after initiation of methimazole, she presented with generalized arthralgia, fever, and rash while euthyroid. Methimazole was stopped by her parents. Subsequently, she was referred to the emergency department with a presumptive diagnosis of acute rheumatic fever (ARF). On physical examination, fever was 38.6°C, heart rate was 120/min, arthritis was detected in the right knee and left elbow and maculopapular rash was present on the trunk and lower extremity. In laboratory work-up, erythrocyte sedimentation rate (21 mm/hr) and C-reactive protein (43 mg/dL) were elevated. She had positive anti-neutrophil cytoplasmic antibodies, antinuclear antibody and anti-histone antibody. Her complement levels were within normal range. The diagnosis of ARF was excluded because of normal echocardiography and no evidence of group A streptococcal infection. She was finally diagnosed with AAS. Methylprednisolone (2 mg/kg) was initiated. After two days, TFTs indicated hyperthyroidism (fT4 2.28 ng/dL, fT3 6.61 pg/mL, TSH <0.01 µIU/mL) and methimazole was restarted (10 mg/day). Methylprednisolone was slowly tapered over two months. Arthritis, fever and rash completely resolved with steroids, with no recurrence after cessation of methylprednisolone. Currently (three-month follow-up), she is euthyroid on methimazole 5 mg/day.

CONCLUSIONS

To date, few pediatric cases of AAS have been reported. AAS patients were reportedly treated with radioactive iodine or surgery. As methimazole is commonly used in pediatric GD, in pediatric AAS and prior to radioactive iodine or surgery, a slow increase in methimazole with steroid and tapering the steroid slowly may be an alternative treatment approach.