—Case Reports—

# Delayed Diagnosis of Painless Thyroiditis in an Adolescent Presenting with Aggression and Disruptive Behavior Initially Attributed to Worsening of a Psychiatric Disorder

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Painless thyroiditis, which is rare in children, exhibits the characteristic sequence of hyperthyroidism, including aggressive and disruptive behaviors. Unlike subacute thyroiditis or Graves' disease, painless thyroiditis is challenging to diagnose because of its mild symptoms and minimal or absent physical findings. Moreover, aggressive and disruptive behaviors in children with psychiatric disorders may be misconstrued as exacerbation of underlying symptoms. The present patient was a 16-year-old male with adjustment disorder who presented to a pediatric psychiatric clinic for assessment of irritability. After 4 months, he developed aggressive and disruptive behaviors that prompted initiation of risperidone but without improvement. After 1 month, he reported palpitations and dyspnea. His neck was supple and non-tender without thyroid enlargement. Thyroid studies revealed elevated free T4 and T3 levels and suppressed thyroid-stimulating hormone level, suggesting hyperthyroidism. A radioactive iodine uptake test revealed a barely visible thyroid gland, consistent with thyroiditis. Painless thyroiditis, without thyroid tenderness, was diagnosed. We describe a case of painless thyroiditis in an adolescent patient with aggressive and disruptive behaviors that were initially attributed to worsening of an underlying adjustment disorder. Even when minimal or no signs of hyperthyroidism are present, painless thyroiditis should be considered in the differential diagnosis of children with aggressive and disruptive behaviors. Awareness of potential anchoring bias is also recommended to prevent its delayed diagnosis of such behaviors. (J Nippon Med Sch 2025; 92: 296–299)

**Key words:** aggression, anchoring bias, hyperthyroidism, painless thyroiditis

## Introduction

Painless thyroiditis is a part of the spectrum of autoimmune thyroid diseases, and is characterized by transient hyperthyroidism, which is often followed by hypothyroidism and subsequent recovery. It is also rare in children[1]. The reported age distribution ranges from 23 to 88 years (median age, 47.0 years)[2]. Approximately 5-20% of affected patients exhibit the characteristic sequence of hyperthyroidism[3]. It also accounts for approximately 0.5-5% of cases of hyperthyroidism[4,5]. Signs of hyperthyroidism include weakness, fatigue, irritability, palpitations, tachycardia, tremors, aggression, and disruptive behavior[6,7]. Symptoms are usually mild in patients with painless thyroiditis[8]. The thyroid gland is not painful or tender, but is usually minimally, diffusely enlarged, and sometimes firm in texture[8]. Potential causes of aggression and disruptive behaviors include multiple medical, developmental, and psychiatric disorders[9]. While the differential diagnosis is extensive, aggression is a symptom of hyperthyroidism[6]. We report a case of painless thyroiditis with hyperthyroidism in an adolescent patient with aggressive and disruptive behaviors that were initially attributed to worsening of an underlying adjustment disorder.

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## Case Description

A 16-year-old male with a history of adjustment disorder initially presented to a pediatric psychiatric clinic for assessment of increased irritability. He was in his usual health until 3 years before this visit, when he reported difficulties in his friendships, falling behind in school, and began to exhibit physical symptoms such as depressed mood, loss of motivation, and diarrhea. He also became more irritable at home and often used abusive language with his family. After referral to a pediatric psychiatrist, he was diagnosed as having adjustment disorder at the age of 13 years. The criteria for attention-deficit/hyperactivity disorder, bipolar disorder, conduct disorder, and generalized anxiety disorder according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR: https://www.psychiatry.org/psychiatrists/practice/dsm) were not met. After advising his family to change his environment, his symptoms improved. He had been in his usual state of good health until the present visit, when he reported stress in his friendships, difficulty studying, and easy irritability in school. Because these symptoms were attributable to an identifiable stressor occurring within 3 months of its onset, significant impairment of social life, and stress-related disturbance not meeting the criteria for another mental disorder, recurrence of adjustment disorder was diagnosed. There were no signs of fatigue, weakness, diaphoresis, or changes in vision, weight, or bowel movements. We encouraged him and his teachers to change his environment to permit occasional breaks from school. After 4 months, he reported increasing frequency of arguments and fighting with friends and family. He described a disruptive episode in school, where he hit a wall in retaliation, resulting in a knuckle fracture. While being instructed to refrain from stressors, daily risperidone 0.5-1.0 mg was started to alleviate his symptoms. However, his irritability and aggression did not improve. After 1 month, he began to feel palpitations, especially when upset. He also reported persistent irritability and mild dyspnea. He denied having fever, fatigue, weakness, diaphoresis, unexpected weight changes, diarrhea, constipation, abnormal movements, or seizures. The remaining findings from the review of systems was unremarkable. He did not take any medication daily. His mother had a history of Hashimoto's thyroiditis, and his two sisters had traits of autism spectrum disorder.

His vital signs were a heart rate of 114 beats per minute, blood pressure of 120/76 mmHg, respiratory rate of 20 respirations per minute, temperature of 97.7 °F (36.5℃), and an oxygen saturation of 100% in room air. Physical examination showed him to be well-nourished and well-developed, without acute distress or orbitopathy. His neck was supple and non-tender, without thyroid enlargement. Cardiac examination demonstrated tachycardia with normal heart sounds and no murmurs, rubs, or gallops. His respirations were unlabored, and his lungs were clear to auscultation bilaterally. Other findings of physical examination were unremarkable. Laboratory results showed normal complete blood cell counts, basic metabolic panel, erythrocyte sedimentation rate, and C-reactive protein level. Further workup revealed an elevated free T4 of 1.9 ng/dL (reference range: 0.7-1.8 ng/dL), a normal free T3 of 2.7 pg/mL (reference range: 2.5-3.5 pg/mL), and a suppressed thyroid-stimulating hormone level of <0.1 mIU/mL (reference range: 0.4-4.0 mIU/mL), prompting referral to the endocrinology department. A radioactive iodine uptake test showed a barely visible thyroid, consistent with thyroiditis. In light of the absence of thyroid pain, he was diagnosed with painless thyroiditis, leading to irritability associated with aggressive and disruptive behavior secondary to hyperthyroidism. He was started on bisoprolol, which led to resolution of palpitations and behavioral improvement. He subsequently continued his studies and graduated from high school without incident.

Informed consent was obtained.

## Discussion

We describe a case of painless thyroiditis in an adolescent who exhibited aggressive and disruptive behaviors that were initially attributed to worsening of an underlying adjustment disorder. In addition to these behaviors, he developed tachycardia and dyspnea; however, other findings from a review of systems and physical examination were unremarkable. His behavioral symptoms were initially considered an exacerbation of the underlying adjustment disorder diagnosed at the age of 13 years. However, the emergence of delayed physical manifestations, such as palpitations and dyspnea, led us to consider hyperthyroidism as a potential cause of the behavioral manifestations. In light of the substantial improvement with bisoprolol, we concluded that his behavioral symptoms were attributable to hyperthyroidism due to painless thyroiditis.

Hyperthyroidism can present with psychiatric symptoms such as irritability, aggression, and disruptive behaviors[6,7]. Although the relationship of behavioral and psychiatric features to hyperthyroidism is unclear, recent

neuroimaging and animal studies suggest that hyperthyroidism affects brain structures neurobiologically responsible for mood regulation[10]. Fukui et al suggested that the hyperadrenergic system induced by hyperthyroidism disrupts the adrenergic pathway between the locus coeruleus and frontal lobe, which plays a role in attention[11,12]. As compared with adults, children and adolescents with hyperthyroidism tend to exhibit more-pronounced mood swings and disturbances of behavior[13]. It is not uncommon for them to be referred to a pediatric psychiatrist for assessment of behavioral symptoms before a diagnosis of hyperthyroidism is considered. Such symptoms may be initially ascribed to psychiatric disorders such as attention-deficit/hyperactivity disorder or anxiety[14]. Common causes of hyperthyroidism, such as subacute thyroiditis and Graves' disease, can present with more prominent physical findings like thyroid tenderness and exophthalmos, respectively[15,16]. However, it is more challenging to diagnose painless thyroiditis because of mild symptoms and absent or minimal physical findings[8]. In our patient, the only signs of hyperthyroidism were irritability, subsequent aggression, and disruptive behavior and, later, tachycardia without thyroid tenderness and enlargement. His isolated psychiatric symptoms delayed the diagnosis of painless thyroiditis until the appearance of other physical findings of hyperthyroidism. Given these inconspicuous symptoms, a thyroid function test might be beneficial for children with psychiatric symptoms as an initial screening to exclude hyperthyroidism. Therefore, painless thyroiditis should be considered in the differential diagnosis of pediatric aggression and disruptive behaviors, even in children and adolescents with minimal or no physical findings of hyperthyroidism. Furthermore, reevaluation of hyperthyroidism is essential, particularly if psychiatric symptoms do not improve with psychiatric therapies.

Aggression and disruptive behavior are characteristics of neuropsychiatric disorders such as attention-deficit/hyperactivity disorder, bipolar disorder, conduct disorder, and generalized anxiety disorder[17,18]. Patients with adjustment disorders may present with irritability and disruptive behavior; however, these occur in response to a stressor and typically resolve within 6 months after removal of the stressor[18]. In our case, the coexistence of adjustment disorder posed a challenge, particularly in conjunction with the difficulty of diagnosing painless thyroiditis. He met the diagnostic criteria for adjustment disorder when he initially presented with worsening irritability. A known diagnosis of adjustment disorder and the absence of physical symptoms of hyperthyroidism led us to disregard the possibility of new hyperthyroidism. This resulted in a delayed diagnosis due to anchoring bias-a cognitive bias that leads to diagnostic errors and delay[19]. Clinicians need to avoid such bias, particularly for patients with known psychiatric disorders.

## Conclusion

In summary, we described a case of painless thyroiditis in an adolescent male with aggressive and disruptive behaviors that were initially attributed to worsening of an underlying adjustment disorder. The inconspicuous features of painless thyroiditis can make it more challenging to diagnose than other thyroid diseases that cause hyperthyroidism. Our findings indicate that painless thyroiditis should be considered in the differential diagnosis of children with such behavior, even when minimal or no physical findings of hyperthyroidism are present. In addition, awareness of potential anchoring bias is also recommended to prevent its delayed diagnosis.

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**Conflict of Interest:** The authors declare no conflicts of interest.

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