

불명열의 원인으로 제시된 아급성 갑상선염의 증례

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Case of Subacute Thyroiditis Presenting as the Cause of Fever of Unknown Origin

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Fever of unknown origin (FUO) is not infrequently a diagnostic dilemma for clinicians. Common infectious causes include endocarditis and abscesses in adults, and noninfectious causes include neoplasms and certain collagen vascular diseases. Endocrine causes of FUO are rare. The only endocrine disorder likely to present as FUO is subacute thyroiditis. Subacute thyroiditis usually occurs in middle-aged women as viral prodrome, neck tenderness, classic symptoms of thyrotoxicosis, and an elevated erythrocyte sedimentation rate. The patient may have abrupt onset of fever and chills with complaints of thyroid pain, or only low-grade fever with poorly characterized anterior neck pain. We present a case of FUO in a 48-year-old female who had had fever and neck pain for more than one month. Despite an extensive evaluation, the patient had persistent fever and no cause was found, with the exception of subacute thyroiditis. The fever resolved from the second day of treatment with low-dose steroid (prednisolone, 10 mg per day). This case illustrates that subacute thyroiditis should be considered in cases of FUO. (Korean J Med 2013;84:733-736)

Keywords: Fever of Unknown Origin; Thyroiditis, Subacute

INTRODUCTION

Fever of unknown origin (FUO), first described by Petersdorf and Beeson, is among the most difficult diagnostic problems encountered in internal medicine [1]. FUO is a term used to describe fevers that are undiagnosed that have persisted for ≥ 3

weeks with a temperature of $\geq 38^{\circ}\text{C}$. The diagnosis of FUO should only be used if the disorder causing the prolonged fever remains undiagnosed after an intensive diagnostic workup in the hospital/outpatient setting. The most common FUO categories are infectious, neoplastic, rheumatic and inflammatory [2]. Endocrine causes of FUO are rare. The most common endocrine dis-

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order presenting as FUO is subacute thyroiditis [2]. Subacute thyroiditis is a spontaneously remitting, painful, inflammatory disease of the thyroid gland, probably of viral origin, and is the most frequent cause of anterior neck pain. Subacute thyroiditis is often preceded by an upper respiratory tract infection and occurs concurrently with outbreaks of viral diseases, including mumps, measles, and influenza. There is usually a viral prodromal period exemplified by myalgia, thyroid or neck tenderness, fever, a sore throat, and dysphagia or, alternatively, only low-grade fever with poorly characterized anterior neck pain. Thyrotoxicosis occurs during the initial inflammatory phase in half of patients, but cases presenting as FUO are rare [2,3]. We report a case of subacute thyroiditis presenting as FUO.

CASE REPORT

A 48-year-old female was transferred to our clinic for further evaluation of fever and anterior neck pain that had persisted for more than one month. Seven weeks prior to admission to our hospital, she had had a sore throat and otalgia, symptoms that had improved after medication at private clinics. Two days later, fever (39°C) and anterior neck pain developed. The patient was treated with antipyretics but her fever persisted. Then, she underwent diagnostic workup for fever origin in the outpatient setting of another hospital. The results of routine laboratory

tests and a thyroid function test were unremarkable, except for a low level of thyroid-stimulating hormone (TSH) of 0.065 μ IU/mL (normal range: 0.3-4.0 μ IU/mL), an elevated erythrocyte sedimentation rate (ESR) of 65 mm/h (normal range: 0-30 mm/h), and a high C-reactive protein level of 2.07 mg/dL (normal range: 0-0.5 mg/dL). Two weeks prior to her admission to our hospital, the patient's fever remained and her anterior neck pain was aggravated (with fever), despite her taking medicine (doxycycline for 7days), so she was transferred to another hospital. One week prior to her admission to our hospital, repeated thyroid function tests in another hospital showed elevation of serum free thyroxine (FT4) (3.77 ng/dL) (normal range: 0.8-1.8 ng/dL) and a decrease in TSH (to 0.01 μ IU/mL). Finally, she was transferred to our clinic with suspected subacute thyroiditis.

On admission, the patient's blood pressure was 123/72 mmHg, her heart rate was 107 beats/min, and her body temperature was 37.8°C. The results of a physical examination were unremarkable except for anterior neck tenderness. Chest radiography showed normal findings. Routine laboratory test results were unremarkable, except for an ESR of 84 mm/h. Antibodies for Hantaan virus, Leptospira, and Tsutsugamushi were all negative. Other viral markers, such as CMV, EBV, HSV, adenovirus, mumps virus, measles virus, parvovirus B19, RSV, VZV, and HIV were all negative. Blood, urine and stool culture results were also negative, as were malaria blood smear results. The

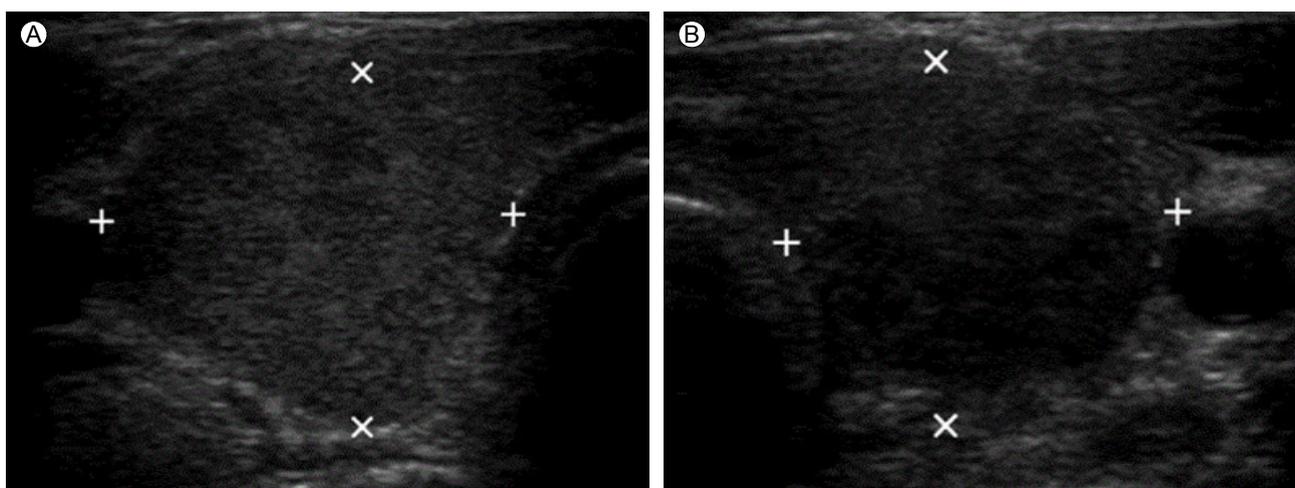


Figure 1. (A) and (B) Thyroid ultrasonography showed that both glands were enlarged (RT 2.23 \times 2.01 cm; Lt 1.93 \times 1.95 cm), and revealed hypoechogenicity and a heterogeneous structure.

patient underwent contrast-enhanced computed tomography (CT) scanning of the chest, abdomen, and pelvis, the results of which were within normal limits. However, thyroid function tests revealed an elevation serum FT4 level of 3.16 ng/dL and a decrease in TSH to 0.01 μ IU/mL; TSH receptor antibody and thyroid peroxidase antibody test results were negative. Thyroid ultrasonography showed enlargement of both lobes, with hypoechogenicity and a heterogeneous structure (Fig. 1). Random fine-needle aspiration (FNA) of the LT thyroid gland showed a result consistent with subacute thyroiditis. A thyroid scan with Tc-99m pertechnetate showed decreased uptake in both lobes and radioactive iodine uptake (RAIU) of iodine-131 was extremely low: 6 h, 2.1% (n = 8-15); 24 h, 0.6% (n = 15-45). However, the patient's thyroid scan and RAIU analysis were performed one day after contrast-enhanced CT scans. Isotope imaging of the thyroid should be avoided for two months after iodinated contrast medium injection. So, this result did not help to reach a diagnosis of subacute thyroiditis.

Based on the above-described evidence, the diagnosis of subacute thyroiditis was made. The patient's neck pain was mild so she was treated with low-dose steroid (prednisone, 10 mg per day). Her response was rapid, with her fever remitting completely from the second day (Fig. 2). Two weeks later, her symptoms had disappeared and the ESR and CRP level were normalized. Low-dose steroid therapy lasted for 10 days and

was discontinued without a taper. Thyroid function tests that were performed at 3 weeks after discharge and showed a decrease in the serum FT4 level to 0.21 ng/dL and an increase in TSH to 56.81 μ IU/mL. Regrettably, the patient was not followed up further so data on her thyroid function are confined to the intra-hospital period.

DISCUSSION

FUO is not infrequently a diagnostic dilemma for practicing clinicians and often requires extensive diagnostic evaluation. Subacute thyroiditis is usually classified among the miscellaneous causes of FUO, and is the most common endocrinological cause of FUO [4].

Subacute thyroiditis is characterized by generally self-limiting, usually painful, inflammatory lesions of the thyroid gland, and is probably of viral origin. The peak incidence occurs at 30 to 50 years, and women are affected five times more frequently than men. Patients characteristically present with a painful, tender thyroid that is firm, with pain radiating to the ears, mandible, or occiput. Fevers are usually 38.8°C or less (rarely higher) and cervical lymphadenopathy is rare [5].

A review of the literature revealed that subacute thyroiditis manifesting as FUO could be possible without anterior neck pain or symptoms of thyrotoxicosis, while typical features of thyroiditis are gradual appearance of pain in the region of the thyroid gland and symptomatic thyrotoxicosis [4,6,7].

Our patient had several features that are commonly observed in subacute thyroiditis, such as neck pain and an elevated sedimentation rate. However, she had no clinical symptoms of thyrotoxicosis, which usually present during the early phase of subacute thyroiditis. So, a thorough workup of FUO was carried out. Major causes of FUO including infections, neoplasms, and connective tissue disorders were excluded by negative hematological, microbiological, immunological, and imaging results. When elevated thyroid hormone levels were noted in our hospital, the possibility of subacute thyroiditis was considered.

The present case suggests that, when a fever is of unknown origin, subacute thyroiditis should be considered, even if clinical

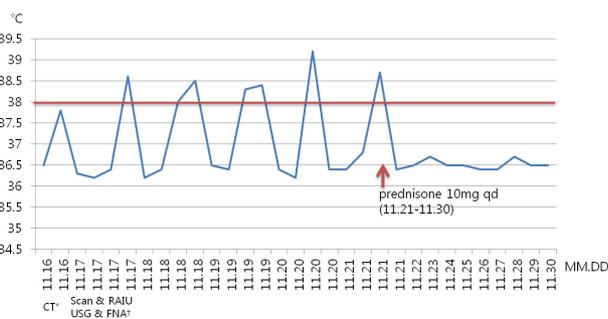


Figure 2. The fever subsided completely from the second day of low-dose steroid therapy (prednisone, 10 mg per day).

^aEnhanced computed tomography scanning of the chest, abdomen, and pelvis.

^bThyroid scan with Tc-99m pertechnetate and radioactive iodine uptake with iodine-131, thyroid ultrasonography, and fine-needle aspiration.

symptoms of thyrotoxicosis are not present during the early phase. A subsequent thyroid function test may be helpful in such cases.

중심 단어: 불명열, 아급성 갑상선염

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