



A case Report of Simultaneous Subacute Thyroiditis and COVID-19 Infection. A Rare Presentation or Mere Coincidence?

Shahram Samadi¹ , Mohammadreza Salehi² , Hamidreza Emadi² , Zahra Saffarian³ , Mohammad Eslami^{4*} 

1. Department of Anesthesiology and Intensive Care, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran.

2. Department of Infectious Diseases Infectious Diseases, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran.

3. Department of Dermatology, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran.

4. Medical School, Tehran University of Medical Sciences, Tehran, Iran.

Use your device to scan and read the article online



Citation Samadi Sh, Salehi M, Emadi H, Saffarian Z, Eslami M. A Case Report of Simultaneous Subacute Thyroiditis and COVID-19 Infection. A Rare Presentation or Mere Coincidence? Case Reports in Clinical Practice. 2022; 7(5): 261-263.

Running Title COVID-19 Subacute Thyroiditis: A Case Report



Article info:

Received: August 16, 2022

Revised: August 30, 2022

Accepted: September 20, 2022

Keywords:

SARS-COV-2; Thyroid, COVID-19; Subacute thyroiditis; Neck pain; Insomnia

ABSTRACT

Subacute thyroiditis is an uncommon thyroid disease which usually occurs after a viral infection. During COVID-19 pandemics, several subacute thyroiditis cases were identified during or after COVID-19. Due to their similar manifestations and high prevalence of COVID-19, subacute thyroiditis might be neglected if the clinicians do not keep it in mind. In this care report, we present a missing patient with SARS-COV-2 infection and subacute thyroiditis which was not suspected until the latent phase of the disease.

The patient report can be a re-emphasis on the importance of clinical examination and especially paying attention to palpation of the thyroid gland.

Introduction

S

ubacute thyroiditis (SAT), also known as granulomatous thyroiditis or De Quervain's thyroiditis, is a rare inflammatory thyroid disease with unclear pathogenesis and etiology [1]. It usually affects females and is associated with a previous viral infection [2]. SAT typically manifests with thyroid

tenderness and anterior neck pain radiating to the ears, as well as nonspecific symptoms of inflammation and thyrotoxicosis, such as fever, malaise, tachycardia, weight loss and heat intolerance. On the basis of the patient's medical history and physical examination, a diagnosis is suspected, and confirmed by thyroid profile laboratory tests and imaging. It is treated

* Corresponding Author:

Mohammad Eslami

Address: Medical School, Tehran University of Medical Sciences, Tehran, Iran.

E-mail: mohamad.em76@gmail.com



with nonsteroidal anti-inflammatory drugs and oral corticosteroids without serious sequels. During the recovery phase, the patient may experience symptoms of hypothyroidism due to the destruction of thyroid tissue [3]. During COVID-19 pandemics, numerous SAT cases associated with COVID-19 infection were identified [4].

In some cases, the disease resolves without being diagnosed; however, the disease's diverse symptoms may confuse clinicians, resulting in medical malpractice and unnecessary medical assessment, and a high cost for the patient [5, 6].

This article describes a patient with COVID-19 infection and SAT who experienced pain in an uncommon location.

Case presentation

The patient is a 48-year-old male who presented with left-sided neck pain radiating to the mastoid, agitation, sweating, malaise, mild abdominal pain and two nights of acute insomnia. On physical examination, multiple tender trigger points were palpated on the neck muscles; the thyroid was not examined by healthcare provider. The temperature was near 38°C, the blood pressure was 130/70 mmHg and the heart rate ranged from 85 to 100 beats per minute. Other examinations were unremarkable. The medical history included cervical discopathy and hyperlipidemia managed with fenofibrate and rosuvastatin. The case had no history of endocrine abnormality, recent infectious disease, chronic insomnia nor reported a family history of these conditions. Four months ago, he received the third dose of the COVID-19 vaccine (AstraZeneca). Due to the patient's past medical history, a brain and cervical MRI was performed, which was normal. The electrocardiogram was normal. After four days, he reported a sore throat and increased malaise and

fatigue. In the suspicion of COVID-19 infection, an oropharyngeal swab PCR test for SARS-COV-2 was performed, which was positive, so the symptoms were attributed to the infection. Five days later, the neck pain partially resolved and sore throat continued for a few more days, while agitation and palpitation lasted for weeks.

Thirty-five days after onset of symptoms, the acral area of hands and feet had peeling and thinning of epidermis and a tendency to bleed almost in fissures in palmar surface. In addition to severe hair loss, tachycardia, agitation, and insomnia progressed. Despite increased appetite, the patient lost a significant amount of weight (5 kilograms in 10 days).

Laboratory tests conducted under the suspicion of thyrotoxicosis revealed decreased thyroid stimulating hormone (TSH) level (0.25 mIU/L), increased Triiodothyronine(T3) (231 ng/dL), and elevated erythrocyte sedimentation rate (ESR) (25 mm/hr). Complete blood count (CBC), C-reactive protein (CRP), and thyroxine (T4) levels were all normal. Both anti-thyroglobulin and anti-Thyroid peroxidase (TPO) antibodies were negative. An oral β -blocker was prescribed to control tachycardia. On day 45 after first symptoms, ultrasonography of the thyroid revealed a heterogeneous, mildly hypoechoic, hypovascular, and ill-defined focus at the upper pole of the right thyroid lobe, which is characteristic of resolving focal subacute thyroiditis. Radioactive thyroid scan indicated decreased and non-homogeneous uptake with poor delineation of thyroid lobes, suggestive of subacute thyroiditis (Fig. 1). Five days later, all laboratory tests were normal with the exception of TSH (0.01 mIU/L), which required more than 20 days to reach normal levels.

On day 70 after initial symptoms, the patient was symptom-free, his weight loss and hair loss ceased,

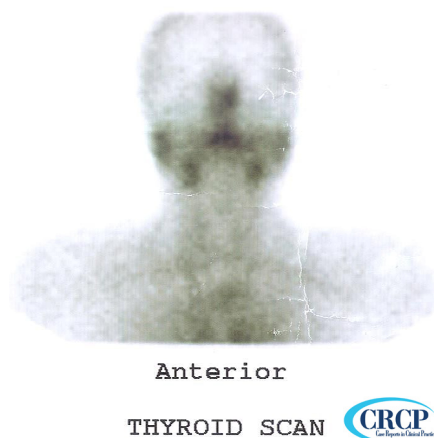


Fig. 1. Radioactive thyroid scan

and his general health returned to normal. The patient wasn't admitted to hospital during the disease and all the medical care was done out patiently.

Discussion

This case demonstrates the necessity of considering SAT when a patient presents with severe neck pain. A lackadaisical examination of the thyroid may result in improper patient management and high costs for the patient. Due to the high incidence of COVID-19 cases over the past two years, similar symptoms of this infection and other diseases may be considered COVID-19 manifestations like acute insomnia [7, 8].

Despite the absence of clear pathogenesis, it appears that Angiotensin-Converting Enzyme 2 (ACE-2), which is highly expressed on thyroid cells, can serve as a receptor for the COVID-19 virus [9]. Although a recent paper reported the occurrence of SAT after two weeks of COVID-19 symptoms [10], some articles reported a shorter time interval between these two diseases, and one similar case report described their co-occurrence [11-13]. In addition, a second patient exhibited SAT symptoms and tested positive for COVID-19 despite the absence of pulmonary symptoms. This article underlines the importance of thyroid examination in the presence of neck pain as the chief complaint in any patient. Due to the high incidence of COVID-19, it is possible that we cannot determine the actual cause of SAT, and the simultaneous occurrence of these diseases may be a mere coincidence.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this article.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or nonprofit sectors.

Conflict of Interests

The authors have no conflict of interest to declare.

Acknowledgements

The authors are especially grateful to Dr. Mehrshad

Abbasi, professor in the nuclear medicine department, for obtaining the thyroid scan.

References

1. JH L. Braverman LE, Utiger RD, editors. The thyroid: a fundamental and clinical text. 7th ed. Philadelphia: Lippincott Williams & Wilkins; 1996.
2. Desailoud R, Hober D. Viruses and thyroiditis: an update. *Virology*. 2009;6:5. <https://doi.org/10.1186/1743-422X-6-5>
3. Shrestha RT, Hennessey J. Acute and Subacute, and Riedel's Thyroiditis. In: Feingold KR, Anawalt B, Boyce A, Chrousos G, de Herder WW, Dhatariya K, et al., editors. *Endotext*. South Dartmouth (MA): MDText.com, Inc. Copyright © 2000-2022, MDText.com, Inc.; 2000.
4. Popescu M, Ghemigian A, Vasile CM, Costache A, Carsote M, Ghenea AE. The New Entity of Subacute Thyroiditis amid the COVID-19 Pandemic: From Infection to Vaccine. *Diagnostics* (Basel). 2022;12(4). <https://doi.org/10.3390/diagnostics12040960>
5. Alfadda AA, Sallam RM, Elawad GE, Aldhukair H, Alyahya MM. Subacute thyroiditis: clinical presentation and long term outcome. *Int J Endocrinol*. 2014;2014:794943. <https://doi.org/10.1155/2014/794943>
6. Cunha BA, Chak A, Strollo S. Fever of unknown origin (FUO): de Quervain's subacute thyroiditis with highly elevated ferritin levels mimicking temporal arteritis (TA). *Heart Lung*. 2010;39(1):73-7. <https://doi.org/10.1016/j.hrtlng.2009.06.006>
7. Abdulkadir J, Besrat A, Abraham G, Gebre P. Thyrotoxicosis in Ethiopian patients-a prospective study. *Transactions of the Royal society of Tropical Medicine and Hygiene*. 1982 Jan 1;76(4):500-2. [https://doi.org/10.1016/0035-9203\(82\)90149-3](https://doi.org/10.1016/0035-9203(82)90149-3)
8. Datta K, Tripathi M. Sleep and Covid-19. *Neurology India*. 2021 Jan 1;69(1):26. <https://doi.org/10.4103/0028-3886.310073>
9. Rotondi M, Coperchini F, Ricci G, Denegri M, Croce L, Ngnitejeu ST, et al. Detection of SARS-COV-2 receptor ACE-2 mRNA in thyroid cells: a clue for COVID-19-related subacute thyroiditis. *J Endocrinol Invest*. 2021;44(5):1085-90. <https://doi.org/10.1007/s40618-020-01436-w>
10. Brancatella A, Ricci D, Viola N, Sgrò D, Santini F, Latrofa F. Subacute Thyroiditis After Sars-COV-2 Infection. *J Clin Endocrinol Metab*. 2020;105(7). <https://doi.org/10.1210/clinem/dgaa276>
11. Asfuroglu Kalkan E, Ates I. A case of subacute thyroiditis associated with Covid-19 infection. *J Endocrinol Invest*. 2020;43(8):1173-4. <https://doi.org/10.1007/s40618-020-01316-3>
12. Chakraborty U, Ghosh S, Chandra A, Ray AK. Subacute thyroiditis as a presenting manifestation of COVID-19: a report of an exceedingly rare clinical entity. *BMJ Case Rep*. 2020;13(12). <https://doi.org/10.1136/bcr-2020-239953>
13. Mattar SAM, Koh SJQ, Rama Chandran S, Cherng BPZ. Subacute thyroiditis associated with COVID-19. *BMJ Case Rep*. 2020;13(8). <https://doi.org/10.1136/bcr-2020-237336>