CASE REPORT

A CASE OF CONFLUENCE: PERICARDIAL EFFUSION UNVEILING HASHIMOTO'S HYPOTHYROIDISM AND ATYPICAL SYSTEMIC LUPUS ERYTHEMATOSUS IN A YOUNG FEMALE WITH SYNCOPE

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This case report presents a remarkable convergence of autoimmune diseases in a young female patient who initially presented with syncope and was subsequently diagnosed with pericardial effusion-induced cardiac tamponade. Through meticulous investigation, she was found to have Hashimoto's thyroiditis alongside an atypical presentation of systemic lupus erythematosus (SLE), marked by a unique form of antinuclear antibody positivity. Treatment involved a combination of steroids, immunosuppressants, and thyroid hormone replacement. This intricate association between intersecting autoimmune disorders, with atypical presentations and cardiovascular manifestations, underscores the complexity of autoimmune pathology and the importance of a high index of suspicion in reaching accurate diagnoses.

Keywords: Pericardial Effusion, Atypical Systemic Lupus Erythematosus, Hashimoto's Hypothyroidism, SLE, Syncope, Cardiac Tamponade

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INTRODUCTION

Cardiac tamponade, characterized by the accumulation of fluid within the pericardial sac leading to compromised cardiac function, presents a diagnostic challenge, particularly when associated with syncope.[1] This case describes a young female patient whose syncope unveiled a cascade of autoimmune disorders, culminating in pericardial effusion-induced cardiac tamponade.[2] The subsequent diagnosis revealed a tandem of Hashimoto's thyroiditis and atypical SLE, highlighting the shared immunological dysregulation underlying these conditions.[3] While Hashimoto's disease and SLE traditionally present with distinct clinical features, their convergence in this case underscores the complexity of autoimmune pathology and the need for a comprehensive understanding of the interplay between autoimmune disorders and cardiovascular manifestations.

CASE REPORT

Patient Information: Our patient is a 16-year-old young female who presented to the emergency room with complaints of dyspnea on exertion over the past month and four episodes of syncope over the last day. Upon examination, she exhibited hypotension, bulging neck veins, and muffled heart sounds, indicative of Beck's triad.

Clinical Findings: Investigations revealed microcytic hypochromic red blood cells with anisocytosis, elliptocytes, and target cells on peripheral smear, along with symmetrical T-wave inversions in lead 1 & aVL and a poorly progressing R-wave in V1 to V6 of ECG. A short echocardiogram in the ER confirmed a large pericardial effusion with right atrial systolic and right ventricular diastolic collapse, consistent with cardiac tamponade.

Timeline: The patient initially presented with symptoms of dyspnea on exertion and multiple episodes of syncope. Upon examination, clinical findings such as hypotension, bulging neck veins, and muffled heart sounds raised suspicion of cardiac involvement. Subsequent investigations including peripheral smear, chest x-ray, and ECG revealed abnormalities consistent with cardiac tamponade. An emergency echocardiogram confirmed the presence of pericardial effusion, necessitating urgent pericardiocentesis to relieve pressure on the heart. Further investigations uncovered underlying Hashimoto's thyroiditis and atypical systemic lupus erythematosus (SLE), characterized by positive ANA antibodies in a fine cytoplasmic speckled pattern. Treatment was promptly initiated with intravenous antibiotics and steroids, followed by discharge with oral medications including thyroxine for hypothyroidism and a combination of steroids,

mycophenolate mofetil, and hydroxychloroquine for SLE. The patient was discharged with regular follow-ups to monitor disease progression and response to treatment.

Diagnostic Assessment: Multidisciplinary investigations, including peripheral smear, chest x-ray, ECG, and echocardiogram, were crucial in diagnosing cardiac tamponade. Additional tests revealed Hashimoto's thyroiditis and atypical SLE, characterized by positive ANA antibodies in a fine cytoplasmic speckled pattern.

Therapeutic Intervention: The patient underwent urgent pericardiocentesis, draining almost 1500ml of pericardial fluid. IV antibiotics and steroids were initiated, with subsequent oral medications including thyroxine for hypothyroidism and a combination of steroids, mycophenolate mofetil, and hydroxychloroquine for SLE.

Follow-up and Outcomes: The patient was followed up regularly, with repeated thyroid function tests every 10 weeks, demonstrating maintained normal limits and significantly improved disease symptoms over the course of a year. Responding well to treatment, her inflammatory markers, renal function, and hematological parameters showed improvement, indicating successful management of her complex condition.

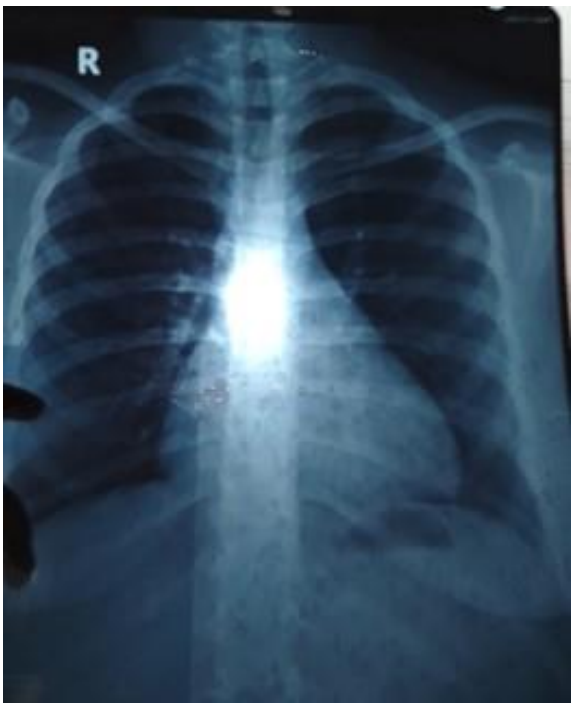

Figure 1: Chest X-ray (CXR) showing enlarged cardiac silhouette and increased cardio thoracic ratio

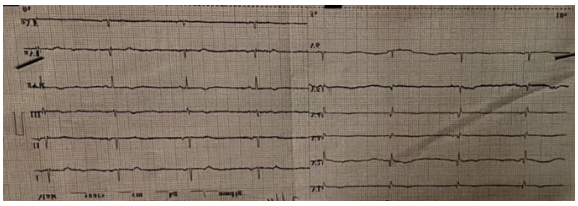

Figure 2: Electrocardiogram (ECG) showing normal sinus rhythm, sinus bradycardia, T-wave inversions and poor R-wave progressions

DISCUSSION

The confluence of autoimmune phenomena like Hashimoto's thyroiditis and atypical systemic lupus erythematosus (SLE) with their cardiac implications presents a fascinating terrain for clinicians to explore the underlying pathophysiological mechanisms and autoimmune dysregulation.[4] While cardiac complications are prevalent in SLE, with pericarditis and myocarditis affecting nearly half of patients, the occurrence of cardiac tamponade, particularly as the presenting symptom, remains rare, underscoring the complexity of this case.[5] Typically, cardiac tamponade is infrequently observed in newly diagnosed cases of hypothyroidism due to the elastic nature of the pericardium, making its manifestation alongside overt hypothyroidism a noteworthy clinical event.[6]

This patient's presentation suggests a prolonged period of undiagnosed hypothyroidism, a common occurrence in Hashimoto's thyroiditis, the leading cause of hypothyroidism in young adults.[7,8] Interestingly, despite lacking classical signs of SLE, such as rash or arthritis, the patient exhibited bicytopenia, prompting further investigation into underlying autoimmune anomalies, ultimately revealing an atypical presentation of SLE characterized by positive antinuclear antibodies (ANAs).[9,10] Following confirmation of diagnosis, treatment aligned with current guidelines for both conditions, emphasizing the importance of tailored therapeutic strategies.[11,12] The simultaneous occurrence of Hashimoto's thyroiditis and atypical SLE highlights the heterogeneity of autoimmune disorders and underscores the need for clinicians to adopt a comprehensive approach to diagnosis and management.

CONCLUSION

This case underscores the intricate interplay between autoimmune disorders and cardiovascular manifestations, exemplified by the convergence of Hashimoto's thyroiditis and atypical systemic lupus erythematosus (SLE) in a young female patient presenting with syncope and pericardial effusion-

induced cardiac tamponade. The recognition of atypical presentations of autoimmune diseases, particularly in the context of cardiovascular symptoms, is critical for timely diagnosis and management. This case highlights the importance of a multidisciplinary approach and a high index of suspicion to unravel complex diagnostic puzzles and initiate appropriate therapeutic interventions. Further research into the mechanisms underlying the association between autoimmune disorders and cardiovascular pathology is warranted to improve our understanding and optimize patient care.

AUTHORS' CONTRIBUTION

UF, SS, SA, and AR: Concept and design, data acquisition, interpretation, drafting, final approval, and agree to be accountable for all aspects of the work. UF, SS, SA, and AR: Data acquisition, interpretation, drafting, final approval and agree to be accountable for all aspects of the work.

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REFERENCES

1. Vithanage N, Haq IU, Karunanathan N, Quigley C, Buckley A, Khan JH. Atypical Manifestations of Systemic Lupus Erythematosus (SLE) in Elderly Men. J Biosci Med. 2023;11(6):135-9.
2. Mincer DL, Jialal I. Hashimoto Thyroiditis. [Updated 2023 Jul 29]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK459262/
3. NIAMS. Systemic Lupus Erythematosus (Lupus). National Institute of Arthritis and Musculoskeletal and Skin Diseases. 2019. Available from: https://www.niams.nih.gov/health-topics/lupus
4. Alerhand S, Adrian RJ, Long B, Avila J. Pericardial tamponade: A comprehensive emergency medicine and echocardiography review. Am J Emerg Med. 2022;58:159-174.
5. Nor MA, Ogedegbe OJ, Barbarawi A, Ali AI, Sheikh IM, Yussuf FM, et al. Systemic Lupus Erythematosus and Cardiovascular Diseases: A Systematic Review. Cureus. 2023;15(5):e39284.
6. Dein E, Douglas H, Petri M, Law G, Timlin H. Pericarditis in Lupus. Cureus. 2019;11(3):e4166.
7. Maddali VR, Miryala S, Bellamkonda YS, Nagula P. Cardiac tamponade due to primary hypothyroidism: acute management and approach to prevent recurrence-a case report. Cameli M, Abumuaileq DDRRY, Carazo CM, Mehta VS, editors. Eur Heart J - Case Reports. 2020;4(3):1-5.
8. Emorinken A, Dic-Ijiewere MO, Izirein HO. Cardiac Tamponade, an Unusual First Presentation of Systemic Lupus Erythematosus: A Case Report in a Rural Tertiary Hospital. Cureus. 2022;14(8):e27989.
9. Hunter I, Greene SA, MacDonald TM, Morris AD. Prevalence and aetiology of hypothyroidism in the young. Arch Dis Child. 2000;83(3):207-10.
10. Jung JH, Soh MS, Ahn YH, Um YJ, Jung JY, Suh CH, et al. Thrombocytopenia in Systemic Lupus Erythematosus: Clinical Manifestations, Treatment, and Prognosis in 230 Patients. Med (Baltimore). 2016;95(6):e2818.
11. Leese GP. Nice guideline on thyroid disease: where does it take us with liothyronine? Thyroid Res. 2020;13:7.
12. Justiz Vaillant AA, Goyal A, Varacallo M. Systemic Lupus Erythematosus. [Updated 2023 Aug 4]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK535405/

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