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An Interesting Case of Sle Presenting with Cardiac Tamponade

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ABSTRACT:

Systemic lupus erythematosus (SLE) is an autoimmune disease that can manifest with diverse clinical presentations, including cardiac involvement such as pericarditis and pericardial effusions. Although cardiac tamponade is rare in SLE, it can present as a life-threatening emergency. We report a case of a 44-year-old female with no significant medical history who presented with symptoms suggestive of cardiac tamponade, subsequently diagnosed with SLE upon comprehensive evaluation. A diagnostic workup revealed significant pericardial effusion requiring urgent pericardiocentesis. Treatment consisted of high-dose steroids, mycophenolate mofetil, and hydroxychloroquine, resulting in symptom improvement and resolution of cardiac tamponade without requiring further interventions. This case highlights the importance of early recognition, prompt diagnosis, and appropriate management of cardiac tamponade in SLE patients, contributing to favorable outcomes and improved patient care.

Keywords: Pericardiocentesis, Point-Of-Care Ultrasonography, Systemic Lupus Erythematosus, Tamponade.

1. Introduction

Systemic lupus erythematosus (SLE) is an autoimmune disorder that can affect various organ systems, resulting in a wide range of clinical manifestations. Around 20% of SLE cases are diagnosed during childhood. The incidence of childhood-onset systemic lupus erythematosus (cSLE) is estimated to be between 0.28 and 2.22 per 100,000 children, with a prevalence of 6.3

to 9.73 per 100,000 children, particularly more prevalent in non-Caucasian populations [1-3]. Pericarditis and pericardial effusions are commonly observed in patients with SLE. Cardiac tamponade, a critical condition characterized by restricted cardiac filling due to a significant pericardial effusion, can lead to hemodynamic compromise and is considered a medical emergency. In this case report, present the case of a patient who presented with cardiac tamponade and was subsequently diagnosed with SLE upon comprehensive evaluation.

Case presentation:

Patient History: A 44-year-old woman with no known comorbidities presented to the emergency department with a two-week history of progressively worsening breathlessness and chest pain. The pain was sharp, retrosternal, and exacerbated by respiration. On examination, the patient exhibited pedal oedema, tachypnoea, pallor, hypotension (70/50 mmHg), tachycardia (pulse rate of 150/minute), and muffled heart sounds on auscultation. Electrocardiography (ECG) revealed a low-voltage complex.

Clinical Findings: Bedside echocardiography revealed massive pericardial effusion leading to cardiac tamponade. Urgent diagnostic and therapeutic pericardiocentesis was performed in the emergency room, draining approximately 500cc of serous fluid and placing a pigtail drain. Following the procedure, the patient's symptoms improved and vital signs stabilised.

Diagnosis: Further evaluation was aimed at identifying the aetiology of cardiac tamponade. The patient denied any history of arthritis, fever, weight loss, or tuberculosis. Laboratory investigations revealed anaemia (haemoglobin 6.6 gm/dl) and thrombocytopenia (platelet count of 60,000 cells per cu.mm) with an elevated erythrocyte sedimentation rate (ESR) of 120 mm/h. The electrolyte panel and renal and liver function test results were within normal limits. Pericardial fluid analysis indicated exudative fluid without evidence of tuberculosis or malignancy. However, cytology revealed increased neutrophil and lymphocyte counts. Serological tests were positive for a direct Coombs test, with low complement levels and a 3+ positive homogenous pattern of antinuclear antibodies (ANA) on immunoblotting, anti-dsDNA, and strong anti-nucleosome positivity. The patient was diagnosed with SLE and secondary Evans syndrome.

Management: Treatment was initiated with intravenous methylprednisolone (1 g for three days), followed by oral prednisolone (60 mg daily), hydroxychloroquine (200 mg daily), and mycophenolate mofetil (500 mg twice daily). The patient also received a transfusion of one unit of packed red blood cells. Approximately 200cc of pericardial fluid was drained over the next three days, and the pigtail catheter drain was removed successfully. Repeat echocardiography showed trace-to-mild pericardial effusion without cardiac tamponade. The patient's condition improved, and she was discharged with prednisolone (40 mg daily), hydroxychloroquine (200 mg daily), and mycophenolate mofetil (500 mg twice daily).

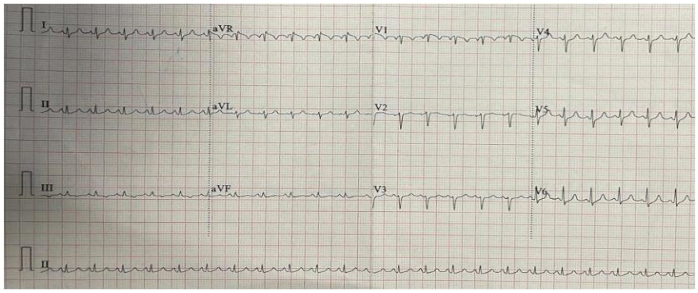

Figure 1: ECG of a patient with pericardial effusion.

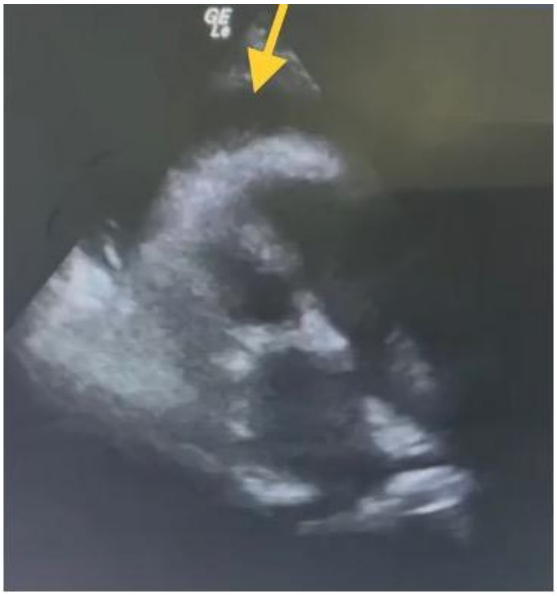

Figure 2 A: Representing pericardial effusion in 2D Echo

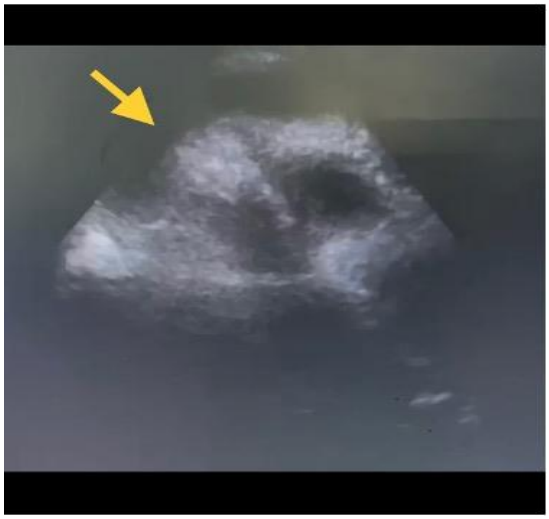

Figure 2B: Confirming the diagnosis of pericardial effusion with 2D echo.

2. Discussion

The pericardium, a membranous sac that surrounds the heart, serves to reduce mechanical friction and contains approximately 15-50 ml of pericardial fluid. [2] Cardiac tamponade, a condition characterized by fluid accumulation around the heart, can result in impaired cardiac filling and may be life-threatening if not promptly treated. Causes of tamponade include malignancies such as lung, melanoma, breast, lymphoma, and leukemia, as well as post-procedure hemopericardium, trauma, aortic dissection, myocardial rupture, excessive anticoagulation, and other effusions, idiopathic pericarditis, autoimmune disorders such as lupus, rheumatoid arthritis, or mixed connective tissue disease, radiation-induced pericarditis, hypothyroidism, and various infections such as bacterial, tuberculosis, Epstein-Barr virus, cytomegalovirus, and HIV [3, 5].

In patients with SLE, cardiac tamponade is more commonly observed in women and those presenting with anaemia, renal disease, pleuritis, elevated erythrocyte sedimentation rate (ESR) values, and reduced levels of C4 complement protein [4][6]. Our patient, a female with

anaemia, elevated ESR, and pleuritis, was confirmed to have cardiac tamponade through echocardiography, and subsequently, serum tests revealed the presence of antinuclear antibodies (ANA), anti-dsDNA, and anti-Smith antibodies, thereby establishing a diagnosis of SLE. The treatment of cardiac tamponade in SLE patients typically involves high-dose steroids, pericardiocentesis, and immunosuppressants, such as hydroxychloroquine, mycophenolate mofetil, and azathioprine. [3, 5] Our patient underwent pericardiocentesis and received high-dose steroids, mycophenolate mofetil, and hydroxychloroquine, which demonstrated therapeutic efficacy without necessitating further pericardiocentesis or pericardiectomy. This response was comparable to other case reports and clinical studies [2, 4, 6].

3. Conclusion

This case underscores the significance of integrating point-of-care ultrasonography with physical examination to expedite the administration of definitive therapy. Identifying this uncommon presentation of SLE and administering appropriate treatments with steroids and immunosuppressants can potentially save lives.

4. References

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