Case Reports

Adult-Onset Still's Disease and Cardiac Tamponade:

A Rare Association

Pedro Carrilho-Ferreira, MD
Doroteia Silva, MD
Maria de Jesus Silva, MD
Rui André, MD
Manuel Gato Varela, MD
António Nunes Diogo, MD

Adult-onset Still's disease is a rare disorder with potentially severe clinical features, including cardiac involvement. This systemic inflammatory disease of unknown origin should be considered in the differential diagnosis of pericarditis, with or without pericardial effusion. Cardiac tamponade is a very rare sequela that requires an invasive approach, such as percutaneous or surgical pericardial drainage, in addition to the usual conservative therapy.

The authors describe a case of adult-onset Still's disease rendered more difficult by pericarditis and cardiac tamponade, and they briefly review the literature on this entity.
(Tex Heart Inst J 2015;42(3):277-80)

Key words: *Cardiac tamponade; diagnosis, differential; fever of unknown origin/diagnosis; pericardial effusion; pericarditis/complications; Still's disease, adult-onset/diagnosis/therapy; young adult*

From: *Department of Cardiology (Drs. Carrilho-Ferreira, Gato Varela, Nunes Diogo, and D. Silva), Santa Maria University Hospital, Centro Hospitalar Lisboa Norte, 1649-035 Lisbon; Lisbon School of Medicine (Drs. Carrilho-Ferreira, Gato Varela, Nunes Diogo, and D. Silva), University of Lisbon, 1649-028 Lisbon; and Departments of Medicine (Dr. M.J. Silva) and Rheumatology (Dr. André), Main Military Hospital, 1249-075 Lisbon; Portugal*

Address for reprints: *Pedro Carrilho-Ferreira, MD, Serviço de Cardiologia I, Hospital de Santa Maria, Centro Hospitalar Lisboa Norte, Av. Prof. Egas Moniz, 1649-035 Lisbon, Portugal*

E-mail: *pcarrilhoferreira@gmail.com*

© 2015 by the Texas Heart® Institute, Houston

Still's disease was originally described in children by George Still in 1896.[1] In 1971, Bywaters[2] described a similar condition in adults. The relation between these disorders is still unclear, and they are considered 2 distinct entities.

Adult-onset Still's disease (AOSD) is an inflammatory disorder of unknown origin, occurring in patients older than 16 years and characterized by high fever, arthralgia or arthritis, an evanescent salmon-colored skin rash, and leukocytosis with neutrophilia. It is more prevalent in females and has an estimated incidence of 0.16 to 0.22 cases per 100,000 individuals. It can arise at any age, although most cases occur in patients who are 16 to 35 years old.[3-6]

There are no specific laboratory findings, yet common findings include an elevated erythrocyte sedimentation rate and C-reactive protein, leukocytosis with neutrophilia, hypoalbuminemia, elevated liver enzyme levels, anemia, thrombocytosis, and elevated serum ferritin (with a low percentage of glicated ferritin).[4-6]

Because there are no pathognomonic features, the diagnosis of AOSD is usually considered after the exclusion of other conditions—particularly infections, neoplasia (above all, lymphoma), and autoimmune disorders (most notably, vasculitis and polymyositis). Of the several proposed sets of diagnostic criteria, the Yamaguchi criteria emerged as the most sensitive in a comparison by Masson and colleagues.[7] When one uses these, the diagnosis is established by the presence of 5 criteria, including at least 2 major criteria (Table I).[8]

Nevertheless, the diagnosis lacks proof and is purely clinical. Close long-term follow-up, with repeated studies, can sometimes yield a different diagnosis.[9,10]

Case Report

In March 2009, a 21-year-old man was admitted to another institution with symptoms of intermittent fever, headache, polyarthralgias, skin rash over the trunk, and petechiae in the fingers and palms. The patient was previously healthy, had no history of drug abuse, and took no regular medication. He also had no pets and had not traveled recently.

He had been in his usual state of health until one month before admission, when intermittent high fever developed (maximum axillary temperature, >39 °C). In addition, he reported headaches, bilateral and symmetric arthralgia on the wrists and hands (with an inflammatory pattern), petechiae over the palms and fingers, salmon-colored rash on the trunk, nausea, and vomiting.

An evanescent, salmon-colored rash was observed on his chest and abdomen, and 2-mm petechiae covered the palms and the fingers. No signs suggested arthritis, and there was no lymphadenopathy or hepatosplenomegaly. Blood testing showed elevated inflammatory markers (Table II). The electrocardiographic (ECG) and chest

http://prime-pdf-watermark.prime-prod.pubfactory.com/ | 2025-02-10

TABLE I. Yamaguchi Diagnostic Criteria for Adult-Onset Still's Disease

Major Criteria

Fever ≥39 °C for at least one week
Arthralgia or arthritis for at least 2 weeks
Nonpruritic salmon-colored rash (usually over trunk or extremities while febrile)
Leukocytosis (≥10.0 x 10^9/L), with neutrophils ≥80%

Minor Criteria

Sore throat
Lymphadenopathy
Hepatomegaly or splenomegaly
Abnormal liver function tests
Negative tests for antinuclear antibody and rheumatoid factor

Adapted with permission from Yamaguchi M, Ohta A, Tsunematsu T, Kasukawa R, Mizushima Y, Kashiwagi H, et al. J Rheumatol 1992;19(3):424-30.[8]

TABLE II. The Patient's Laboratory Course during Hospitalization

Variable	Upon Admission	On 27th Day	At Discharge
Hemoglobin (g/dL)	13	12	15
Leukocytes (×10^9/L)	26.6	20.7	10.2
Neutrophils (%)	92.9	74.2	39.8
ESR (mm/h)	62	N/A	4
CRP (mg/L)	236.0	208.0	3.0

CRP = C-reactive protein; ESR = erythrocyte sedimentation rate; N/A = not available

radiographic results were normal. Ibuprofen (1,200 mg/d) and acetaminophen (as needed) were begun and provided symptomatic relief.

An extensive evaluation was performed, including blood cultures, viral and bacterial serologic studies, immunologic screening (rheumatoid factor and antinuclear antibodies), and computed tomographic (CT) studies of the chest, abdomen, pelvis, and cranium. No significant changes were found. However, a transthoracic echocardiogram (TTE) showed circumferential, mild pericardial effusion (maximal diameter, 8 mm), with no signs of tamponade or other relevant findings.

A few days later, dyspnea and diffuse chest pain developed. The pain was relieved by chest anteflexion and aggravated by deep inspiration and by lying supine. The patient was hypotensive, tachycardic, and hyperpneic, and he manifested jugular venous distention. The ECG showed sinus tachycardia and diffuse ST-segment elevation (Fig. 1), the chest radiograph revealed an enlarged cardiac silhouette (Fig. 2), and the inflammatory markers were again elevated (Table II). A repeat TTE showed an increase in the pericardial effusion (maximal diameter, 12 mm) (Fig. 3) and collapse of the right heart chambers. Emergency pericardiocentesis drained 60 mL of serosanguineous fluid.

When repeated, CT of the chest and abdomen revealed mild right and severe left pleural effusion, as well as mild ascites. Thoracocentesis was then performed, during which 350 mL of serosanguineous pleural fluid was drained. Both heart and lung fluids were exudates that yielded negative microbiologic examination and were unremarkable upon histologic analysis.

The diagnosis of AOSD was established, and the patient was medicated with prednisone (0.5 mg/kg/d), with major clinical and laboratory improvement (Table

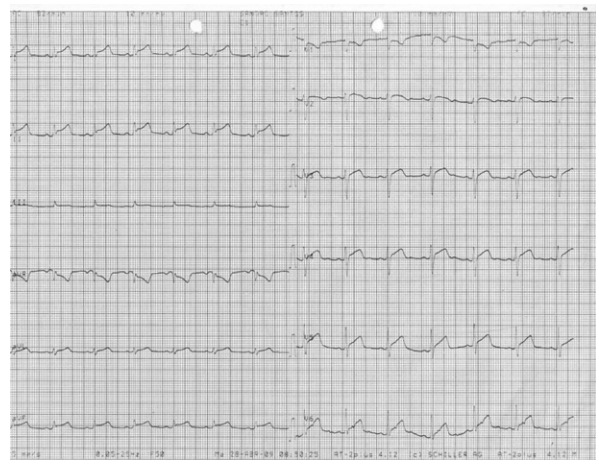

Fig. 1 *Electrocardiogram shows diffuse ST-segment elevation, which suggests acute pericarditis.*

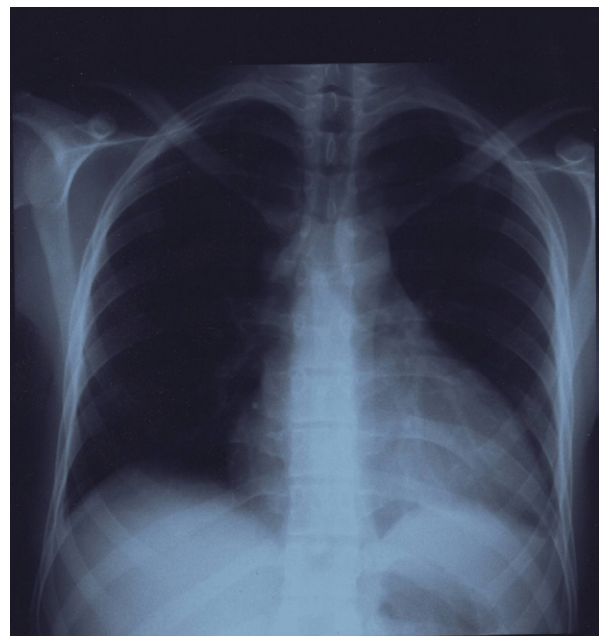

Fig. 2 *Chest radiograph shows an enlarged cardiac silhouette.*

http://prime-pdf-watermark.prime-prod.pubfactory.com/ | 2025-02-10

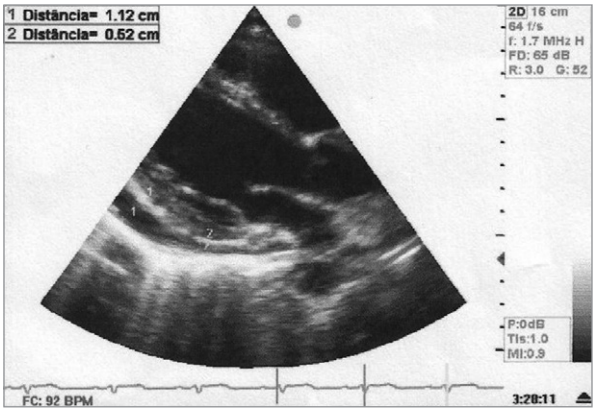

Fig. 3 *Transthoracic echocardiogram shows pericardial effusion.*

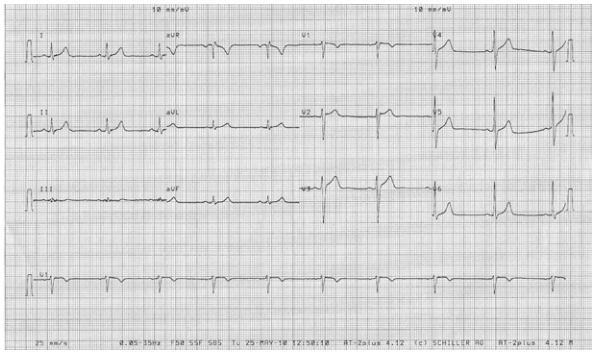

Fig. 4 *Electrocardiogram performed on follow-up shows no ST-segment elevation in the inferior or anterolateral leads.*

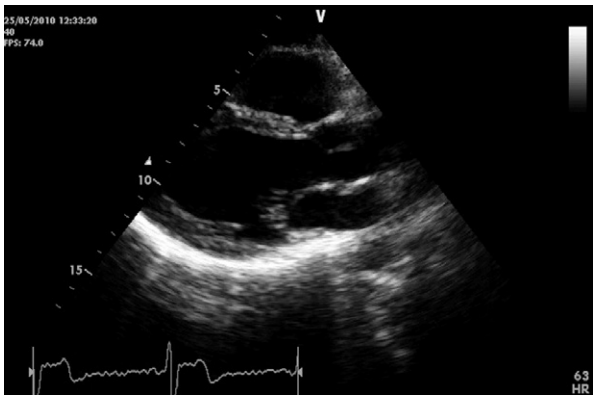

Fig. 5 *Transthoracic echocardiogram performed on follow-up evaluation reveals no pericardial effusion.*

II). There was also ST-segment normalization, and the follow-up echocardiogram showed only mild pericardial effusion (2–3 mm), without hemodynamic compromise. Screening for autoimmune and infectious disorders was repeated, and no significant changes were found. The patient was discharged from the hospital on a regimen of prednisone.

There was a recurrence of pericardial and pleural effusion 2 months after discharge (after corticosteroid weaning and withdrawal), which was resolved by resuming the prednisone therapy.

Ten months after discharge, the patient presented at our institution for a follow-up visit. He was asymptomatic and was maintained on corticosteroid therapy. Follow-up ECG and TTE showed no significant changes (Figs. 4 and 5).

Discussion

The patient was admitted with symptoms of fever, polyarthralgia, skin rash, and petechiae. During his hospitalization, there was an episode of polyserositis, manifested as pericarditis with substantial pericardial effusion, pleural effusion, and ascites, which systemic corticosteroid therapy suppressed. After considering a corticosteroid-dependent disorder with serosal involvement (and after excluding other causes), we were able to establish a diagnosis of AOSD. Our young-adult patient had all 4 of Yamaguchi's major criteria and one of the minor (negative tests for antinuclear antibodies and rheumatoid factor).[6]

Serosal involvement occurs in 25% to 60% of all AOSD patients; cardiac involvement is common and potentially severe. Pericarditis is observed in 10% to 40% of patients[11-13] and is complicated, in about 20% of patients, by pericardial effusion[5,14] or by cardiac tamponade.[12,15] Indeed pericarditis or its sequelae can be the initial manifestation of the disorder,[12,16] but this does not appear to be associated with a worse prognosis.[13] Cardiac tamponade is rare, and to our knowledge only 18 cases have been reported.[12,13,15,17,18]

Myocarditis is less prevalent (about 3% of all cases),[12,18] and can be complicated by complete atrioventricular block, tachyarrhythmia, heart failure, or cardiogenic shock.[12,17,19] Endocardial involvement is rare, and can present as noninfective endocarditis.[12,17,20,21]

Given the frequency and severity of cardiac involvement in AOSD, all patients with this condition should undergo serial echocardiographic evaluation to exclude these complications.[12]

Nonsteroidal anti-inflammatory drugs are first-line treatment options. When necessary, corticosteroids, immunosuppressive drugs (particularly methotrexate and cyclophosphamide), or biologic drugs (tumor necrosis factor inhibitors, interleukin-1 receptor antagonists, and anti-B-cell antibodies) are used.[3,6] Typically, cardiac involvement responds well to conservative therapy.[12] However, percutaneous or surgical pericardial drainage is mandatory in cases of cardiac tamponade.[12,13,17] Adult-onset Still's disease has a good prognosis, with low mortality rates despite a recurrence rate of 10% per year during follow-up.[4,5]

Our report on this patient's case provides good evidence that AOSD should be considered in the differential diagnosis of patients who present with pericarditis,

http://prime-pdf-watermark.prime-prod.pubfactory.com/ | 2025-02-10

with or without pericardial effusion. It also underscores the need to perform serial echocardiographic evaluations in patients with this condition, to enable the timely diagnosis and management of cardiac sequelae that can, albeit rarely, include tamponade.

Acknowledgment

We thank Gabriela Vinhas de Sousa, MD, for reviewing this manuscript.

References

1. Still GF. On a form of chronic joint disease in children. Arch Dis Child 1941;16(87):156-65.
2. Bywaters EG. Still's disease in the adult. Ann Rheum Dis 1971;30(2):121-33.
3. Efthimiou P, Paik PK, Bielory L. Diagnosis and management of adult onset Still's disease. Ann Rheum Dis 2006;65(5):564-72.
4. Kong XD, Xu D, Zhang W, Zhao Y, Zeng X, Zhang F. Clinical features and prognosis in adult-onset Still's disease: a study of 104 cases. Clin Rheumatol 2010;29(9):1015-9.
5. Uppal SS, Al-Mutairi M, Hayat S, Abraham M, Malaviya A. Ten years of clinical experience with adult onset Still's disease: is the outcome improving? Clin Rheumatol 2007;26(7):1055-60.
6. Bagnari V, Colina M, Ciancio G, Govoni M, Trotta F. Adult-onset Still's disease. Rheumatol Int 2010;30(7):855-62.
7. Masson C, Le Loet X, Liote F, Dubost JJ, Boissier MC, Perroux-Goumy L, et al. Comparative study of 6 types of criteria in adult Still's disease. J Rheumatol 1996;23(3):495-7.
8. Yamaguchi M, Ohta A, Tsunematsu T, Kasukawa R, Mizushima Y, Kashiwagi H, et al. Preliminary criteria for classification of adult Still's disease. J Rheumatol 1992;19(3):424-30.
9. Vanderschueren S, Hermans F, De Munter P, Knockaert D. Adult-onset Still's disease: still a diagnosis of exclusion. A nested case-control study in patients with fever of unknown origin. Clin Exp Rheumatol 2012;30(4):514-9.
10. Fred HL. The diagnosis of exclusion: an ongoing uncertainty. Tex Heart Inst J 2013;40(4):379-81.
11. Cagatay Y, Gul A, Cagatay A, Kamali S, Karadeniz A, Inanc M, et al. Adult-onset Still's disease. Int J Clin Pract 2009;63(7):1050-5.
12. Drouot MH, Hachulla E, Houvenagel E, Hatron PY, Flipo RM, Goullard L, et al. Cardiac complications in adult onset Still's disease: from pericarditis to tamponade as manifestations [in French]. Rev Med Interne 1994;15(11):740-3.
13. Parvez N, Carpenter JL. Cardiac tamponade in Still disease: a review of the literature. South Med J 2009;102(8):832-7.
14. Ikeue T, Fukuhara A, Watanabe S, Sugita T, Horikawa S, Suzuki Y, et al. A case of severe adult-onset Still's disease presenting with pleuropericarditis [in Japanese]. Nihon Kokyuki Gakkai Zasshi 2006;44(5):389-93.
15. Muntinghe FLH, de Filippi JP, Breedveld RW, Halma C. A young woman with fever and a pericardial effusion. Neth J Med 2002;60(10):414-5.
16. Yoo WH. Adult onset Still's disease flared with pericardial effusion. Rheumatol Int 2008;28(3):285-7.
17. Ben Ghorbel I, Lamloum M, Miled M, Aoun N, Houman MH, Pouchot J. Adult-onset Still's disease revealed by a pericardial tamponade: report of two cases [in French]. Rev Med Interne 2006;27(7):546-9.
18. Moder KG, Miller TD, Allen GL. Cardiac tamponade: an unusual feature of adult onset Still's disease. J Rheumatol 1995;22(1):180-2.
19. Colina M, Govoni M, Trotta F. Fatal myocarditis in adult-onset Still disease with diffuse intravascular coagulation. Rheumatol Int 2009;29(11):1355-7.
20. Saraux A, Binard A, Devauchelle-Pensec V, Jobic Y, Jousse-Joulin S. Right-sided native valve endocarditis revealing adult-onset Still disease. Ann Intern Med 2008;149(7):517-9.
21. Zenagui D, De Coninck JP. Atypical presentation of adult Still's disease mimicking acute bacterial endocarditis. Eur Heart J 1995;16(10):1448-50.

http://prime-pdf-watermark.prime-prod.pubfactory.com/ | 2025-02-10