



Case report

Myopericarditis: A rare initial manifestation of adult-onset Still's disease. Case report

Viviana López-Ramírez^{a,*}, Pedro Quevedo^a, Vanessa Cadavid-González^b, Gabriel Quiñones-Ossa^b

^a Departamento de Medicina Interna, Hospital Universitario Clínica San Rafael, Fundación Universitaria Juan N. Corpas, Bogotá, Colombia

^b Facultad de Medicina, Universidad El Bosque, Bogotá, Colombia

ARTICLE INFO

Article history:

Received 4 February 2020

Accepted 29 June 2021

Available online 19 May 2023

Keywords:

Still's disease, adult-onset

Myocarditis

Pericarditis

Rheumatology

Cardiology

ABSTRACT

Adult-onset Still's disease is a rare inflammatory disorder with multiple forms of manifestation; however, the onset with myocarditis or pericarditis is even less common (7% prevalence). Herein, we present a case of a previously healthy 30-year-old man, who consulted for chest pain. During his clinical evolution, he was diagnosed with myopericarditis. Various aetiologies were evaluated and after multiple studies adult-onset Still's disease was diagnosed. Treatment with corticosteroids was established evidencing an adequate response.

© 2021 Asociación Colombiana de Reumatología. Published by Elsevier España, S.L.U. All rights reserved.

Miopericarditis, una manifestación inicial poco común de la enfermedad de Still del adulto. Reporte de caso

RESUMEN

La enfermedad de Still es una enfermedad inflamatoria infrecuente, con múltiples formas de presentación; sin embargo, el debut con miocarditis o pericarditis es aún menos común (prevalencia de 7%). A continuación, se presenta el caso de un hombre de 30 años,

Palabras clave:

Enfermedad de Still del adulto

Miocarditis

Pericarditis
Reumatología
Cardiología

previamente sano, que consultó por dolor torácico. Durante su evolución clínica fue diagnosticado con miopericarditis, se indagó en diversas etiologías, pero luego de múltiples estudios se diagnosticó con enfermedad de Still del adulto; se instauró tratamiento con corticoesteroides, el cual tuvo una adecuada respuesta.

© 2021 Asociación Colombiana de Reumatología. Publicado por Elsevier España, S.L.U.
Todos los derechos reservados.

Introduction

Adult-onset Still's disease (AOSD) is a rare inflammatory disorder. Its worldwide prevalence ranges between 0.16–0.4/100,000 people,¹ and in Colombia, although the prevalence has not been established, a series of cases from 2016 reported 17 cases in 5 years of follow-up.² Its clinical expression generally consists of fever $\geq 39^{\circ}\text{C}$, salmon-pink evanescent rash, and joint involvement.³ It could be accompanied by disseminated intravascular coagulation, macrophage activation syndrome, lymphadenopathy, hepatomegaly, splenomegaly, purpura, pneumonitis, and, in exceptional cases, serositis or myocarditis.^{3–5} Pleuropericardial affection appears in between 15 and 40% of cases, mainly as pericarditis,^{5,6} and the disease onset with myocarditis has been reported isolatedly, with an estimated prevalence of 7% worldwide, but with potentially fatal outcomes.^{3,5} Considering its exotic manifestation, a brief description of a case with myopericarditis in the context of AOSD is presented.

Case presentation

A 30-year-old male (1.75 m, 70 kg) was admitted to the emergency department reporting retrosternal chest pain of 10 h evolution, intensity 8/10 on the visual analog scale, constant, even at rest, associated with dyspnea that worsened when breathing.

Upon review by systems, he mentioned intermittent fever of 4 days of evolution, without predominance of time, non-pruritic evanescent plaques that disappeared with acupressure over extremities, thorax, abdomen, and buttocks that worsened with fever; in addition, he refers myalgia, migratory polyarthralgia of small and large joints without synovitis, for 2 weeks. The patient was previously healthy and worked as a police officer in the Colombian tropics. Vital signs on admission revealed tachycardia (140 bpm) and fever (38.4°C); the rest of the physical examination was unremarkable.

The 12-lead electrocardiogram revealed sinus tachycardia and repolarization disorder in the inferior face. Lab tests showed positive troponin I (27.235.9 pg/dL) and delta –63% (10.076.9 pg/mL), with D-dimer at 9.735 ng/mL, elevated transaminases, and acute-phase reactants (CRP, leukocytes, ESR) (Table 1). Chest X-rays depict a bilateral pleural effusion (PE) persistent on the tomography at this level, as well as pericardial effusion (PeE), and the echocardiogram revealed left ventricular midsegment lateral hypokinesia, left ventricular ejection fraction (LVEF) of 58%, mild tricuspid regurgitation, and PeE.

Table 1 – Paraclinical findings of the patient.

Laboratory values (units)	Result	Reference values
Leukocytes ($\times\text{mm}^3$)	14.580	40.00–10.600
Neutrophils ($\times\text{mm}^3$)	13.030	20.00–6.900
Lymphocytes ($\times\text{mm}^3$)	960	600–10.000
Hemoglobin (g/dL)	12.96	12.2–18.1
Platelets ($\times\text{mm}^3$)	142.400	142.000–460.000
Troponin I (pg/mL)	27.235,9	0–34.2
Troponin I (pg/mL) -control-	10.076,9	0–34.2
D-dimer (ng/mL)	9,735.9	
CRP (mg/L)	376.1	0–5
ESR (mm/h)	51	5–15
AST (U/L)	216.4	5–34
ALT (U/L)	307	0–55
Ferritin (ng/mL)	> 40,000	21.8–274.6
Creatinine (mg/dL)	0.7	0.7–1.3
C-ANCA	Negative	Negative
P-ANCA	Negative	Negative
Rheumatoid factor (UI/mL)	< 15	0–30
ANA	Negative	<1:80
Anti-ENA	Negative	
anti-DNA	Negative	Negative
C3 (mg/dL)	172.5	82–185
C4 (mg/dL)	39.8	15–53
Albumin (g/dL)	3.3	3.5–5.2
Serum protein electrophoresis	Hypoalbuminemia	
Potassium (mmol/L)	4.2	3.5–5.1
Sodium (mmol/L)	137.1	136–145
Lactate (mmol/L)	1.1	0.5–2.2
<i>M. tuberculosis</i> culture	Negative	
<i>M. tuberculosis</i> PCR	Negative	
IgM anti- <i>Mycoplasma pneumoniae</i>	Negative	
Thick smear blood parasites	Negative	
<i>Toxoplasma gondii</i> IgM (IU/mL)	0	0–1.6
<i>Toxoplasma gondii</i> IgG (IU/mL)	0.1	0–0.5
HIV 1/2 antibodies	Negative	
Dengue IgM (Upainbio)	2.6	0–9
Blood cultures (anaerobic and aerobic)	Negative	

CRP: C-reactive protein; ESR: erythrocyte sedimentation rate; ANCA: anti-neutrophil cytoplasm antibodies; ENA: extractable nuclear antibodies; PCR: polymerase-chain reaction.

Given the findings and clinical manifestations of the patient, it was decided to rule out an infectious cause of pericarditis and acute myocarditis; toxoplasmosis, human immunodeficiency virus, malaria, tuberculosis, hepatitis B and C, dengue, and *Trypanosoma cruzi*, among others, were discarded; blood cultures for aerobic and anaerobic microorganisms were negative (Table 1) and abdominal images

Table 2 – Classification criteria.

Yamaguchi	Fautrel	Crush
Major criteria Fever $\geq 39^{\circ}\text{C}$ > 1 week Joint pain/arthritis > 2 weeks Leukocytosis $\geq 10,000/\text{mm}^3$ with $\geq 80\%$ polymorphonuclear cells Typical rash	Major criteria Fever $\geq 39^{\circ}\text{C}$ Arthralgia Transient erythema Pharyngitis Polymorphonuclear cells $\geq 80\%$ Glycosylated ferritin $\leq 20\%$	2 points Daily fever $\geq 39^{\circ}\text{C}$ Transient rash Leukocytosis $> 12,000/\text{mL}$ and ESR $> 40 \text{ mm/h}$ Negative ANA and rheumatoid factor Carpal ankylosis
Minor criteria Sore throat Lymphadenopathy Splenomegaly Liver function test abnormalities Negative ANA and rheumatoid factor	Minor criteria Maculopapular rash Leukocytosis $\geq 10,000/\text{mm}^3$	1 point Age > 35 years Arthritis Sore throat Abnormalities in liver function tests or reticuloendothelial system involvement Serositis Carpal or cervical ankylosis
Exclude: infections, malignancy, other rheumatologic causes, or inflammatory diseases Five or more criteria are required, of which two or more must be greater	Four or more major criteria or three major criteria plus two minor criteria are required	Probable AOSD: 10 points during 12 weeks of observation Definitive AOSD: 10 points during six months of observation
Adapted from Giacomelli et al. ¹⁸ ANA: antinuclear antibodies; ESR: erythrocyte sedimentation rate; AOSD: adult-onset Still disease.		

(ultrasound and contrast-enhanced tomography) were normal.

After a 15-day hospital length of stay, persistent fever with a temperature up to $39\text{--}40^{\circ}\text{C}$ (1–2 episodes per day) occurred, without a documented infectious etiology. An autoimmunity work-up was requested: ANA, ENA, anti-DNA, ANCA, rheumatoid factor, and complement reports were negative. Ferritin was above $40,000 \mu\text{g/L}$ and C-reactive protein was elevated (376.1 mg/dL) (Table 1). Cardiac magnetic resonance imaging (C-MRI) was not performed.

As described, AOSD was diagnosed according to the Yamaguchi et al.⁷ and Fautrel et al.⁸ criteria (Table 2). Prednisolone 50 mg QD and naproxen 250 mg TID were started, with clinical improvement in the following 72 h, disappearance of skin lesions, absence of fever, and improvement of joint pain. He was discharged at this term with follow-up by Rheumatology.

Discussion

AOSD is a rare inflammatory disorder; it is a diagnosis of exclusion after ruling out other etiologies under the study of fever of unknown origin, as was carried out with the patient in this case, who finally met four major and two minor Yamaguchi et al.⁷ and Fautrel et al.⁸ criteria; the Crush et al.⁹ criteria were not assessed, given the requirement of long period follow-up; our approach, in this case, was acute.

The debut of AOSD with myopericarditis has the lowest prevalence among complications,¹⁰ with a lower age of onset than other causes of myocarditis.¹¹ Recent studies suggest that the gender ratio is relatively balanced for AOSD,¹² but myocarditis predominates in women.¹³

The reactive component to infections with the release of inflammatory cytokines has been widely described⁵ and may

be related to elevated acute-phase reactants, as in the current case in which, although consistent with other reports,^{2,3,5} in this case, are above these.

Troponin was a useful marker in the initial approach to the patient, considering that its elevation has been documented in up to 94% of AOSD myocarditis, but it does not have marked elevation in other etiologies⁵; in these cases, it is useful to perform C-MRI, which would be expected to have findings compatible with myocardial inflammation and compliance with the criteria described by the International Consensus on Cardiovascular Magnetic Resonance in Myocarditis¹⁴; however, this resource was not available at the institution.

Pericardial effusion is expected to be found in up to 40% of cases¹⁵ and, although it is not usual, cardiac tamponade has even been reported.¹⁶

Treatment is based on corticosteroids, nonsteroidal anti-inflammatory drugs, and antirheumatic drugs, reserving the use of anti-cytokines (IL-1, IL-6, IL-18, TNF) for refractory or life-threatening cases.^{5,17} The patient, in this case, responded satisfactorily to 50 mg of prednisolone QD, which is compatible with other studies, in which 60% are managed only with this first-line^{18,19}; this allowed early discharge once the diagnosis was reached, avoiding fatal complications described in up to 4.2% per year.⁵

Conclusion

Myopericarditis is a rare manifestation of AOSD, which makes early diagnosis difficult; however, it should be considered, since the establishment of timely treatment leads to good results.

Ethical responsibilities

This document was approved by the Ethics Committee of the Hospital Universitario Clínica San Rafael de Bogotá, Colombia; the patient signed informed consent for the publication of the case.

Financing

Own resources.

Conflict of interests

None.

REFERENCES

1. Wang MY, Jia JC, Yang CD, Hu QY. Pathogenesis, disease course, and prognosis of adult-onset Still's disease: an update and review. *Chin Med J (Engl)*. 2019;132:2856-64, <http://dx.doi.org/10.1097/CM9.0000000000000538>.
2. Muriel AJ, Rueda JM, González H, Castaño O. Una patología poco frecuente: la enfermedad de Still del adulto. Experiencia clínica con 17 casos. *Rev Colomb Reumatol*. 2016;23:126-30.
3. Prieto AE, Suárez W, Pantoja JI. Adult onset still's disease (AOST): a rare condition with a classic clinical presentation. *Case Rep*. 2020;6:100-8.
4. Ruscitti P, Cipriani P, Masedu F, Iacono D, Ciccio F, Liakouli V, et al. Adult-onset Still's disease: evaluation of prognostic tools and validation of the systemic score by analysis of 100 cases from three centers. *BMC Med*. 2016;14:194, <http://dx.doi.org/10.1186/s12916-016-0738-8>.
5. Gracia-Ramos AE, Contreras-Ortiz JA. Myocarditis in adult-onset still's disease: case-based review. *Clin Rheumatol*. 2020;39:933-47, <http://dx.doi.org/10.1007/s10067-019-04814-9>.
6. Amado SB, Ruiz PA. Miopericarditis como manifestación inicial de enfermedad de Still del adulto. *Rev Colomb Cardiol*. 2015;22:201-4.
7. 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;19:424-30.
8. Fautrel B, Zing E, Golmard JL, Le Moel G, Bissery A, Rioux C, et al. Proposal for a new set of classification criteria for adult-onset still disease. *Medicine (Baltimore)*. 2002;81:194-200, <http://dx.doi.org/10.1097/00005792-200205000-00003>.
9. Crush JJ, Medsger TA Jr, Christy WC, Herbert DC, Cooperstein LA. Adult-onset Still's disease. Clinical course and outcome. *Arthritis Rheum*. 1987;30:186-94, <http://dx.doi.org/10.1002/art.1780300209>.
10. Hintenberger R, Falkinger A, Danninger K, Pieringer. Cardiovascular disease in patients with autoinflammatory syndromes. *Rheumatol Int*. 2018;38:37-50, <http://dx.doi.org/10.1007/s00296-017-3854-7>.
11. Magnani JW, Danik HJ, Dec GW Jr, DiSalvo TG. Survival in biopsy-proven myocarditis: a long-term retrospective analysis of the histopathologic, clinical, and hemodynamic predictors. *Am Heart J*. 2006;151:463-70, <http://dx.doi.org/10.1016/j.ahj.2005.03.037>.
12. Sayhi S, Bouzid S, Chourabi C, Abid R, Arfaoui B, Bousetta N, et al. [Myocarditis in Still disease treated successfully with anakinra]. *Therapie*. 2019;74:549-53, <http://dx.doi.org/10.1016/j.therap.2019.03.001> [In French].
13. Fairweather D, Cooper LT Jr, Blauwet LA. Sex and gender differences in myocarditis and dilated cardiomyopathy. *Curr Probl Cardiol*. 2013;38:7-46, <http://dx.doi.org/10.1016/j.cpcardiol.2012.07.003>.
14. Friedrich MG, Sechtem U, Schulz-Menger J, Holmvang G, Alakija P, Cooper LT, et al. Cardiovascular magnetic resonance in myocarditis: a JACC White Paper. *J Am Coll Cardiol*. 2009;53:1475-87, <http://dx.doi.org/10.1016/j.jacc.2009.02.007>.
15. Sfriso P, Priori R, Valesini G, Rossi S, Montecucco CM, D'Ascanio A, et al. Adult-onset Still's disease: an Italian multicentre retrospective observational study of manifestations and treatments in 245 patients. *Clin Rheumatol*. 2016;35:1683-9, <http://dx.doi.org/10.1007/s10067-016-3308-8>.
16. Fung G, Luo H, Qiu Y, Yang D, McManus B. Myocarditis. *Circ Res*. 2016;118:496-514, <http://dx.doi.org/10.1161/CIRCRESAHA.115.306573>.
17. Narvaez J. Adult onset Still's disease. *Med Clin (Barc)*. 2018;150:348-53, <http://dx.doi.org/10.1016/j.medcli.2017.10.035>.
18. Giacomelli R, Ruscitti P, Shoenfeld Y. A comprehensive review on adult onset Still's disease. *J Autoimmun*. 2018;93:24-36, <http://dx.doi.org/10.1016/j.jaut.2018.07.018>.
19. Mimura T, Kondo Y, Ohta A, Iwamoto M, Ota A, Okamoto N, et al. Evidence-based clinical practice guideline for adult Still's disease. *Mod Rheumatol*. 2018;28:736-57, <http://dx.doi.org/10.1080/14397595.2018.1465633>.