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Case Report

From Fever to Arthralgia: Unraveling Adult-Onset Still's Disease in Adults. A Case Report

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ABSTRACT

Systemic disorder of unknown etiology, characterized by arthritis, fever, transient rash, and other systemic presentations. We report a case of AOSD with history of high-grade fever, joint pains and clinical examination, which revealed the characteristic Salmon-pink evanescent rash is seen in AOSD, which could have been easily missed as it disappears when fever subsides, and its diagnosis was supported by very high levels of serum ferritin, and we confirmed the diagnosis by fulfilling the Yamaguchi criteria after excluding the other possible diagnoses. She showed a partial response to prednisolone but later was advised to take methotrexate, which resulted in further alleviation of her residual symptoms.

Conclusion: Every Fever doesn't carry an infectious etiology; try to think outside of the box and careful history and examination and in turn, supported by the pertinent investigations, can lead to solve these sorts of enigmatic cases as was done in our case

Keywords: Adult-onset still's disease, AOSD, Arthritis, Evanescent rash, Prednisolone, Yamaguchi criteria

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All authors contributed equally to the conception, literature search, manuscript drafting, editing and review

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Introduction

Adult onset still disease (AOSD) is a systemic inflammatory disorder which preferentially involves the skin and musculoskeletal system[1]. It is a rare disorder, as the incidence of AOSD ranges from 0.16-0.62% per 100,000 people worldwide[2]. AOSD characterized by classic triad of daily spiking fever usually known as swinging pyrexia, polyarthralgia/polyarthritis with a transient salmon pink, maculopapular, non -pruritic rash that appear only during fever spikes; hence it can easily be missed.[1]

Major laboratory findings may include Total leucocyte Count (more than 10×10^9/Liter), elevated erythrocyte sedimentation rate (ESR), C- reactive protein (CRP), deranged liver function test (elevated alanine transaminase, (ALT) aspartate aminotransferase (AST) levels and Lactate dehydrogenase (LDH) and negative antinuclear antibodies (ANA) and Rheumatoid factor (RF) [3].

A strikingly high levels of serum ferritin levels decisively clinches the diagnosis of AOSD.[4]

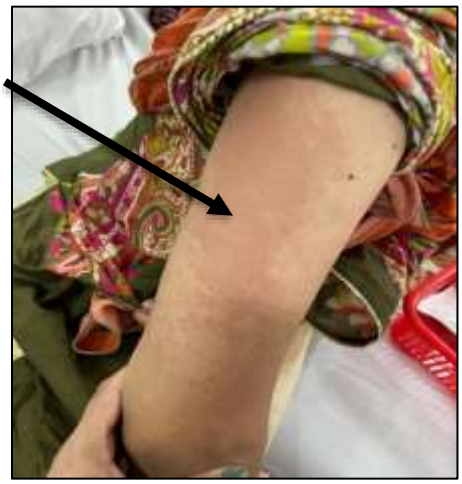
Diagnosis is made clinically using Yamaguchi criteria.[5]We discuss herein a case of AOSD presenting with fever, joint pains and maculopapular rash and partially responded to steroids and later complete remission with the

addition of methotrexate with timely management.

Case Presentation

A 32-year-old female presented to in outpatient department (OPD) with history of high-grade fever for two weeks that was associated with maculopapular rash over arms and legs along with joint pains, she was in her usual state of health as she was already diagnosed case of hypothyroidism for which she was taking thyroxine 50 microgram per day with good compliance. Her fever was sudden in onset, high grade documented up to 103 Fahrenheit, associated with rigors and chills. Fever was usually accompanied with eruption of maculopapular rash. The rash was transient salmon pink in color, palpable and balanchable involving arms, forehead, nose and cheeks while the rest of the body was spared and it disappeared as the fever settled. There was no history of cough or shortness of breath, eye or ear discharge, there was no associated dysuria, burning micturition or hematuria and genital ulcers. She had severe joints pain that started from right knee joint then progressed to both ankles and wrists leading to extreme difficulty in walking and restriction of movements but there was no complain of joint swelling or morning stiffness. Joint pains used to get aggravated with the onset of fever. On general physical examination, a young lady of average height and built lying comfortably with a blood pressure of 130/70 mm Hg, Pulse of 126 beats/minute and respiratory rate was 20 breaths/minute and a temperature of 103 Fahrenheit had a maculopapular erythematous balanchable rash distributed over both arms, forehead nose and cheeks. There was no lymphadenopathy, pallor, Jaundice, clubbing, cyanosis, joint swelling or pedal edema, rest of the systemic examination was unremarkable. On examination of oral cavity there was mild erythema of the throat. Rest of the clinical examination was normal. After history and clinical assessment, we made the differentials of acute viral febrile illness, reactive arthritis, and rheumatic fever. Laboratory investigations revealed Total leucocyte Count (TLC) of 23 × 10^9/L (90% neutrophils), elevated liver enzymes (alanine transaminase (ALT): 84 U/L; aspartate transaminase (AST):420 U/L, Alkaline phosphatase 588 U/L). Moreover, the acute phase reactants like C-reactive protein (154.4 mg/L) were high and Erythrocyte sedimentation rate (ESR: 105 mm/hour). Serum ferritin level was markedly elevated (>40,000 nano gram/milliliter (ng/mL). Considering the other autoimmune and infectious disorders, we also ordered anticyclic citrullinated peptide (Anti CCP) antibodies, antinuclear antibodies (ANA) by Immunofluorescence assay and rheumatoid factor (RF), Anti-streptolysin O antibodies (ASO titers), creatinine kinase (CK) and viral markers (hepatitis B, hepatitis C, (human immunodeficiency virus, HIV) all came back as negative, which made us think of AOSD and then blood and urine cultures revealed no evidence of bacterial infection. So based on history, clinical examination and preliminary investigations, she was labelled to be suffering from AOSD using the Yamaguchi criteria.[6] Patient was started on 20 mg of prednisolone/day. She became afebrile and rashes started to disappear and joint pains settled remarkably as she was able to ambulate herself without any support. She was sent home on oral prednisolone 20 mg daily and her follow up was due after 1 week. She didn't show up and ten days later, she was readmitted with the complaints of high grade fever, sore throat and severe arthralgia and this time she was prescribed prednisolone 15 mg/day and methotrexate 15 mg/week along with folic acid 5 mg on the next day of Methotrexate and hydroxychloroquine (HCQ) 200 mg twice a day, during her five days of stay in the hospital, she remained afebrile and the arthralgia were markedly improved and she was sent on methotrexate 15mg weekly dose, hydroxychloroquine (HCQ) 200mg twice a day and tapering doses of prednisolone. She was advised for follow-up after two weeks. She turns up in OPD this time with complete resolution of joint

pains and rash and was performing her daily chores quite comfortably so was advised to see us back in one month with complete blood count (CBC) and liver function test (LFTs) as she was kept on Methotrexate and on her last follow up she was doing completely fine and we reduced her Prednisolone to 5 mg/day.



All Images (Taken with permission for publication as well) showing maculopapular rash which appeared with febrile episode, taken with consent of the patient (Consent was taken for both purposes, one for taking the picture and other later to be published in journal for better understanding of the disease for medical fraternity

Discussion

Adult Onset Still Disease (AOSD) was first reported by Eric Bywaters. [6] It is estimated that the annual incidence of AOSD falls within the range of 0.16 to 0.62 cases per 100,000 individuals on a global scale. The prevalence is estimated to vary from 0.73 to 6.77 cases per 100,000 people.[7] additionally, there's a bimodal age distribution, with one peak spanning ages 15 to 25 and a second peak spanning ages 36 to 46.[8]Bacteria and viruses are frequently implicated as the sources of danger signals in initiating the cascade of this storm. Many documented cases describe the onset of AOSD following viral infections especially with rubella virus, measles, mumps virus, Epstein–Barr virus (EBV), hepatitis A virus, hepatitis B virus, or bacterial infection especially with Yersinia enterocolitica, Campylobacter jejuni, Mycoplasma pneumonia or Borrelia burgdorferi.[9]

The hallmark clinical presentation shows cases a rapid spiking fever intertwined with a transient, evanescent maculopapular rash, polyarthralgia, sore throat, lymphadenopathy, hepatosplenomegaly.[10] Other symptoms may include plueritis, pericarditis and severe anemia.[11]The differentials diagnosis of AOSD include infections such as parvovirus B19, hepatitis, malignancy especially lymphomas and rheumatological disease like rheumatoid arthritis, reactive arthritis, systemic lupus erythematosus (SLE), vasculitis, Rheumatic fever, Infective endocarditis and drug reactions.[12]The diagnosis of AOSD is primarily clinical. RF and ANA negativity is a distinguishing feature of AOSD and is incorporated into several disease diagnostic criteria. Blood test results reflect the systemic inflammatory state such as ESR and CRP are markedly raised. Haematological abnormalities, such as leucocytosis, which is frequently seen alongside increased disease activity, as well as anaemia and thrombocytosis, are commonly observed.

Diagnostic criteria for adult-onset Still's disease (AOSD) are Yamaguchi's criteria in which five or more criteria are required, of whom two or more

must be from the list of major criteria. Major criteria include Fever >39 Centigrade, lasting 1 week or longer, arthralgia or arthritis, lasting 2 weeks or longer, typical salmon pink rash and Leukocytosis $>10\times10^9$/L with >80% polymorphonuclear cells. Whereas minor criteria include sore throat, significant lymphadenopathy, hepatomegaly or splenomegaly, abnormal liver function tests, negative ANA levels and rheumatoid factor (IgM). There are some infections, malignancies and other rheumatic disease (mainly systemic vasculitis) are considered as exclusion criteria osf AOSD[13]

For individuals who have been in complete remission for a minimum of three months, we gradually reduce medication dosage with the aim of discontinuing them at all and we intend to taper off her all medications subsequently and will keep a close follow up for remission of the disease.

Conclusion

Despite the disease displaying classical features, the condition's variable symptoms can lead to it evading diagnosis. A meticulous patient history and thorough examination are imperative for reaching a diagnosis. Multiple therapeutic avenues are at our disposal, and offering the treatment options at earlier stages, not only lead to remarkable improvement and cessation of symptoms but also results in marked enhancement in quality of life and the avoidance of dreadful complications of this devastating disease.

Recommendations: When a patient presents with fever, joint pains and rash, along with leukocytosis and very higher ferritin levels, we should always keep AOSD in our differentials so as to pick this disease earlier and averting the misdiagnoses and maintain a registry of such cases and regional collaboration is required as many of our colleagues have experience of treating such cases esp. Rheumatologists, so more data to be published so as to make younger physicians aware of this disease as every fever is not due to infection! And every fever doesn't require antibiotic.

Recent case studies have also highlighted potential associations between AOSD or AOSD-like symptoms and multiple types of malignancies such as leukemia, lymphoma, breast, thyroid, and esophageal cancers. This correlation prompts further exploration into whether AOSD might have a para neoplastic connection, signaling the need for expanded research efforts.

Ethical Approval: Informed Consent was taken for both purposes, one for taking the picture and other for publishing her case in journal for better understanding of the disease for the medical fraternity and later approval from institutional review board (IRB) (FMH-25/04/2024-IRB-1393.

References

1. Bhargava J, Panginikkod S. Still Disease. 2022 May 18. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan–. PMID: 30855928.
2. Galozzi P, Baggio C, Bindoli S, Oliviero F, Sfriso P. Development and role in therapy of canakinumab in adult-onset still's disease. Front Pharmacol. 2018; 9:1074. https://doi.org/10.3389/fphar.2018.01074
3. Orzechowski NM, Mason TG. Adult-Onset Still's Disease. In: Morrey BF, Sanchez-Sotelo J, Morrey ME, editors. Morrey's The Elbow and Its Disorders. 5th ed. Philadelphia: Elsevier; 2018. p. 290-5.
4. Seco T, Cerqueira A, Costa A, Fernandes C, Cotter J. Adult-Onset Still's Disease: Typical Presentation, Delayed Diagnosis. Cureus. 2020 Jun 8;12(6):e8510. https://doi.org/10.7759/cureus.8510
5. Efthimiou P, Kontzias A, Hur P, Rodha K, Ramakrishna GS, Nakasato P. Adult-onset Still's disease in focus: Clinical manifestations, diagnosis, treatment, and unmet needs in the era of targeted therapies. Semin Arthritis Rheum. 2021 Aug;51(4):858-874. https://doi.org/10.1016/j.semarthrit.2021.06.004.
6. Mitrovic S, De Matteis A, Bindoli S, Vastert SJ, van Dijkhuizen EHP, Ravelli A, et al. 2024 EULAR/PReS recommendations for the diagnosis and management of Still's disease: a systematic literature review informing the task force. RMD Open. 2025;11(1): e005112. https://doi.org/10.1136/rmdopen-2024-005112.
7. Lee YH, Song GG. Diagnostic accuracy of ferritin and glycosylated ferritin in adult-onset Still's disease: a meta-analysis. Z Rheumatol. 2025;84(Suppl 5):234–240. https://doi.org/10.1007/s00393-025-01672-6.

8. Feist E, Mitrovic S, Fautrel B. Mechanisms, biomarkers and targets for adult-onset Still's disease. Nat Rev Rheumatol. 2018 Oct;14(10):603-18. https://doi.org/10.1038/s41584-018-0081-x
9. Fautrel B, Mitrovic S, De Matteis A, Bindoli S, Antón J, Belot A, et al. EULAR/PReS recommendations for the diagnosis and management of Still's disease, comprising systemic juvenile idiopathic arthritis and adult-onset Still's disease. Ann Rheum Dis. 2024;83(12):1614–1627. https://doi.org/10.1136/ard-2024-225851
10. Oakley A. Adult-Onset Still Disease. DermNet. 2023 [cited 2026 Mar 15]. Available from: https://dermnetnz.org/topics/adult-onset-still-disease
11. Bindoli S, Baggio C, Doria A, Sfriso P, Galozzi P. Adult-onset Still's disease: from pathophysiology to new targeted therapies. Expert Opin Biol Ther. 2021 Mar;21(3):333-43. https://doi.org/10.1080/14712598.2021.1874919
12. Vastert SJ, van Dijkhuizen EHP, Ravelli A, Quartier P, Brogan P, Bader-Meunier B, et al. EULAR/PReS recommendations for the diagnosis, monitoring, and management of Still's disease (systemic juvenile idiopathic arthritis and adult-onset Still's disease). Ann Rheum Dis. 2024;83(6):698–709. https://doi.org/10.1136/ard-2024-225851
13. Kudela H, Drynda S, Lux A. Comparative study of Interleukin-18 (IL-18) serum levels in adult-onset Still's disease (AOSD) and systemic onset juvenile idiopathic arthritis (sJIA) and its use as a biomarker for diagnosis and evaluation of disease activity. BMC Rheumatol 3, 4 (2019). https://doi.org/10.1186/s41927-019-0053-z