

## Adult Onset Still's Disease: A Case Report

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### Abstract

Adult Onset Still's disease (AOSD) is an inflammatory disorder characterized by quotidian (daily) fevers, arthritis, and an evanescent rash. It is a rare inflammatory disorder of unknown etiology. Due to lack of definitive diagnostic test, the diagnosis of AOSD can only be made after exclusion of other causes. We report a 46 year old male Indian patient who was admitted in our hospital with intermittent high grade fever, rash and polyarthritis for one month. History, examination and laboratory investigations fulfilled the Yamaguchi criteria for AOSD. The patient was treated with steroids and nonsteroidal anti-inflammatory drugs to which he responded and is completely free of symptoms. The authors here present a case of adult onset Still's disease, and highlights the utility of high serum ferritin in identifying this febrile exanthema.

**Keywords:** Adult onset Stills disease, skin rash, fever, polyarthritis.

**Abbreviations:** AOSD -Adult Onset Still's disease; AFB -Acid fast bacilli; CMV - Cytomegalovirus; EBV- Epstein bar virus; HIV - Human immunodeficiency virus; LDH- lactate dehydrogenase; WBC: White blood cell; ANA: Antinuclear antibody; RF: Rheumatoid factor; PMN: Polymorphonuclea; TNF -Tumor necrosis factoralpha .

### INTRODUCTION

Adult Still's disease (AOSD) is an inflammatory disorder of unknown etiology characterized by quotidian (daily) fevers, arthritis, and an evanescent rash and multi-organ involvement [1]. First described in children by George Still in 1896, subsequently in 1971 Bywaters described 14 patients with similar presentation [2]. The clinical course of adult Still's disease (AOSD) can be divided into three main patterns: monophasic (or monocyclic), intermittent, and chronic. Patients with monophasic AOSD have a disease course that typically lasts only weeks to months, completely resolving within less than a year in most patients [3]. Systemic features, including fever, rash, serositis, and hepatosplenomegaly, predominate in this group. The patient we diagnosed as AOSD, with monophasic course, went into remission after proper treatment and is symptom free even after stopping the treatment.

### CASE REPORT

46 year old Indian male, non-smoker, married, nondiabetic, normotensive admitted at department of internal medicine in our hospital with history of high grade fever, polyarthritis, and skin rash for the last 4 weeks. The fever was high grade, with maximum temperature reaching 39.2°C. The patient also complained of joint pains involving the knee, ankle, wrist and proximal interphalangeal joints. There was no history of oral ulcers, morning stiffness, ocular symptoms, or contact with infected persons. In the hospital, during the febrile period, he developed macular rash mainly on chest and back [Figure 1]. On examination, the patient was sick looking, febrile-39.2°C.

Chest on auscultation was normal, cardiovascular examination was unremarkable. Examination of abdomen revealed mild splenomegaly. Neurological examination was unremarkable. Investigations revealed hemoglobin 12.7g/dl, erythrocyte sedimentation rate (ESR) 120 mm in 1st hour. Total leukocyte count-12.7 x10<sup>9</sup>/L. Liver function showed elevated liver enzymes with Aspartate transaminase-125U/L, Alanine aminotransferase 60 U/L, low albumin 2.3gms/dl. He was worked on lines of pyrexia of unknown origin and his blood, urine and sputum culture showed no growth. Procalcitonin level was less than 0.5ng/ml. Sputum for AFB was negative for three samples; quantiferon gold test for tuberculosis was negative. IgM CMV, EBV, HIV, hepatitis B and C were negative. Malarial parasite, Widal and Brucella serology was negative. CT-chest and abdomen were normal, except for mild splenomegaly. Echocardiogram was normal. ANA, rheumatoid factor was negative. Lactate dehydrogenase (LDH) 978 U/L, His CRP showed a progressive increase from 82mg/L to 284 mg/L, which decreased after starting steroids. His ferritin levels were 40,000 (normal range 21.8 -274.6 ng/ml), which were reconfirmed by second sample and he had normal transferrin saturation. On the basis of his history, clinical examination and review of his laboratory investigations, diagnosis of AOSD was made. We started him on prednisolone 60 mgs daily along with Diclofenac potassium 50 mg twice daily, to which he responded and become afebrile. He was discharged with a tapering dose of steroids 5mgs weekly. He is doing well and is completely symptom free.

**Figure 1:** Skin Rash on the back

## DISCUSSION

First described in children by George Still in 1896, “Still’s disease” has become the eponymous term for systemic juvenile idiopathic arthritis [4]. In 1971, the term “adult Still’s disease” was used to describe a series of adult patients who had features similar to the children with systemic juvenile idiopathic arthritis and did not fulfill criteria for classic rheumatoid arthritis.

The etiology of adult Still’s disease (ASD) is unknown; both genetic factors and a variety of infectious triggers have been suggested as important, but there has been no proof of an infectious etiology, and the evidence supporting a role for genetic factors has been mixed. It is uncertain whether all patients with AOSD share the same etiopathogenic factors. Proposed pathogens have included numerous viruses; suspected bacterial pathogens include *Yersinia enterocolitica* and *Mycoplasma pneumoniae* [5]. As an example of studies of the immunogenetics of ASD, in a series of 62 French patients, human leukocyte antigen (HLA)-B17, -B18, -B35, and -DR2 were associated with AOSD. However, other studies have not confirmed these findings [6].

Adult Still’s disease is very uncommon. Prevalence of AOSD is estimated to be 1.5 cases per 100, 000-1, 000, 000 people, with an equal distribution between the sexes [6]. There is a bimodal age distribution, with one peak between the ages of 15 and 25

and the second between the ages of 36 and 46. The diagnosis of AOSD is possible only by recognizing the striking constellations of clinical and laboratory abnormalities. It is also to be remembered that AOSD is a diagnosis of exclusion. AOSD has been associated with markedly elevated serum ferritin concentrations in as much as 70 percent of patients. Serum ferritin values above 3000 ng/mL in a patient with compatible symptoms should lead to suspicion of AOSD in the absence of a bacterial or viral infection. Abnormally high serum ferritin values were reported in some case reports and it was suggested that high ferritin levels may be a diagnostic marker of Still’s disease [7]. Our patient showed almost all features as laid down in Yamaguchi criteria [Table 1] for the diagnosis of AOSD [8] along with a markedly high ferritin levels.

**Table 1 :** Diagnostic criteria for AOSD (Yamaguchi)<sup>8</sup>

Major criteria	Minor criteria
Fever > 39°C, > 1 week	Sore throat
Arthralgia/ arthritis > 2 weeks or splenomegaly	Lymphadenopathy
Typical rash	Abnormal LFT
WBC > 10, 000 with > 80% PMNs and RF	Negative ANA

Exclusions: Infections, malignancy, rheumatological diseases. Five criteria with at least two major criteria. ASOD: Adult onset still’s disease. WBC: White blood cell, ANA: Antinuclear antibody, RF: Rheumatoid factor, PMN: Polymorphonuclea

Non-steroidal anti-inflammatory drugs (NSAIDs), such as aspirin, ibuprofen or naproxen, help to reduce inflammation [9]. Patients with high-fever spikes, severe joint glucocorticoids, such as prednisone (0.5- 1mg/kg/day) Methotrexate has been used successfully in a small series of people to treat adult Still’s disease [10]. Some patients are refractory to these conventional therapies. Tumor necrosis factor alpha (TNF) blockers include infliximab, adalimumab, etanercept, anti-interleukin-1, anti-interleukin-6 agents, and most recently anti CD20-expressing B-cell antibodies are also effective in some cases. Other experimental drugs, including cyclosporine and anakinra, have also been successful in small groups of people [9]. Interleukin 6 inhibitors like tocilizumab showed a good result in patients with AOSD resistant to other immunosuppressive agents such as methotrexate, TNF inhibitors and anakinara [11]. Even with treatment, it’s difficult to predict the course of adult Still’s disease. Some people might only experience a single episode, while for others adult Still’s disease may develop occasional flair up or a chronic condition. About one-third of people with the disorder may fall into each of the above groups.

## CONCLUSION

A diagnosis of AOSD should be kept in mind in case of pyrexia of unknown origin particularly in a patient who presents with high-grade intermittent fever, polyarthritis and skin rash of more than two weeks duration. However, the patient should be extensively evaluated to rule out other differentials of AOSD like acute or chronic infections, autoimmune disorders, vasculitis and malignant disorders. Serum ferritin values can be powerful adjuncts in making the diagnosis of AOSD [12],

where they are usually higher than other inflammatory diseases. Indeed, extreme elevation of serum ferritin up to 75, 500ng/mL has been reported in AOSD[12]. Several investigators agree that ferritin levels above 1, 000 ng/mL are suggestive of AOSD while levels greater than 4, 000ng/mL are very specific for this diagnosis when accompanied by a compatible clinical picture.

#### Competing Interests

None declared

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