

Early-onset childhood sarcoidosis, manifesting as juvenile idiopathic arthritis: a case report

Abstract

Background: Childhood Sarcoidosis is a rare multisystemic granulomatous disorder of unknown etiology. Two distinct forms of Sarcoidosis exist in children. Older children usually present with a multisystem disease similar to the adult manifestations, with frequent hilar lymphadenopathy and pulmonary infiltrations. Early-onset childhood Sarcoidosis is a unique form of the disease characterized by the triad of rash, uveitis, and arthritis in children before four years of age. Because of similarities in clinical presentation childhood sarcoidosis can be easily confused with idiopathic arthritis. The diagnosis of Sarcoidosis is confirmed by demonstrating a typical noncaseating granuloma on a biopsy specimen

Case description: We describe an interesting case of early onset childhood sarcoidosis who was initially diagnosed and treated as having juvenile idiopathic arthritis (JIA).

A 6 years old Libyan boy referred to Tripoli Children Hospital rheumatology clinic at the age of 2 years, with 5 months history of multiple joints pain and swelling affecting small as well as big joints. Associated with skin rash and intermittent fever

Conclusion: We draw attention to early-onset Sarcoidosis as possible differential diagnosis to juvenile idiopathic arthritis and we recommend prompt skin biopsy to differentiate between these conditions.

Keywords: Polyarthritis, Sarcoidosis, Uveitis, Childhood

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Introduction

Pediatric sarcoidosis encompasses a spectrum of childhood granulomatous inflammatory conditions. The hallmark being the presence of noncaseating epithelioid giant cell granuloma in a variety of tissues and organ system.¹

The finding in 2001 of a mutation in the nucleotide-binding oligomerization domain 2 /caspase activation recruitment domain 15 (NOD2/CARD15) genes among patients with a history of familial granulomatous arthritis constituted a major advance and revealed the complexity and heterogeneity of the spectrum of pediatric sarcoidosis.²

Blau disease (BS) and early onset sarcoidosis (EOS) constitute the familial and sporadic form of a pediatric disease. It is characterized by a triad of polyarthritis, skin rash and uveitis and a unique association with mutation in or near the central NOD/NACHT domain of the NOD2 gene.²⁻⁵

The form of sarcoidosis observed in adults, characterized mainly by interstitial pulmonary involvement and lymphadenopathy is rarely seen in pediatric age group and is limited to older children.¹ Early onset childhood sarcoidosis may be easily missed due to its similarity to JIA.⁶ Both entities may be associated with arthritis and skin rashes. Arthritis of sarcoidosis is characterized by painless boggy effusion of joints without restriction of movement.⁷⁻⁹ However painful destructive polyarthritis indistinguishable from JIA had been described in early onset childhood sarcoidosis.⁹

Case description

A 6 years old Libyan boy referred to Tripoli Children Hospital rheumatology clinic in May 2008. When he was 2 years old, with 5 months history of multiple joints pain and swelling affecting small as well as big joints. Associated with skin rash and intermittent fever.

Physical examination at presentation

Revealed a well looking boy with normal growth parameters, maculopapular skin eruptions in trunk and extremity, diffuse swelling in the wrists, ankles, knees and proximal inter phalangeal joints of all fingers of both hands. There is tenderness and palpable multiple cystic swelling on the dorsal surface of both wrists and ankles.

No enlarged lymph nodes can be palpated, the liver tip was palpated just below the right costal margin and spleen was not. Cardiac, respiratory, and neurological examinations were unremarkable. Ocular examination shows presence of bilateral cataract without evidence of active uveitis. Based on this history and examination the child diagnosed as having juvenile idiopathic arthritis and evaluated in this direction.

Investigations at presentation

Routine blood tests revealed hemoglobin 11 gm/dL, white blood cell 6,800/ μ L, platelet 211,000/ μ L, ESR 45 mm/ 1st hr, CRP 3.5 mg/ dL, AST 23 U/L, ALT 15 U/L, total bilirubin 0.1 mg/ dL, LDH 226 U/L, alkaline phosphatase 104 U/L. Normal ANA and anti dsDNA, normal RF. Plain X ray of joints shows no abnormal finding. MRI left ankle demonstrated diffuse synovial enhancement with intra articular synovial effusion. Marked tenosynovitis along the course of most tendons.

Follow up course

The child diagnosed as juvenile idiopathic arthritis seronegative poly articular subtype. Treatment started with naproxen, methotrexate and short course of prednisolone.

His evaluation 6 months after shows no improvement with persistence of joints swelling and cystic lesions on the dorsum of both wrists and both ankles, as well as the skin rash. Dermatology consultation was requested which came back with a diagnosis of papular acrodermatitis of childhood which needs no specific treatment.

We decided to start on biological therapy with Etanercept (Enbriil) twice weekly injections.

Evaluation 6 months later shows the same results with persistence of joint swellings with cystic lesions as well as intermittent skin rash. MRI of the left ankle shows persistence of tenosynovitis and synovial effusion. Because of persistent synovitis, presence of cystic swellings on the dorsum of affected joints and skin rash, sarcoidosis was suspected and skin biopsy was performed. The results of skin biopsy confirmed the diagnosis of sarcoidosis. The child evaluated for evidence of other features of systemic sarcoidosis with chest radiography, echocardiography, kidney function test and kidney ultrasound was all normal.

Finally the child diagnosed as early onset childhood sarcoidosis.

Discussion

Sarcoidosis is a systemic granulomatous disease of unknown etiology.

There are two distinct forms of childhood Sarcoidosis. In older children, multisystem manifestations similar to the adult usually develop, such as frequent lymphadenopathy and pulmonary involvement. In contrast, early onset childhood Sarcoidosis (EOS), (onset in the first 5 years of life) differs from Sarcoidosis in older children and adults. Patients with early-onset childhood Sarcoidosis exhibit unique clinical triad of arthritis, rash, and uveitis, which typically presented in the first year of life.^{5,8}

The arthritis of childhood Sarcoidosis is characterized by boggy tenosynovitis with relatively painless effusion and good range of movement with often no overlying erythema of the skin.⁸ Multiple joints of both upper and lower extremities are involved. Radiographic evidence of joint erosions or juxta articular osteoporosis is usually absent. Sarcoid arthritis can be confused with juvenile idiopathic arthritis (JIA).

An erythematous rash is commonly noted in childhood Sarcoidosis and occurs in 77% of children with early onset disease. The most frequent cutaneous eruptions include soft, red to yellowish brown, flat-topped papules, found most frequently on the face.³ In children, macular lesions with scarring and ichthyosiform cutaneous manifestations are frequently encountered.⁷

Larger, violaceous, plaque-like lesions may be found on the trunk, extremities, and buttocks. In a study, erythema nodosum was noted in 31% of the children.¹⁰ Other skin lesions of Sarcoidosis include nodules, hyper pigmented or hypo pigmented lesions, and ulcers.

Anterior segment disease consisting of uveitis or iritis is the most common eye manifestation occurring in 24% to 58% of the children with Sarcoidosis.^{8,9,11}

Uveitis of Sarcoidosis is characterized by firmly-edged keratic precipitates, most commonly develop in the lower part of the cornea and also seen in the limbus; iris nodules; and focal synechiae related to nodule formation. However, the majority of the synechiae are caused by adhesions between iris and lens due to inflammation.⁸ Chorioidal granuloma and peripheral multifocal chorioiditis are very specific for ocular Sarcoidosis. Conjunctival granulomas are the second most common ocular manifestation in Sarcoidosis and may appear as tiny, translucent, pale yellow nodules.¹²

Other ocular lesions can include keratitis, retinitis, glaucoma, and involvement of the eyelids and lacrimal glands.¹² Ophthalmological slit lamp examination is mandatory in the evaluation of childhood

Sarcoidosis.¹³ If untreated, serious complications including blindness can occur.^{9,11}

In our patient, clinical diagnosis of early onset sarcoidosis at presentation was very difficult because of similarity to juvenile idiopathic arthritis and rarity of the condition. However Presence of cystic lesions on the dorsum of involved joints, skin rash, absence of joints destruction and a near normal range of movement despite persistent arthritis raise the suspicion of childhood sarcoidosis.

Uveitis, which occurs in more than half the children with early-onset childhood Sarcoidosis,^{8,9,11} was not developed in our patient, although he had bilateral cataract since presentation and we cannot say it was because of uveitis.

Early onset childhood sarcoidosis (EOS) is not always a benign disease with possible dissemination and vital organ involvement occurring at a later stage.¹⁴ Severe hypertension and visceral involvement; including glomerulonephritis with renal failure and interstitial pneumonitis have been observed in patients from the international PGA Registry, indicating the necessity of careful surveillance throughout the disease course.¹⁵ (Figure 1-3).



Figure 1 Typical boggy synovitis with cyst-like synovial swelling in ankles.



Figure 2 Typical boggy synovitis with cyst-like synovial swelling in left wrist.



Figure 3 Cutaneous features with fine erythematous maculopapular eruption.

Conclusion

We report a case of early-onset childhood Sarcoidosis presented with poly arthritis, skin rash. Despite the rare occurrence of early-onset childhood Sarcoidosis, it should be considered in the differential diagnosis of juvenile idiopathic arthritis when a child presents with arthritis, skin rashes. However, pathologic confirmation would be needed to confirm the diagnosis.

Acknowledgments

None.

Conflicts of interest

None.

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