Journal of Clinical Case Reports
ISSN: 2165-7920

Almaghrabi et al., J Clin Case Rep 2015, 5:9
DOI: 10.4172/2165-7920.1000590

Case Report Open Access

Spondylodiscitis Challenging Diagnosis in Immune Competent Child: A Case Report

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Abstract

Spondylodiscitis, a combination of spondylitis and discitis, is an infection of the spine that involves the intervertebral disc and the vertebral body. Patients presented with little specific symptoms and suspicion for diagnosis is required. This report aimed to describe a female child patient with spondylodiscitis and to describe the diagnostic and therapeutic tools of such patient.

This report recorded 2 year-old female child presented by fever, pain associated with standing and sitting, and 10 days history of refusal to walk in Prince Sultan Medical City, Riyadh, Saudi Arabia. Laboratory investigations as well as hip and knee ultrasound showed no abnormalities. However, and hip and lower back Magnetic Resonance Image (MRI) showed evidence of abnormal hyper intensity with enhancement of the bone marrow involving the vertebral bodies and adjacent endplates of 5th lumber (L5) and 1st sacral (S1) vertebrae with involvement of intervertebral disc space and paravertebral soft tissue component. Spondylodiscitis was suggested in the child, and conservative management by medical team of pediatrics and orthopedics consultant has immediately started. The treatment included antibiotics, non-steroidal analgesia and physical rehabilitation. The patient was completely evolved from condition within days. MRI taken 6 weeks later showed significant interval improvement of signs of spondylodiscitis, and the girl has been seen in the clinic after 4 months from discharge in good condition. Spondylodiscitis has to be considered in young children with acute ambulation changes. Prompt diagnosis and treatment involving the entire multidisciplinary team is emphasized in order to improve the prognosis of such patients.

Keywords: Case report; Children; Saudi Arabia; Spondilodiscitis

Introduction

Spondilodiscitis, a combination of spondylitis and discitis, is an infection or inflammation of the intervertebral disc space or vertebral endplate [1]. It is an uncommon infection and presents in different ways at different age groups [2]. Although unknown, the incidence is approximately 1/100,000 and peak incidence at age of 1-4 years [1-3]. Infection of the spine could be through three sources: haematogenous, external direct inoculation, and contiguous spread to the bone from adjacent tissues [4]. Spndylodiscitis is often difficult to diagnose, especially in the young age group because these children are unable to give a history and may be uncooperative, the diagnosis should be considered in those children presented with refusal to walk, gait disturbances and back pain [5]. Magnetic Resonance Image (MRI) is good slandered for diagnosis, and most cases are resolved with pharmacological management; antibiotics remain as the main treatment [5,6]. In this report, we recorded a case of young children with spondylodiscitis who presented to Prince Sultan Medical City, Riyadh, Saudi Arabia with no specific symptom.

Materials and Methods

This case report included a 2 year-old Saudi female child presented to Prince Sultan Medical City, Riyadh, Saudi Arabia with a 10 days history of subjective fever and limping which progressed to refusal to walk or stand in last 4 days and irritability. There was recent contact with animal within the last 4 weeks but no consumption of unpasteurized milk product was reported. There was no history of chronic cough, skin rash, decreased appetite or weight loss, and no family history of rheumatologic disorders was reported.

On examination, the child was well looking, but irritable, and she was noted to have pyrexia at the time of admission. Measuring body weight showed that her weight was appropriate for her age. Locally, there was mild tenderness in lower back but no swelling or erythema over both hip areas with free range of movement passively. No neurological involvement was detected.

The Investigations ordered were Complete Blood Count (CBC), Fasting Blood Glucose (FBG), urine culture, Brucella serology, Erythrocyte Sedimentation Rate (ESR) and C-Reactive Protein (CRP). With the exception of ESR (40 mm/1st hour) and CRP (110), all other investigations showed no abnormality at the time of admission. Blood and urine culture were also negative when the patient first seen. Brucella serology gives unremarkable results, and tuberculin skin test was negative. The plain X ray of hip showed bilateral acetabular dysplasia.

According to clinical data and the results of laboratory and radiological investigations, an initial diagnosis of septic arthritis was suspected. In view of the clinical picture, antibiotics in the form of ceftriaxone and clindamycin, intravenously, were started. The rationale behind the use of ceftriaxone and clindamycin in this patient to treat the possibility of septic arthritis or osteomyelitis was to cover staphylococcus infection, particularly Methicillin-resistant Staphylococcus Aureus (MRSA) and gram negative organisms [7]. The results of ultrasonography (U/S) of hip and knee joints after starting antibiotic treatment, however, showed no signs of septic arthritis. The results of magnetic resonance image (MRI) of hip and lower back showed evidence of abnormal hyper density with enhancement of the bone marrow involving the vertebral bodies and adjacent endplates of 5th lumber (L5) and 1st sacral (S1) vertebrae with involvement of intervertebral disc space and paravertebral soft tissue component suggestive of spondylodiscitis (Figure 1).

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Received August 21, 2015; **Accepted** September 10, 2015; **Published** September 17, 2015

Citation: Almaghrabi RH, Yameen A, Matawah Al, Hussain AMB, Alnemri A (2015) Spondylodiscitis Challenging Diagnosis in Immune Competent Child: A Case Report. J Clin Case Rep 5: 590. doi:10.4172/2165-7920.1000590

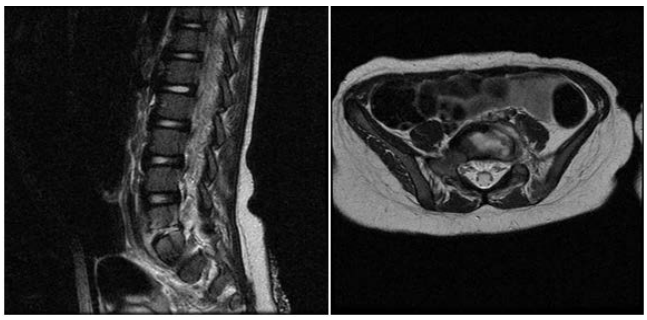

Figure 1: MRI of Lumboscral spine at time of admission (Index views).

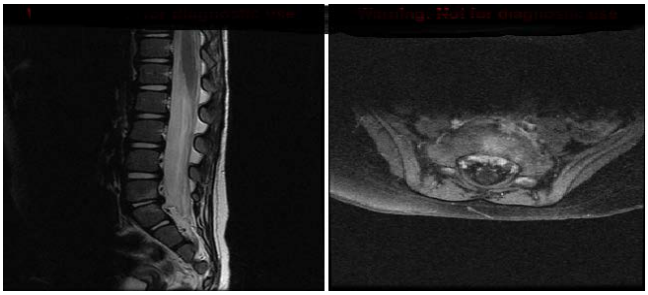

Figure 2: MRI 6 weeks after admission (Discharge views).

Results

The medical team involved in the management of this case has included pediatric, orthopedic and spine consultants. The primary decision of the team was for conservative management and no advice for biopsy was taken. The patient started to receive vancomycin instead of clindamycin, but she continues to receive ceftriaxone. Analgesia, non-steroidal, was also administered and physical rehabilitation sessions have started. Following this treatment regimen, CRP and ESR have dropped immediately and the condition began to evolve. However, two weeks after favorable evolution, the child developed fever and maculapapular rashes all over her body while she stayed in hospital. Epstein Bar virus (EBV) infection was diagnosed and which resolved spontaneously within few days.

MRI taken 6 weeks after the admission showed significant interval improvement of signs of spondylodiscitis (Figure 2). The patient discharged from the medical center after a total of 6 weeks while she was clinically free with no more signs of illness or functional disability. The patient continued on oral Clindamycin and Cefdinir for 8 weeks more without any complications. The girl has been seen in the clinic after 4 months from discharge in good condition.

Discussion

Spondylodiscitis is an uncommon infection in children [1-5], and accounts for only 2–5% of all osteomyelitis [8,9]. One specific feature of pediatric spondylodiscitis is its insidious nature, this gradual pattern of onset plus nonspecific presenting symptoms (refusal to walk, gait disturbances, and back pain [6] has made the diagnosis challenging and often missed ailment in young children from 6 to 48 months of age and delay in diagnosis is a frequent problem [10]

Unlike adults, children have vascularised an intervertebral disc, which explains the higher incidence of this disease in this age group [10-12]. The etiology of discitis is still controversial [12] and several hypotheses have been proposed to explain the origin or cause of this disease, including a possible infection and may be a complication of any systemic infection, traumatic, after surgical procedures like dental extraction [13,14] or after foreign body ingestion [3]. However, the main cause of infection is likely to be the hematogenous delivery of an infectious organism [4].

A few studies highlighted a triphasic age distribution with varying signs and symptoms according to age. Thus, spondylodiscitis in childhood should be classified according to three separate age groups, namely neonates, infants, and older children. The form affecting neonates (less than 6 months) is the most serious manifestation of the disease and is often associated with septicemia and multiple infectious foci. The second infantile form affects children from 6 months to 4 years of age, represents 60% of childhood spondylodiscitis. Finally, in children older than 4 years are likely to be febrile and ill-appearing, and *S. aureus* is the predominant pathogen [6].

In this report as in others, laboratory investigations appeared to be not reliable for diagnostic purposes, since in many cases the parameters are normal or only slightly elevated blood leukocytes, CRP and ESR and blood culture or cultures of the biopsy material are also negative in many cases. On the other hand, however, MRI is the test of choice for early diagnosis and should provide confirmation of the diagnosis in order to start an early treatment [5, 11].

The common conservative treatment included the administration of antibiotics, which needs prolonged antimicrobial therapy based on an effective inhibitory concentration that can be achieved on the local disc space [4].

In conclusion, although the incidence of spondylodiscitis in the pediatric age-group is considered as rare infections in the clinics, it has to be considered in the differential diagnosis. The pediatricians have to remain alert in cases of patients under 3 years of age with abnormal walking or sitting position and presented with nonspecific symptom, normal laboratory tests and normal simple radiograph. Early diagnosis and prompt and appropriate therapy are important to prevent potential complications, such as chronic infection, vascular necrosis, growth abnormalities, and neurological complications.

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