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Osteomyelitis complicating Sever's disease: A report of two cases

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ABSTRACT

Sever's disease is a common cause of heel pain in young children and it has a self-limiting course without long term complications. Osteomyelitis of calcaneus is a sinister condition which can lead to serious complication if treatment is delayed. Indolent nature of calcaneus osteomyelitis leads to overlap in its clinical picture with Sever's disease. Two cases of Sever's disease which were later diagnosed and managed for osteomyelitis are reported. Salient differentiating features of Sever's disease and calcaneus osteomyelitis along with management strategy are discussed.

1. Introduction

Sever's disease is a calcaneum apophysitis occurring in children of 5 and 11 years of age. It is attributed to repetitive trauma to calcaneum apophysis because of running or jumping.[1]It is bilateral in majority of cases.[2] Usual presentation is pain in heel on weight bearing.[3] Its diagnosis is made on clinical grounds of history and physical examination.[4] Management lies in stretching exercises of achilles tendon, icing, rest and painkillers. It has a self limiting course without any residual complications. We are presenting two cases where patients labelled with Sever's disease were diagnosed with osteomyelitis at later presentation.

2. Case report

2.1. Case 1

An 11 year old girl presented with left heel pain of two weeks duration which was of insidious onset and progressed to a stage where she found it difficult to walk. She did not report any constitutional symptoms. She had tenderness over posterior inferior of heel and around Achilles tendon. X-rays of heel were unremarkable (photo 1A&1B). She was diagnosed as Severs disease and advised physiotherapy and analgesics. She returned to A&E with complaints of severe pain in heel and fever in one week. Examination revealed tenderness over heel with minimal swelling. Blood test showed white cell count 18.9x103/mm3, neutrophil count 14.5 x103/mm3 and CRP 149. X-rays of ankle were still unremarkable. MRI scans revealed hyperintense signals in posterior inferior part of calcaneus around apophysial growth plate which also extended to surrounding soft tissues (Photo 1C&1D).

Diagnosis of calcaneus osteomyelitis was established. Decompression and curettage (photo 1E) with filling of cavity with hydroxyappatite crystals was done. Intra op specimen grew streptococcus pneumoniae. She was given two weeks intravenous antibiotics followed by oral antibiotics for 6 weeks. At latest follow up at 5 months she is pain free on full weight bearing over left heel and nontender around calcaneus with radiographs showing satisfactory improvement (photo 1F&1G).

2.2. Case 2

A 11 years old boy who played football at a local academy was being managed by his GP as Severs disease for right heel pain of 2 months duration. A referral to orthopaedic outpatient service was made when pain didn't settle and he become unwell lately. He had tenderness over Achilles tendon and postero- inferior part of heel. White cell count was 6.1 x103/mm3, neutrophils 3.3 x103/mm3, and erythrocyte sedimentation rate 7 in first hour, with CRP 3. X rays didn't reveal any abnormality (photo 2A&2B). MRI scans revealed bone oedema and collection in posterior-inferior part calcaneus (2C&2D). He underwent decompression curettage and cavity was filled with hydroxyappatite grafts. Intra op specimen grew Staphylococcus aureus. He was given intravenous antibiotics for 2 weeks followed by oral for 6 weeks. At one year follow up grafts are well taken up (2E&2F) and the child is asymptomatic.

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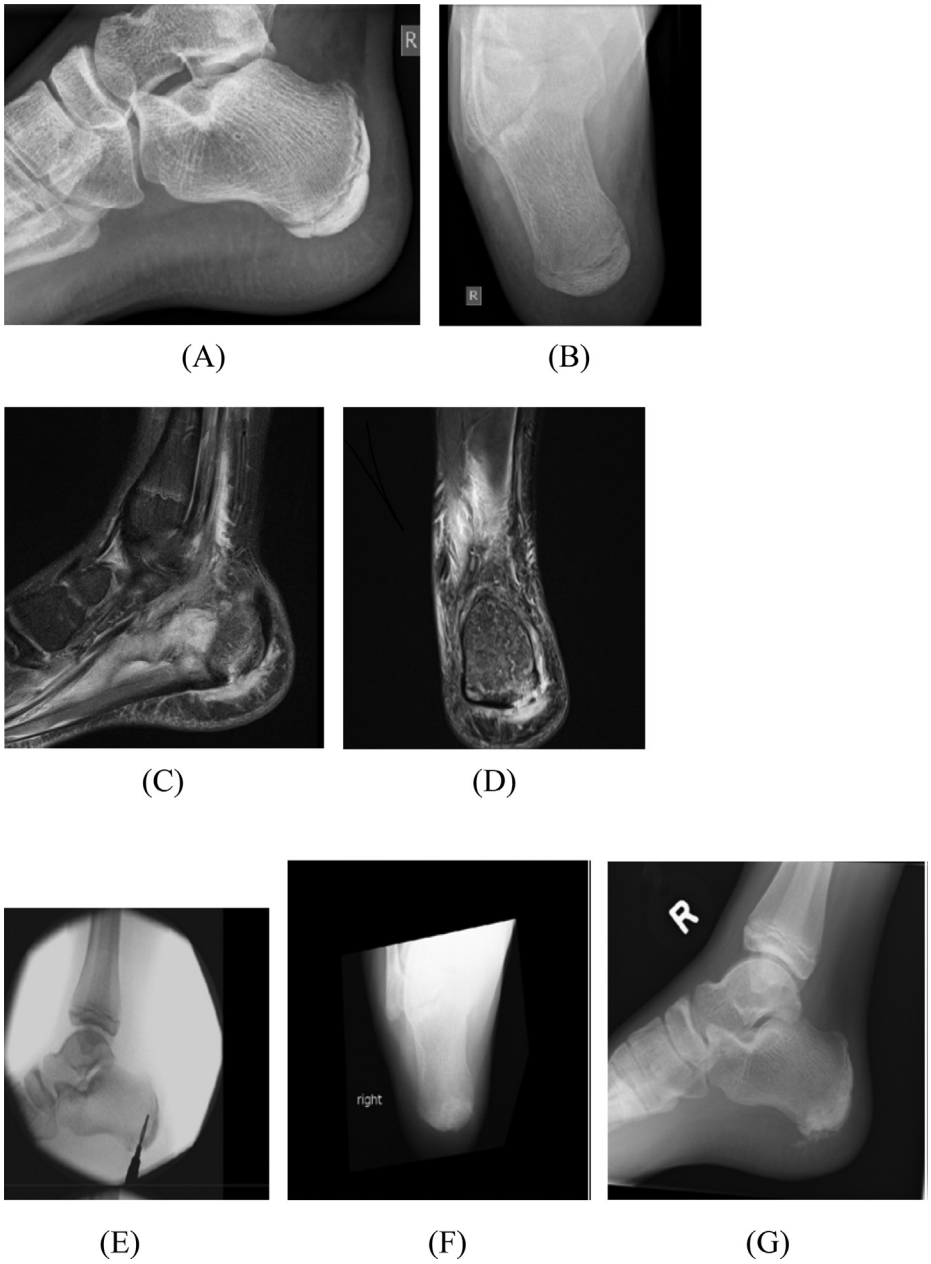

Photo 1. 1A&1B: X rays of heel at initial presentation. 1C&1D:MRI scans of heel (t2 weighted images). 1E: Decompression– Intra op. 1F&1G: Follow up x rays of heel at 5 months.

3. Discussion

Sever's disease is osteochondritis of calcaneal apophysis in juveniles. Aetiology proposed is.

Repetitive micro trauma. Usual presentation is pain in heel which becomes worse on physical.

Activities. It's amenable to physiotherapy and pain medicines without any long term complications.

Mustapic et al.[5] have described a 9 year old boy with bilateral heel pain(left since 4 months and right since one month) whose symptoms did not improve in right heel with analgesics and physical therapy. With raised blood markers of infection and MRI scan showing bone edema in posteroinferior part of calcaneus, he was later diagnosed with osteomyelitis. He responded well to antibiotics. Mallia et al.[6] report a case in which diagnosis of osteomyelitis of calcaneus was delayed by 10 days. A 9 year old boy with unilateral heel pain was labelled as Sever's disease on two occasions before the diagnosis of osteomyelitis was clinched. Delay in diagnosing osteomyelitis of calcaneus is well documented in literature.[7–10] It has been attributed to relatively indolent course of osteomyelitis in calcaneus as compared to long bones. Clinical picture is less dramatic and laboratory findings may also be subtle.[7] Average duration of symptoms before presentation has been reported as 7.1 days by Rasool(8), 6.8 days by Leigh et al.(9), 17.1 days by Mooney et al.(10). Only 22% patients have fever at time of presentation.[8] Inability to weight bear (82%), ESR (81%) and CRP (77%) have higher sensitivity.[9] Plane radiographs are helpful in 14–71% cases whereas MRI scan are diagnostic in 100% cases.[10]

There is relatively large number of differential diagnoses of heel pain in children.[10] These include.

Osteomyelitis, fractures, calcaneum apophysitis, achilles tendinitis, rheumatological conditions, tumours etc. This can result in

Photo 2. 2A&2B: X rays of heel at initial presentation. 2C&2D:MRI scans of heel. 2E&2F: Follow up x rays of heel at 12 months.

misdiagnosis. Rasool et al.[8] report that out of 10 late presenting cases 8 were misdiagnosed as septic arthritis of ankle, subcutaneous abscess or cellulitis.

In our both cases initial diagnosis was Severs disease. At a later stage with worsening of symptoms they were found to have osteomyelitis. It remains unclear whether these cases were osteomyelitis to start with or Severs disease which was complicated by osteomyelitis. Importance of delineating these two lies in the fact that treatment is different and a delayed diagnosis of osteomyelitis can lead to serious complications.

Interestingly in both of cases symptoms were unilateral and first case didn't report any sports.

Background. But given their age group, history of prolonged characteristic symptoms and absence of constitutional signs of infection, they were diagnosed as Sever's disease.

Severs disease is a clinical diagnosis and radiographic assessment seems unnecessary.[11] Long history of heel pain (weeks or months) in juveniles involved in running or jumping sports is common. Majority of cases have bilateral symptoms which are relieved with abstinence of activities. On other hand osteomyelitis presents as unilateral heel pain with fast progression (few days).Constitutional symptoms may be present. Some may present with a clinical picture which is in-between these two diagnoses. In such cases we need to confirm the diagnosis with haematological and radiological investigations. The importance of keeping a high suspicion of osteomyelitis in juvenile patients presenting with heel pain lie in the fact that delayed diagnosis can lead to serious complications.

These two cases also raise a question as to when we should do haematological and radiological.

Evaluation of heel pain in juveniles who do not have constitutional symptoms of osteomyelitis. We believe a meticulous history in cases with heel pain is of paramount importance as this could guide us regarding further investigation needed to clinch the diagnosis of osteomyelitis. Patients with Sever's disease who have unilateral symptoms and become worse even with restraint in physical activities should raise a suspicion. Clinically good outcomes achieved in both cases underscore the importance of keeping high index of suspicion for osteomyelitis in patients with Sever's disease which are unilateral and not responding well to treatment.

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