International Journal of Scientific Reports
Naskar R et al. Int J Sci Rep. 2018 Mar;4(3):75-77
http://www.sci-rep.com

pISSN 2454-2156 | eISSN 2454-2164

DOI: http://dx.doi.org/10.18203/issn.2454-2156.IntJSciRep20180794

Case Report

Primary patellar osteomyelitis presenting as a pre-patellar bursitis in children: a potential diagnostic mistake

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Received: 27 November 2017
Accepted: 20 December 2017

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ABSTRACT

A 14-year-old male presented with pain and swelling of left knee since 15 days with history of non-significant trauma and mild fever. On clinical examination there was raised superficial skin temperature and pre-patellar effusion with positive patellar tap. Haematological investigations show moderate leucocytosis and raised acute phase reactants, with an unremarkable radiography. Under the impression of infective pre-patellar bursitis, patient was posted for arthrotomy, debridement and wound wash. Post-operative broad spectrum antibiotics started. 2 weeks after surgery the swelling reappears, when an advanced imaging was offered which shows osteomyelitic changes in upper pole of patella. After 6 weeks of intravenous antibiotics and conservative management, the lesion was healed leaving no sequel.

Keywords: Patellar osteomyelitis, Pre-patellar bursitis, Knee swelling, Children

INTRODUCTION

Osteomyelitis of patella is a rare condition of infancy because it is largely cartilaginous before ossification.[1] The thick cartilage behind the patella and absence of physeal plate also accounts for rarity of haematogenous osteomyelitis.[2] It is most common in children aged between 5-15 years. Trauma may be a causative factor for osteomyelitis in adult. However, in children non-traumatic osteomyelitis of patella should be considered as haematogenous in origin. *S. aureus* perhaps the most common responsible organism, though tubercular osteomyelitis is also an entity to be kept in mind.[3,4] The rarity of the disease makes it a potential cause of misdiagnosis. A case of patellar osteomyelitis in a children misdiagnosed as pre-patellar septic bursitis is presented here illustrating the difficulties in diagnosis along with a review of the published literature on previously reported cases of similar disease.

CASE REPORT

A 14 year old child presented to our out-patient with a history of left knee pain and swelling since 2-3 weeks along with mild fever. There was a history of trivial trauma to same knee 1 month back, which healed by its own without any medical intervention. There was no other systemic medical illness or past history of any tuberculosis or tuberculosis contact. No history of similar swelling in the past in any joints.

On clinical examination, the local skin temperature was raised with no superficial skin changes. There was moderate fluctuant swelling around the knee with positive patellar tap test. Knee movement was within normal range and pain-free.

Haematological investigation shows a moderate leucocytosis with raised ESR and C-reactive protein. Radiological investigation was unremarkable with only

soft tissue swelling. Sonography of the knee shows a hyper-echoic heterogeneous collection with synovial thickening.

Figure 1: Pre-operative x-ray showing soft tissue swelling, no bony abnormality.

A provisional diagnosis of septic pre-patellar bursitis was made based on clinico-radiological findings and the patient was posted for arthrotomy, debridement and wound wash. The joint space was filled with turbid coloured fluid and debris. Intra-operative samples were sent for microscopy, culture sensitivity testing and histopathology. Patient was started on broad spectrum intravenous antibiotics.

But 2 weeks after the surgery, the swelling reappears. Culture shows no specific organism. Repeat sonography of knee revealed supra-patella effusion extending into para-patellar recess. To rule out any other co-existing pathological foci an MRI of the knee was ordered which showed marrow oedema and effusion in joint suggesting patellar osteomyelitis of the upper pole. Repeat x-ray at this time shows osteolytic lesion in the upper pole of left patella.

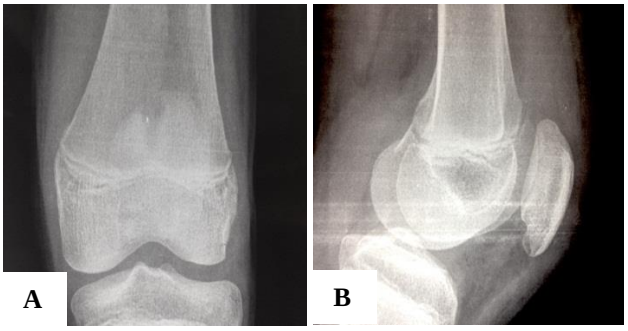

Figure 2 (A and B): X-ray after 2 weeks showing lesion in upper pole of patella.

Conservative management was planned. The broad spectrum antibiotics continued for another 4 weeks followed by oral antibiotics for 3 weeks.

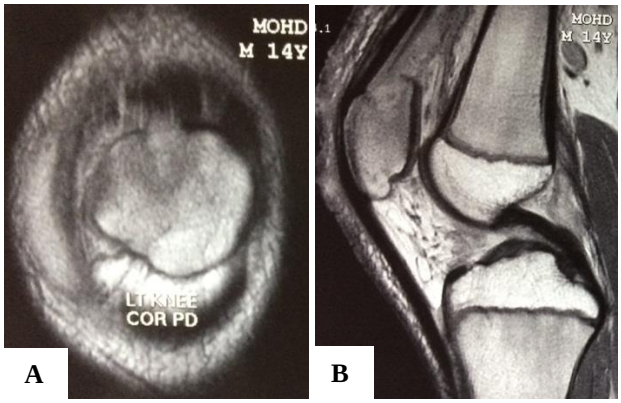

Figure 3 (A and B): T1 weighted image showing changed marrow intensity.

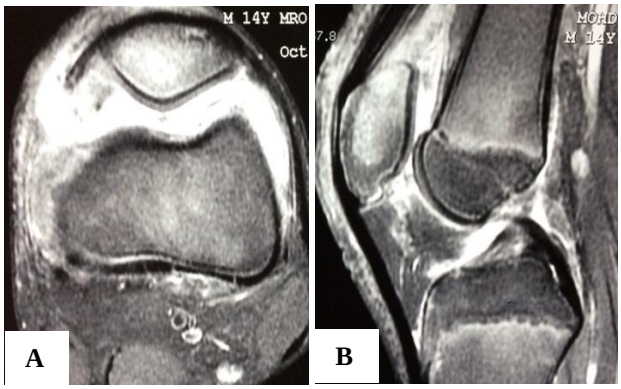

Figure 4 (A and B): T2 weighted images showing hyper-intense signal in upper pole of patella.

Figure 5: Clinical image on 6 weeks follow-up showing reduction of swelling and healing wound.

Patient was followed up at 3 weeks and 3 months after surgery and repeat haematological investigation shows decreased leucocytosis and ESR and CRP. The X-ray at 3 month shows complete resolution of the patellar lesion. Clinically there was reduction in swelling and tenderness with pain-free full range of knee motion.

DISCUSSION

Patellar osteomyelitis in children, though rare, can be presented as pre-patellar swelling simulating septic knee or septic bursitis.[1] In the study of Evans et al, the mean age group of the patient was 5-11 years. Roy also suggested the similar age group.[6]

According to Moore et al. the paucity of such disease under the age of 5 may be due to cartilaginous patella with minimal blood supply.[5] The thick cartilage behind the patella and absence of physeal plate also accounts for rarity of haematogenous osteomyelitis.[2] Noticeable vascularisation of the patella is seen between 4-12 years consisting of contributions from the superior and inferior geniculates and the anterior tibial recurrent artery. This rich vascular network with absence of periosteum and physeal plate may be responsible for hematogeous osteomyelitis of patella in this age group of children. According to Cahil, non-traumatic osteomyelitis is haematogenous in origin, though patient may frequently correlate an incidence of trauma.[7] In older children and adult, on the other hand, trauma is an important causative factors. The usual organism found was *S. aureus* in the study by Evans et al.[2]

Plain radiograph in early course of disease is hardly helpful because patella is covered of thin lamina with no real periosteum.[7] So the typical periosteal elevation seen in osteomyelitis of other area is not seen here. However advance imaging studies like MRI, Bone scan is helpful.

According to the literature appropriate antibiotics, debridement and curettage is necessary for osteomyelitis of the patella. But early diagnosis and appropriate management with antibiotics in early disease may give fair result.

CONCLUSION

Delay in diagnosis is frequently seen in cases of patellar osteomyelitis. Prompt diagnosis is difficult due to paucity of such cases and high level of suspicion is needed for diagnosis. Children presenting with knee swelling without any significant recent trauma, haematogenous patellar osteomyelitis should be kept in mind. The same can mimic as a septic knee or septic bursitis of the knee. Plain radiographs at initial phase may be normal. In case of any diagnostic doubt, an advanced imaging like MRI should be ordered. Early diagnosis and prompt treatment with appropriate antibiotics can provide a very good result. The aim of this case report is to aware the clinician of such condition and proper imaging should be ordered if there is a doubt in clinical diagnosis.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Naskar R, Bindumadhavan S, Jaiswal R, Argekar H. Primary patellar osteomyelitis presenting as a pre-patellar bursitis in children: a potential diagnostic mistake. Int J Sci Rep 2018;4(3):75-7.