

# Focal periphyseal edema zones (FOPE)

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## Abstract

A 27 years old male presented with recurrent generalized seizures, left hemiparesis and had developmental delay in motor and speech domains. MRI of the brain revealed characteristic features diagnostic of cerebral hemiatrophy or Dyke- Davidoff-Masson syndrome (DDMS).

**Keywords:** FOPE.

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## INTRODUCTION

A significant number of children & adolescents are affected by knee pain and related disabilities as a result of which MRI studies of knee have to be performed with increased frequency. It is not only of utmost importance to a radiologist to identify pathologies, but also to differentiate physiological vs pathological appearances, failing which there is an unnecessary workup of the

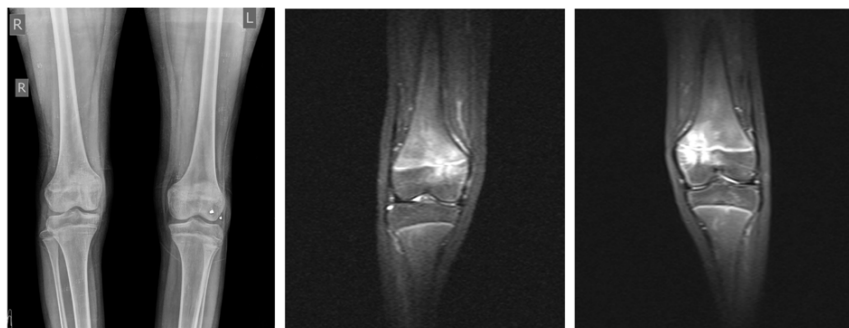
patient. Here we study an entity 'FOPE' – focal periphyseal edema zones.

## CASE REPORT

A 12 years old healthy female presented with gradually progressive bilateral knee pain since 5 months. No history of trauma, local swelling / deformity or systemic complaints. Physical examination was normal. Plain films of both knees were unremarkable. MRI of both knee joints was obtained.

## IMAGING FINDINGS

Evidence of focal abnormal signal intensity noted at periphyseal region of lower end of femur on medial aspect- hypointense on T1WI, hyperintense of T2 & STIR images indicating bone marrow edema. Rest of the visualized bones revealed normal signal intensity. Joint space is normal. No evidence of effusion. Both ACL, PCL, medial and lateral menisci appear normal. Periarticular muscles and soft tissues are normal.



**Figure 1:** Plain radiograph both knee joints AP view is unremarkable

**Figure 2:** CORONAL STIR image of right knee

**Figure 3:** CORONAL STIR of left knee

## DISCUSSION

Focal periphyseal oedema zones also known as "FOPE" zones are regions of bone marrow oedema seen on MRI that are principally located at the physes about the knee. They are thought to represent potentially painful manifestations of physiologic physeal fusion. FOPE zones are seen in both sexes. They are typically seen in females around the ages of 11-12 and in males around the ages of 13-14 (around the time of expected skeletal maturation). Clinically, patients may present with pain, with or without a history of acute injury<sup>1</sup>. The exact cause of FOPE zones is unknown. A suggested etiology relates these findings as part of the normal physiologic process of physeal fusion. As the physis of a long bone begins to close, osseous bridging occurs. In some bones that undergo enchondral ossification it occurs with small bony bars before fusing completely<sup>2,3,5</sup>. These may act as anchors to the surrounding bone and alter the local mechanics, producing small amounts of vascular damage and bleeding in physically active adolescents<sup>1</sup>. It has been

reported in the distal physis of femur and proximal physis of femur and tibia.

## TREATMENT

The very importance of this condition is that this entity requires no invasive diagnostic procedure and does not need imaging follow up<sup>1</sup>.

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