

# Pregnancy with Legg Calve Perthes' Disease – A Case Report

Nahreen Akhtar<sup>1</sup>, Syeda Sayeeda<sup>2</sup>

<sup>1</sup>Associate Professor, <sup>2</sup> Assistant Professor, Fetomaternal wing, Department of Obstetric and Gynaecology, BSMMU, Dhaka.

## Abstract:

Legg Calve Perthes' Disease (LCPD) is a hip deformity most common in newborns and children, however it can also affect adults. It is a condition in which the femoral head softens and breaks down. It tends to get better with the age, so in most cases a childhood Perthes' sufferer will not suffer at all into adulthood apart from the obvious of being significantly short in height for their age. A 25yrs old primigravid lady was admitted at 36<sup>+</sup>wks pregnancy with Gestational Diabetes Mellitus(GDM) with H/O Bronchial asthma with old Perthes' Disease. She had pain in left hip which increases on movement. This pain and restricted movement of hip increases as pregnancy advances. Her left lower limb was shortened by 0.5cm. Elective caesarean section was done under spinal anaesthesia. A healthy baby was delivered. Her postoperative period was uneventful. The patient was discharged on 6<sup>th</sup> postoperative day(POD).

**Key words:** Legg calve Perthes' Disease, Pregnancy

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## Introduction:

The hip joints is a ball and socket joints. It is the ball part of the long bone in the leg that is affected, at the point where it fits into the socket of the hip bone.

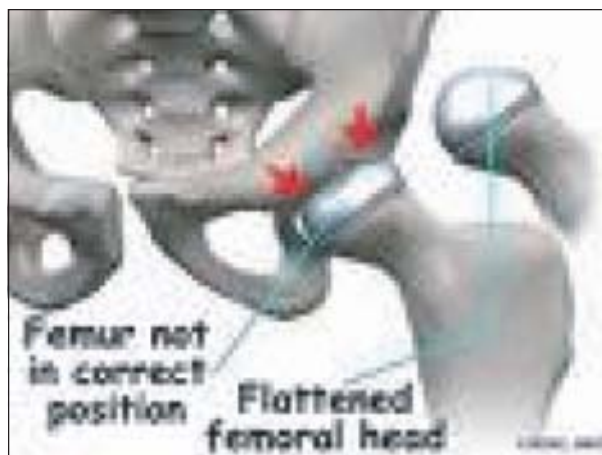
Legg Calve Perthes' Disease (LCPD) is an idiopathic hip disorder that produces ischemic necrosis of the growing femoral head. As a result femoral head collapses. The body absorb the dead bone cell and replace them with new bone cells. The new bone cells eventually reshape the femoral head of the thigh bone. LCPD causes the hip joint to become painful and stiff for the period of time. Apart from the obvious of being significantly short in height for their age and having one leg longer than the other resulting in a slight limp, however in some cases the sufferers experience stiffness, swelling in the hips, leg, and may develop arthritis of the knees. Permanent femoral head deformity is the most significant sequele. Experimental studies indicate that the pathologic repair process, which is marked by an imbalance of bone resorption and formation, contributes to the pathogenesis of femoral head deformity<sup>1</sup>. It typically presents in boys aged 4-8yrs<sup>2</sup>. Affected children are usually shorter than their peers<sup>3</sup> and have hyperactive tendency<sup>4</sup>. Important prognostic factors include degree of deformity and age at disease onset. Patient aged <6yrs at onset are best managed nonsurgically, whereas older patients may benefit from surgical treatment. Good surgical results have been reported in 40% to 60% of older patients(>8yrs), indicating the need to develop more effective treatment based on the

pathobiology of the disease<sup>1</sup>. It is suggested that one of the reasons why some hips are vulnerable to Perthes' disease, could be a preexisting range of movements in utero, which renders them more susceptible to strain injuries. Classic radiographic features include sclerosis, fragmentation and eventual flattening of the proximal femoral epiphysis<sup>5</sup>. Radiographic changes may be absent in early disease and Perthes' disease may initially be mistaken for transient synovitis. Symptoms typically settle within about 2wks in transient synovitis whereas in Perthes' disease they persist. There is no evidence that Perthes' disease affects the fertility of a woman. If symptoms persists a Technetium Bone Scan or Magnetic Resonance Imaging (MRI) can help to identify the pathology, which is seen as an area of reduced perfusion on bone scan or a signal change on MRI<sup>6</sup>.

## Case Report:

A 25yrs young lady, came from middle class family hailing from Munshiganj got herself admitted on 21<sup>st</sup> November 2010 in BSSMU with primigravida 36<sup>+</sup>wks pregnancy with GDM on insulin with H/O Bronchial asthma with known case Perthes' Disease. Her pregnancy period was uneventful until 28 wks of pregnancy. Then she was diagnosed as a case of GDM. Her blood sugar was 9mmol/L, 2hrs after 75gm of glucose. Since then she was on diet control. At her 36wks of pregnancy her blood sugar was raised and insulin in low dose was started. She was getting Salbutamol inhaler for Bronchial asthma. She is a known case of Perthes' Disease (old) since her child hood. At 7yrs of her age Perthes' Disease was identified and was immobilized for 1½yrs by plaster. She complained of pain in left hip which increases on movement. Xray done on 1<sup>st</sup>

**Address for correspondence:** Dr Nahreen Akhtar, Associate Professor, Fetomaternal wing, Department of Obstetric & Gynaecology, BSMMU



Nov 2009 which shows old Perthes'. (sagging rope sign +ve, flattened head & short neck of left femur). Xray both hip joints shows secondary osteoarthritis of left hip. Her CBC was normal, C Reactive protein and MT was negative. On examination internal rotation of hip was painful and her left lower limb is shortened by 1cm. During her antenatal check up consultation with orthopedician, respiratory medicine, endocrinologist and dietician was taken. Elective caesarean section was done at 37wks. A healthy baby was delivered. Her postoperative period was uneventful. We discharge the patient on 7<sup>th</sup> POD.

#### Discussion:

Perthes' disease is a hip deformity most common in newborn and children, however it can also affect adults. It is a condition where the the femoral head softens and breaks down. It may be hereditary or genetic. In one study in Norway in five years there were mean annual incidence of 9.2 per 1.00.000 in under 15 years of age. The lowest incidence was found in Northern region (5.4 per 100000 per year) and highest in the Central and Western regions (10.8 and 11.3 per 10000)<sup>7</sup>. So there may be genetic or environmental factor acting prenatally in the etiology of Perthes' disease. There is increased incidence with a positive family history, low birth weight baby and abnormal pregnancy / delivery. Age is the key to prognosis, onset after 8 yrs represent poor prognosis. About 50% of involved hips do well with no treatment. In less than 6 years of age, outcome is good, regardless of treatment. Between 6-8yrs of age – results not always satisfactory with containment, greater than 9years of age: questionable benefit from containment. It tends to get better with the age, so in most cases a childhood Perthes' sufferer will not suffer at all into adulthood. It is a disability not a disease. In one study they showed extremely low frequency of Perthes' disease among relatives, with no obvious pattern of inheritance. In this patient there was

no positive family history. The disease occur particularly in children who were third born or later in the family, and older than average parents. In this patient, she is first child of her parents. Many came from low income families and one in ten had had been a breech birth, shown other malposition or had a version late in pregnancy. This patient came from middle income group. Many children were already undersized at the time of developing Perthes' disease and remained shorter than average<sup>8</sup>. The child who is going to develop Perthes' disease is already constitutionally and socially at a disadvantage, and during the perinatal period and first few years of life and is more susceptible to trauma than a normal child. Our patient was also short. She is 4feet 10inches. In one study on 74 single-born white children with Legg – Perthes' disease, they found significant difference in mean birth weight of case children. The proportion of smokers among the mothers of case children was higher than among the mothers of comparison children<sup>8</sup>. In another study of 168 cases of Legg Calve Perthes' disease, they also found highly significant excess of children of low birth weight among those with Legg Calve Perthes' disease. The data indicate that male infants of birth weight under five and a half pounds are five times as liable to the disease as male infants weighing eight and a half pounds or more at birth<sup>9</sup>. In one study on 852 individuals with a diagnosis of Legg calve Perthes' disease from 1983 -2005 were identified and matched by year of birth, age, sex and religion of residence with 4432 randomly selected control study<sup>10</sup>. They showed maternal smoking during pregnancy was associated with an increased risk of Legg Calve Perthes' disease, influences fetal development and is associated with cardiovascular diseases in offspring and heavy smoking was associated with a risk increase of almost 100%. Very low birth weight and cesarean section were independently associated with approx 40% and 36% increases in the risk LCPD respectively<sup>10</sup>. In one study on 39 children with LCPD shows that 71% of these child were exposed while in utero to secondhand smoke. Secondhand smoke exposure while in utero and during childhood appears to lower stimulated tissue plasminogen activator activity and additionally may depress heritable low stimulated tissue plasminogen activator activity, leading to hypofibrinolysis. Hypofibrinolysis may facilitate thrombotic venous occlusion in the head of femur, leading to hypertension and hypoxic bone death and LCPD<sup>11</sup>. Pregnancy is not a contraindicated for Perthes' disease. Patient should be advised for least weight gain. There may be association between Perthes' disease and preeclampsia. It could be caused by blood clotting disorder (thrombophilia, Factor

V leiden deficiency)<sup>11</sup>. C section is possibly safer to avoid dislocation. Cesarean section also done in this patient.

### Conclusion:

LCPD is a condition in which the blood supply to a bone in the hip joint is disrupted. Over the time the lack of blood can weaken the bone and make it more likely to break or become otherwise damaged. Fortunately the blood supply returns to the area on its own and the bone heals, usually after 18-36 months. There is no contraindication of pregnancy in Perthes' disease. Cesarean section is possibly safer to avoid dislocation, since her muscles may not be toned enough for the delivery in a normal fashion.

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