Bilateral Developmental Dysplasia of Hip Joints (DDH)

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Abstract

This case report describes a two year old child with bilateral developmental dysplasia (DDH)of the hip joint, presented with waddling gate and lordotic posture. Treatment with open reduction led to recovery from symptoms. **Key Words:** Bilateral Dysplasia. Open reduction.

INTRODUCTION

Developmental dysplasia of Hip Joints (DDH) presents a spectrum of anatomical anomalies of hip joint that includes malformation (dysplasia), dislocation or sublaxation. Dysplasia or malformation includes any abnormality in the development of femur and or acetabulum. Dislocation indicates complete loss of contact between head of femur and acetabulum. Sublaxation is incomplete dislocation i.e. there is partial contact between articulating surfaces of the hip[1]. Hip joint is at risk of displacement during fetal development and early neonatal period. Joint then grows abnormally resulting in permanent disability[2]. The current treatment algorithm for DDH depends on both the severity of the abnormality and the age of the infant or child at the time of diagnosis. The treatment may include observation, Pavlik harness, closed and/or open reduction, spica (body) cast as well as several other surgical procedures. Early detection and diagnosis of DDH allows for simpler and much more efficient treatment (Pavlik Harness)[3].

The management of DDH is aimed towards early detection, treatment, and prevention or early recognition of complication. Here is an interesting case of bilateral DDH presented along with its management and review of literature.

CASE REPORT

A 2 years old female child presented with abnormality of gait and posture since she started walking. She was born full term (39 weeks) via normal vaginal delivery at home. Her birth weight was 4 kg. She is a first born child. There is no family history of hip dysplasia or other orthopedic abnormalities. Examination revealed an alert female child with normal vitals. Her weight was 11 kg, occipitofrontal circumference 48cm and height was 67 cm. Systemic examination showed chest was clear bilaterally, skin was normal and she moves all extremities spontaneously. Spine was straight with no cutaneous abnormalities. Here feet were bilaterally normal. She had waddling gait, lordotic posture and prominent hips during walking (figure-1). There is limited abduction in both hip joints. Klisic test i.e. the imaginary line drawn between two fingers at anterior superior iliac spine greater trochanter, points midway between umbilicus and pubic symphysis bilaterally. Galeazzi sign was negative. Neuromuscular examination revealed normal power, superficial and deep tendon reflexes and had excellent muscle tone in all four limbs. There was no pain in active and passive joint movements.

The hematological profile showed normal serum creatinine phosphokinase, serum calcium, phosphorus and alkaline phosphtase. All skeletal radiological profile (Figure-2) was normal except in hips which showed both the head of femur fell outside the lower medial quadrents drawn between horizontal heingenreiner's line and vertical perkins line. Shenton lines were broken bilaterally. Acetabular index was 30 degree greater than normal (Figure-3). These findings were suggestive of bilateral dislocated hip joints.

Figure-1
Prominent hips and lordotic posture of child during walking

Figure-2
X-ray pelvis shows displaced head of both right and left femur

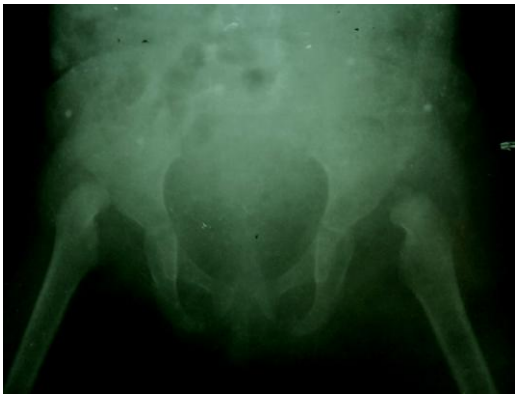
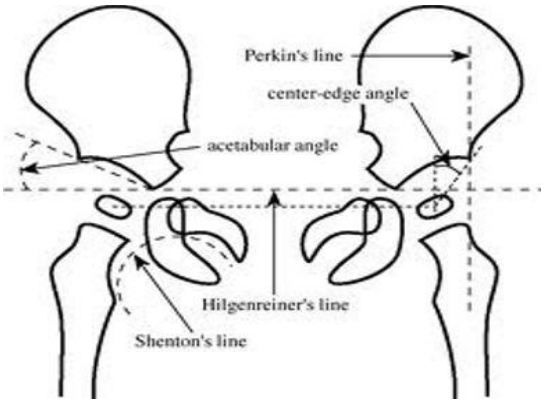


Figure-3
Schematic presentation of radiological profile showing perkin's line, hilgenreiner's line and shenton's lines



Diagnosis was established and patient was referred to othopaediatric department for treatment.

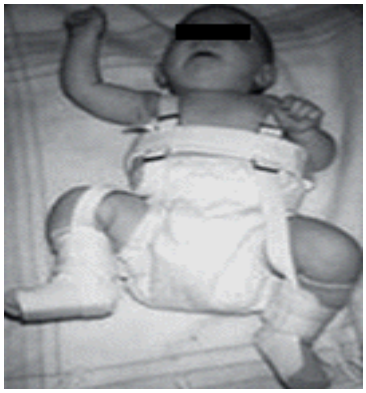
DISCUSSION

DDH more accurately describes the condition previously termed congenital dysplasia of the hip as it more accurately reflects the variable presentations of the disorder**.** Incidence is 1-1.5/1000 live births. Its more prevalent in certain geographical areas like Canada, Yugoslavia etc[4]. Identification of risk factors, female sex, oligohydramnios breech presentation, associated deformities like plagiocephaly, torticollis, foot deformities, fist born baby multiple pregnancies, family history of DDH especially a sibling or parent and large baby greater than 4 kg birth weight should heighten a physician's suspicion of developmental dysplasia of the hip[5]. A careful physical examination is recommended as a screening tool, particularly for high-risk infants. Barlow and ortolani maneuvers are recommended as a screening tool. The Galeazzi sign is elicited by placing the child supine with both hips and knees flexed. An inequality in the height of the knees is a positive Galeazzi sign. In older children limited hip abduction becomes a reliable sign. In first 4 to 6 months of life ultrasound is the diagnostic modality of choice because the femoral heads do not ossify until four to six months of age. Later radiographs are considered reliable. Several reference lines and angles are useful in evaluating the anteroposterior radiograph of the infant's pelvis. Hilgenreiner's line is drawn horizontally through the triradiate cartilages of the pelvis. Perkin's line is drawn perpendicular to Hilgenreiner's line at the lateral edge of each acetabulum. In a dysplastic hip, the lateral edge of the acetabulum may be difficult to identify, and the femoral head may lie in the superior or lateral quadrants. The goal of treatment in DDH is to achieve and maintain reduction of the femoral head in the true acetabulum by closed or open means. The earlier treatment is initiated, the greater the success and the lower the incidence of residual dysplasia and long-term complications.

Treatment in first 6 months of life is by putting child in pavlik harness (Figure-3) in optimum position of stability i.e. hip is kept flexed and abducted[6]. Avascular necrosis of the femoral head has been reported with Pavlik harness treatment and may be related to hyperabduction.

Figure-4

Pavlik harness applied to a two months old baby with bilateral developmental dysplasia of hip joint



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