Case Report

Congenital Dislocation of Knee - A Case Report

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Abstract

Congenital dislocation of the knee (CDK) is characterized by hyperextension of the knee with forward displacement of the proximal tibia. It is associated with other joint dislocations and deformities and may occur isolated or as part of different systemic syndromes. Despite its characteristic postnatal morphology, prenatal descriptions are very scarce. Here we have reported a case of CDK diagnosed at the age of 7th day, discussed its physiopathology, diagnosis and management and reviewed the current literature. The most common theory is based on the changes in the quadriceps muscle which can be found in all patients. Management starts with close reduction and cast or splinting. Surgical reduction is indicated when conservative measures fail or when the child is referred after the age of one year.

Keywords: Congenital knee dislocation, management, complication.

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Introduction

Congenital dislocation of the knee (CDK) is a rare disorder with an incidence of 80-100 times less than the developmental dysplasia of hip (DDH). It was first described by Chateline[1,2]. CDK is often associated with other musculoskeletal anomalies, among this posterior dislocation of hip (PDH) is the most common deformity[2-4]. It is more common in females and can be unilateral or bilateral.

The exact etiology of CDK is unknown, however, the associated factors can be categorized as extrinsic, which is due to the abnormal intrauterine malposition or intrinsic, which is due to the genetic abnormalities and neuromuscular imbalances. Management starts with close reduction and cast or splinting[5-7]. Surgical reduction is indicated when comparative measures fail or when the child is referred after the age of one year.

Case report

A 30 years old woman gave birth a boy baby at 37 weeks via spontaneous vaginal delivery. APGAR scores were 9/9. Birth weight was 2600 gm. Cardiovascular and pulmonary examinations were normal (heart rate 154 beats/min, respiratory rate 52 breaths/min.). Following delivery, the neonate appeared healthy, had lusty cry and had no visible craniofacial or cutaneous abnormalities. However, the right knee was hyperextended 90° to 110° with deformity of both foot (Figure-1) and deformity of left elbow (extension up to 70° and further range of movement was restricted).

The Ortolani and Barlow test were negative. The feet on both sides were inverted to about 20° and foot was pointing down-wards. The ankle was in equines, the feet was supinated and adducted, passive dorsiflexion beyond 90° was possible.

X-ray finding of right knee anteroposterior and lateral view showed a slight posterolateral displacement of tibia. Both hips were in normal position (Figure-2,3). So, it was diagnosed as a case of congenital dislocation of right knee (CDK) with bilateral congenital telipes equinovarus (CTEV) with extension deformity of left elbow.

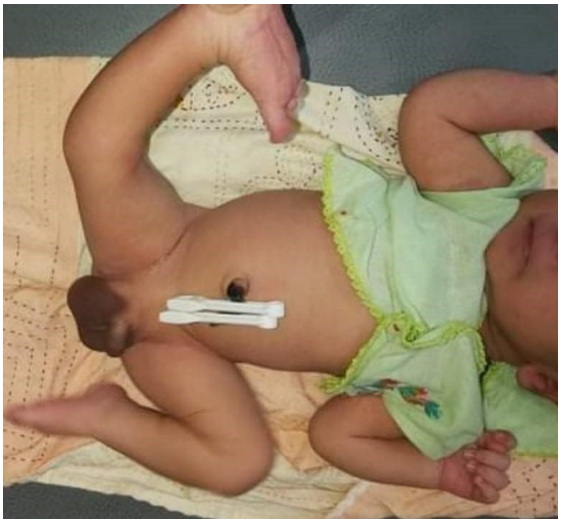

Figure-1: CDK of right knee (7th day after birth)

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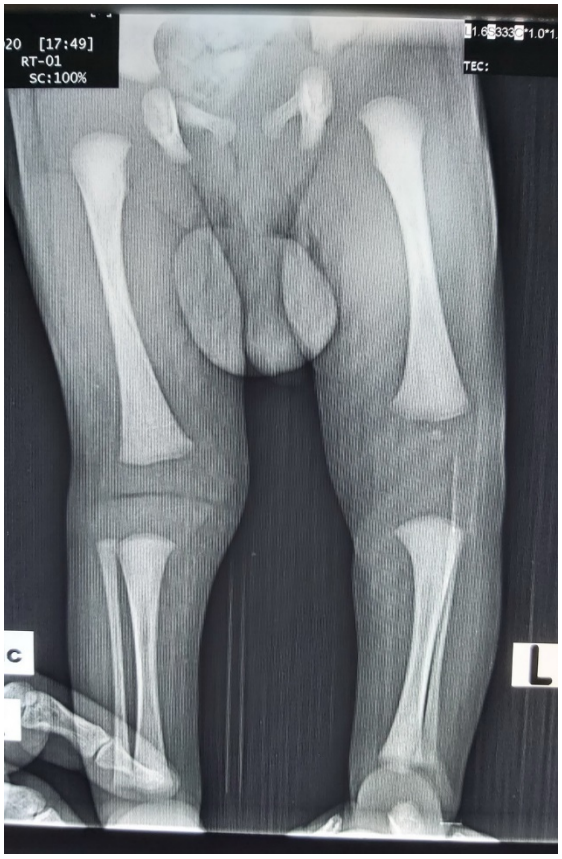

Figure-2: A/P view of right knee joint. (Showing antero-lateral displacement of upper tibia)

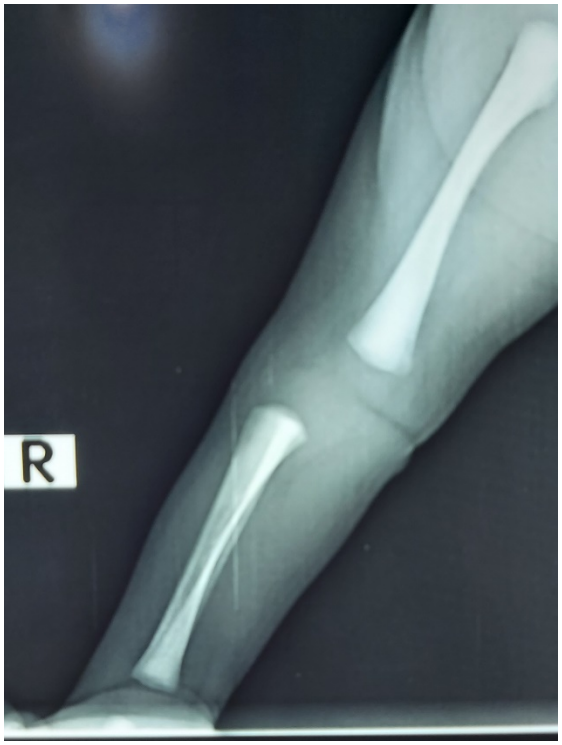

Figure-3: Lateral view of right knee joint. (Showing antero-lateral displacement of upper tibia in CDK)

Treatment was planned in two stages. In the first stage, gentle manipulation followed by above knee slab was given on the 8th day of life. Each plaster was kept for one week. By this way five times serial plaster cast was maintained, each for one week with gradual flexion position. After 5th plaster the knee adopted a normal shape. In the second stage, the slab was discontinued and the mother was advised to continue passive stretching with night splint (60° knee flexion position). For CTEV, Ponseti method was applied. A follow up at the age of 3 & 6 months showed normal position of the knee (Figure-4).

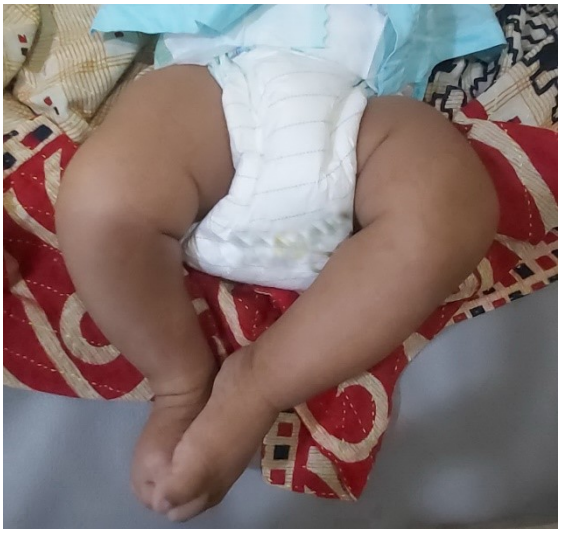

Figure-4: At the age of 3 months, right knee almost normal position.

Discussion

Congenital dislocation of knee joint is an uncommon condition. It was first described in 1822 that present more commonly in girls than in boys[2,3,4] and in more than half of the cases are bilateral. Some associated anomalies may present, like CDH, CTEV, spinabifida, coxavalga, dislocation of the elbow, anomalies of the toe, etc[8,9].

Associated anomalies are very common, with an incidence variously reported as from 60 to 100%[10]. The most common associated anomaly is congenital dislocation of hip. In a study of 155 children with congenital dislocation of the knee, Katz, Grogono and Soper found those musculoskeletal abnormalities in 82 children and among them 45 had congenital dislocation of the hip[10]. Among 15 knees with congenital hyperextension and anterior subluxation of the tibia, Curtis and Fisher found an abnormality of the hip in 11 patients in their study[6,10].

Johnson, Andell and Oppenheim found other abnormalities in 88% of their 17 patients[11]. Another study reported congenital hip dysplasia in eight of 17 patients[12]. The incidence of breech presentation is significantly higher than in normal children. The role of Oligohydramnios in CDK is still unclear may be the position in utero may influence the

development of dislocation of the knees. The limited movements of the foot with presence of internal rotation of feet is postulated as a case for the club foot[13].

The aim of treatment should be to obtain a stable straight limb that would permit ambulation. The treatment options depend on the age of the patient and the severity of the dislocation at presentation. Non-operative treatment is mainstay and is usually successful. Early gentle manipulation, combined with serial splinting and casting is the mainstay of treatment in CDK[14].

All cases with extrinsic reason like packaging disorder should be treated conservatively. In case of intrinsic causes like arthrogryposis one should evaluate first the reducibility of the knee. If the reduction is not achievable then a period of manipulation and casting or a period of traction (1-2 weeks) even surgery may be necessary. The surgical options include percutaneous needle tenotomy, z-plasty of quadriceps mechanism, V-Y plasty, Achilles tendon graft and release of the anterior capsule[15,16].

Conclusion

Congenital joint dislocations as CDK are not common and may be due to packaging disorder in utero. Starting the treatment early will be helpful in achieving good results by conservative modalities.

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