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Children's Hip Developmental Dysplasia Risk Factors and Diagnosis

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ABSTRACT:-

Background:One condition that one occasionally encounters in a crowded orthopaedic or paediatric outpatient department is developmental dysplasia of the hip (DDH). Every orthopaedic surgeon and paediatrician must be informed of the condition's risk factors and symptoms in order to properly diagnose patients. An early diagnosis can change the disease's prognosis and stop late impairments.

Keywords: Hip Development Dysplasia, Congenital Hip Dislocation, Diagnosis, Risk Factors

INTRODUCTION: -

Subluxation (partial dislocation) of the femoral head, acetabular dysplasia, and complete dislocation of the femoral head from the true acetabulum are the most common features of developmental (congenital) dysplasia of the hip (DDH). Hippocrates is credited with coining the phrase "Congenital dislocation of the hip (CDH)". Since then, a lot has changed in terms of how DDH is diagnosed and treated. The term developmental dysplasia of the hip (DDH), which was introduced to include newborns normal at birth but in whom the hip dysplasia or dislocation subsequently occurred or vice versa, has increasingly superseded the older term congenital dislocation of the hip. Accordingly, the term "developmental dislocation of the hip" refers to a dynamic disease that may improve or deteriorate as the child grows, depending on the multidisciplinary treatment given.

RISK ELEMENTS :-

In babies and persons under the age of 60, developmental dysplasia of the hip accounts for 13% of primary hip replacement surgeries. [1-5]Numerous studies have estimated the frequency to be 1.0e9.2 per 1000 in India, with the incidence being higher in the northern region. 95 to 98 percent of DDH cases may be reversed. Teratologic dislocation, which is often irreversible, may occur in 2% of DDH cases. After one month, 60% will return to normal without therapy. After two months, 88% will return to normal without therapy.This equates to approximately 1e2 patients per 1000 having a real DDH and going on to create the pathological alterations associated with DDH.

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More often than the right hip, the left hip dislocates, and 20% of instances are bilateral. It is more prevalent in societies where infants are swaddled, which causes the hips to extend and adduct. [9] There is a 9:1 gender ratio favouring women. The abnormal looseness of the hip ligaments is apparently aggravated and influenced by the baby's own female hormones. About 60% of children with DDH are firstborns, and about 20% are born breech. Due to the hip position in breech presentation, the baby is more likely to dislocate their hip after birth. The extended breech posture, with the knees extended and the feet approaching the shoulders, carries the most risk. Congenital muscular torticollis ("wry neck"), metatarsus adductus ("toes bent inward"), or talipesequinovarus ("club foot") are other conditions that have been linked to DDH. Children of mothers with DDH have a DDH incidence that is 3 to 5 times higher than average. A 34% likelihood exists for identical twins to have DDH, and a 34% chance exists for fraternal twins to have DDH.

DIAGNOSIS :-

Typically, screening for DDH is done at the newborn's physical examination and any subsequent follow-ups. The physical assessment of the hip at delivery is required for patients who are at risk, such as first-borns, females, breech presenters, and those with a favourable family history. Since asymmetrical skin folds are present in 25% of healthy newborns, they are not a significant clinical finding on their own. The Ortolani and Barlow tests are the most popular clinical exams for newborn infants under 3 months old. The Ortolani test involves pushing each femoral head forward in turn in an effort to force a posteriorly displaced femoral head into the acetabulum. The youngster is lying down and having the opposite hand support the pelvis. The thumb of the examining hand rests on the medial portion of the thigh, and the middle and index fingers are placed along the greater trochanter as they grasp the afflicted hip.

Children between the ages of 3 and 6 months have less hip laxity, and the hip may stay outside the acetabular socket. As a result, Ortolani and Barlow tests are less useful. The older child's Galeazzi sign could be favourable. The infant should be supine, hips and knees bent 90 degrees, feet flat on a table, heels touching buttocks when making the Galeazzi sign. Each knee's height is contrasted. Unilateral femoral shortening may indicate hip dislocation or less common femur problems. Bilateral hip dysplasia or an unlevel pelvis might lead to false-negative test findings. The fact that one leg seems to be shorter than the other is a good indicator. The most common cause of this is hip dislocation, however any difference in limb length will result in a positive sign. Other physical indicators of late dislocation include asymmetry of the labral or gluteal thigh folds, flattening of the buttocks on the affected side, reduced abduction, and standing or walking with the affected leg externally rotated. Hip abduction less than 60 degrees raises serious concerns about a dislocated hip. The older youngster may limp lightly or walk on toes on the affected side. Particularly after the neonatal period, bilateral hip dislocation can be fairly difficult to detect, necessitating a high index of suspicion. With hyperlordosis, a waddling gait is frequently present. [6]

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Dynamic ultrasonography is the preferred imaging method in dubious and ambiguous situations. [10] Stress views are performed together with coronal and transverse plane pictures.Children under the age of five benefit from ultrasound for diagnosis, but older infants and children benefit more from pelvic X-rays. The use of arthrography, CT, and MRI scans is also possible. For diagnostic purposes, arthrographic examination of the hip has been mainly replaced by ultrasound evaluation. [4] However, ubiquitous ultrasound screening of the hip at birth for DDH is not encouraged due to issues with observer dependency and a poor link to the hip's eventual development. [5] Thus, high risk and dubious cases continue to be where ultrasound examination of the hip is most important. [6]

MANAGEMENT :-

Early detection of hip developmental dysplasia is crucial for optimising treatment outcomes and lowering the risk of complications.[7] Up to 5% of newborns treated with abduction splinting require surgery, therefore early detection and treatment do not completely prevent the need for later surgery. The best management strategies and the indications for the different surgeries are still up for debate. It has been demonstrated in a number of small trials that stable hips with modest dysplasia can be monitored safely for a period of six weeks before a decision to treat is taken. Various research have mentioned early detection of hip developmental dysplasia is crucial for optimising treatment outcomes and lowering the risk of complications. However, early discovery and treatment do not completely prevent the need for later surgery, and up to 5% of newborns who have received abduction splinting require surgery. 18 The best management strategies and the indications for the different surgeries are still up for debate. It has been demonstrated in a number of small trials that stable hips with modest dysplasia can be monitored safely for a period of six weeks before a decision to treat is taken.

Closed reduction with adductor or psoas tenotomy is the most often performed procedure, which is then followed by 3–4 months in a plaster cast or abduction brace. The likelihood of needing a lengthy operation, including an open reduction and soft tissue stabilisation of the joint, followed by a cast, increases with the child's age. A second pelvic and/or femoral osteotomy is frequently necessary in patients older than 18 to 24 months.

CONCLUSION :-

Orthopaedic disorder known as developmental dysplasia of the hip is typically initially noticed by a paediatrician.Consequently, a paediatrician is a crucial member of the management team for DDH. The long-term morbidity linked to the DDH can be avoided with an early diagnosis and prompt treatment. To start the care process before the kid is referred to an orthopaedic surgeon, the risk factors must be identified, clinical tests like Ortolani and Barlow must be performed, and occasionally USG is necessary.

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REFERENCE:-

1. Sankar WN, Weiss J, Skaggs DL. Orthopaedic conditions in the newborn. J Am AcadOrthop Surg. 2009;17(2):112e122.
2. AIUM practice guideline for the performance of an ultrasound examination for detection and assessment of developmental dysplasia of the hip. J Ultrasound Med. 2009;28(1):114e119.
3. Davies SJ, Walker G. Problems in the early recognition of hip dysplasia. J Bone Joint Surg Br. 1984;66:479e484.
4. Klisic PJ. Congenital dislocation of the hipe a misleading term: a brief report. J Bone Joint Surg Br. 1989;71:136.
5. Sewell MD, Rosendahl K, Eastwood DM. Developmental dysplasia of the hip. BMJ. 2009 Nov 24;339:b4454. doi:10.1136/ bmj.b445457p.
6. Sochart DH, Paton RW. Role of ultrasound assessment and harness treatment in the management of developmental dysplasia of the hip. Ann R CollSurg Engl. 1996;78:505e508.
7. Storer SK, Skaggs DL. Developmental dysplasia of the hip. Am Fam Physician. 2006;74(8):1310e1316.
8. Dezateux C, Rosendahl K. Developmental dysplasia of the hip. Lancet. 2007;369(9572):1541e1552.
9. Cashman JP, Round J, Taylor G, Clarke NMP. The natural history of developmental dysplasia of the hip after early supervised treatment in the Pavlik harness. J Bone Joint Surg Br. 2002;84:418e425.
10. McEvoy A, Paton RW. Ultrasound compared with radiographic assessment in developmental dysplasia of the hip. J R CollSurgEdinb. 1997;42:254e255