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Outcome of Pauwels' Y-Shaped Intertrochanteric Osteotomy for Coxa Vara Among Children at French Medical Institute for Mothers and Children (Fmic), Kabul, Afghanistan

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Background: Coxa vara is an abnormality characterized by a defect in the femoral neck with an abnormal decrease in the femoral neck-shaft angle, shortening of the femoral neck, relative overgrowth of the greater trochanter. Affected patients almost invariably present after walking age, and sometimes as late as adolescence. Developmental coxa vara is rare; its incidence was estimated to be 1 in 25,000 live births. There is no racial predilection and boys and girls are equally affected.

Classically outlined as a leg bone neck-shaft angle of but 110°, hip linear unit is comparatively uncommon, occurring in around one per twenty five 000 kids . This deformity results from a heterogeneous cluster of conditions which will be classified as nonheritable, organic process, dysplastic, and traumatic. The explanation of hip linear unit is also exhausting because the kid develops progressive limb length discrepancy, a limp, pain, abductor weakness, and restricted motion. Secondary cotyloid abnormality and impairment might compound matters. as a result of nonoperative management is ineffectual, a range of surgical strategies have evolved to agitate progressive hip linear unit traditionally, treatment has evolved from nonoperative (which was found to be ineffective) to surgical, with each subtrochanteric and intertrochanteric valgus osteotomies normally used. Despite well-performed osteotomies, repetition is cited within the literature starting from thirty to seventieth the high repetition rate is explained by the biomechanics of the underlying disorder. Hip linear unit lends itself to progression because the physis assumes an additional vertical position. Resultant forces across the hip then become cutting off instead of compressive This bending moment is pathologic not solely to the mechanical properties of stability of the epiphysis however conjointly to traditional continued physeal growth. Thus, in contrast to the traditional hip during which these resultant forces ar compressive, in {coxa|hip|hip joint|articulatio hipe|ball-and-socket joint|spheroid joint|cotyloid joint|enarthrodial joint|enarthrosis|articulatio spheroidea} linear unit the cutting off forces cause the deformity to recur unless surgery addresses the physeal position Adequate surgical correction of coxa linear unit is troublesome and needs careful clinical and picture taking assessment, operative coming up with, correct implant choice, and meticulous surgical technique. Restoration of the leg bone neck physis to a comparatively horizontal position can - on paper a minimum of - normalize the biomechanical forces, changing them from shear that is poorly tolerated, to compression that is additional physical. Correction of Hilgenreiner's long bone (HE) angle to but 38° is that the goal of intraoperative correction. this may shield the physis and leg bone neck, reducing the danger of repeated hip linear unit, in spite of the etiology of the deformity and also the age of the patient Achieving corrections of limb deformities and length discrepancies through less invasive means that is turning into progressively common . Recently, sensible results victimisation external fixator systems are reported for the correction of proximal leg bone deformities secondary to slipped capital leg bone epiphysis, Perthes sickness in kids victimisation open techniques, and connective tissue proximal leg bone surgery within the treatment of hip linear unit . During this paper we tend to describe the surgical technique and gift the long-run results of a minimally invasive connective tissue approach with external fixators (Orthofix and Ilizarov) for correction of severe deformities secondary to hip linear unit.

Discussion: Multiple surgical techniques are delineated for correction of hip linear unit. These embody Langenskiold intertrochanteric surgery, interlocking intertrochanteric surgery, valgus subtrochanteric surgery with blade plate fixation, and Pauwel Y-shaped intertrochanteric surgery glorious long-run follow-up has been reported with each Pauwel surgery and valgus subtrochanteric surgery with a blade plate. Desai and Johnson reported glorious long-run results of treatment of nonheritable hip linear unit utilizing a valgus subtrochanteric surgery in twenty hips of twelve patients. Their mean operative correction of the HSA to 136° and HEA to 30° is reminiscent of that in our series (133° and 34°, respectively). The repetition rate was conjointly quite the same as this series. The outstanding long-run results of Pauwel surgery were reported by Cordes et al. in a very series of fourteen kids and eighteen hips with hip linear unit of multiple etiologies their mean operative correction of the head-shaft angle to 141° and HEA to 29° was conjointly the same as the results of this series. Recurrence of deformity occurred in an exceedingly single case in their series thanks to loss of fixation postoperatively, that failed to occur in our series. There area unit many pitfalls with this techniques delineate in those literatures for proximal thighbone osteotomies. These embody the requirement of open procedures with removal of a quadrangle fragment of bone from the subtrochanteric space, resulting in enhanced blood loss moreover as more shortening of Associate in Nursing already shortened extremity. There area unit restricted selections of implants to permit secure fixation of the underlying bone, which might be quite tiny. Moreover, the device has to avoid the proximal leg bone growth plate, providing a smallest quantity of bone obtainable for fixation. Typically, the implant is bolt applied to the underlying bone, creating acceptable

lateral translation of the distal fragment and minor changes once fixation terribly troublesome. On the idea of the soundness achieved intraoperative, a number of these youngsters would like a body solid for many weeks once surgery to guard against displacement at the surgical operation web site, and every one of them required a second operation for removal of internal fixation devices. per Colyer the best fixation device for multiplanar leg bone trochanteric surgical operation is one that permits the medico to perform Associate in Nursing correct correction, is well applied, maintains rigid fixation, permits early joint motion and mobilization of the patient, and avoids another operation to get rid of the inner hardware. We tend to believe that external fixator technique fits this description. There area unit many potential advantages in our technique, that embody dodging of enormous open exposure and attenuated potential for important blood loss, whereas achieving Associate in Nursing correct and sustained correction of the triplanar deformity. With a gap wedge surgical operation, limb length discrepancy is improved while not compromising the standard and time of bony union. By avoiding the necessity for any supplemental solid immobilization, early mobilization with a brief hospital keep is feasible. Complications related to internal fixation, like outstanding hardware, implant failure, the chance of violating the proximal leg bone growth plate, the necessity for a second major operation for removing an interior implant, and also the potential for deep infection area unit considerably attenuated. However, there area unit potential obstacles to the current technique. These embody a necessity to be acquainted with the utilization of the Ilizarov fixator and Orthofix external fixator; but, different external fixator systems are often used as long because the principles printed on top of area unit followed. The inconvenience of the pin sites with the chance of voidance round the pins is another downside. once victimization hydroxyapatite-coated half-pins, employing a correct technique for pin insertion , avoiding thermal mortification whereas drilling, victimization oral antibiotics early for pin web site voidance, and guaranteeing acceptable pin web site releases and care, we've got noted few deep pin-related complaints. With operative education and counseling, the patients appear to adapt moderately well to the external fixator. Despite well-performed osteotomies, the literature cites return rates as high as 30-70% . In our series, one amongst the thirteen hips had to be revised. This occurred with trauma to pathologic fracture within the thighbone with fibrous abnormalcy. in an exceedingly study of valgus osteotomies for enarthrosis linear unit , Lewis Carroll Associate in Nursingd colleagues according an overall return rate of on the brink of five hundredth. Once HE angle was corrected to 38° or less, ninety fifth of the youngsters had no return of their varus deformity. In our study the common Hilgenreiner's angle was 74° before surgery, and it absolutely was corrected to a mean of 33° once surgery. more follow-up are going to be necessary to assess the semipermanent impact of our technique on the incidence of return. Even once a repeat surgical operation was needed, this method junction rectifier to no increase in morbidity, given the shortage of enormous incisions and maintained hardware. This method might also have a job within the treatment of different medicine proximal leg bone deformities, like those related to slipped capital leg bone epiphysis, Perthes illness, and organic process abnormalcy of the hip. the foremost vital consider reducing the probability of perennial varus is restoration of the leg bone neck physis to Associate in Nursing anatomic position (an HE angle of 38° or less), thereby normalizing the forces across the physis . In our study, the common epiphysial angle improved from 62° preoperatively to 34° postoperatively. The external fixator implant allowed United States to realize and maintain the specified correction in thirteen cases. Though valgus surgical operation reduced the length discrepancy, four patients needed distal surgical operation to deal with length discrepancies and angular deformities of the knee. Shim et al. had known the latter downside, noting that patients with progressive enarthrosis linear unit usually develop ipsilateral compensative handicap. This highlights the necessity to avoid medial displacement of the surgical operation, which is able to exacerbate loading of the lateral compartment and distal leg bone physis. This downside has not been self-addressed in additional recent articles on the topic, like those by Skaggs et al., Kim et al., or Sabharwal et al., Once the enarthrosis linear unit is corrected, the handicap might become obvious. For this reason, we tend to suggest a full-length standing skiagram and CT-scanogram to document alignment length and complications preoperatively. In our study we tend to self-addressed mechanical axis correction by means that of subtrochanteric and distal leg bone surgical operation, correcting coax linear unit mechanical axis deviation and limb length difference.

Conclusion: Our technique proved to be safe and effective within the treatment of proximal leg bone deformity related to enarthrosis linear unit and limb length discrepancy. It's potential advantage over the unremarkably used open techniques and is minimally invasive, simply duplicable, and provides obtainable various to presently obtainable strategies used for the fixation of proximal leg bone osteotomies.

Objective: The aim of this study is to determine the outcomes of Pauwels' Y-shaped intertrochanteric osteotomy for Coxa Vara among children at FMIC, Kabul, Afghanistan.

Methodology: A retrospective case series study design was employed. The data was collected from the available records of 20 participants who had undergone Pauwels' Y-shaped intertrochanteric osteotomy for Coxa Vara at FMIC hospital at the period of 2006 to 2018, osteotomy were fixed with tension band wire and pins, external immobilization done with Hip Spica cast for 1.5month.

Result: Majority 13(65%) of the participants were female and 7(35%) were male. 9(45%) of this study participants had bilateral coxa vara, 8(40 %) had left side coxa vara and 3 (15%) had right side coxa vara. Mean Age of participant was 6.7years old (range, 3-13years). Among these participants 11(55%) had congenital coxa vara, 6 participants had coxa vara which was developed post-surgical treatment of Development Dysplasia of the Hip(DDH) and 3(15%) of them had traumatic coxa vara. The average post operation follow-up was 15months (range,8-60 months).

Conclusion: Pauwels' Y-shaped intertrochanteric osteotomy with tension band wiring and pins fixation is one of the best and effective treatment methods for coxa vara. We suggest this method of treatment for coxa vara in children.