We evaluated radiographs done preoperatively, postoperatively and at the time of the most recent follow up visit. We measured the acetabular index (AI), center edge (CE) angles, and the sphericity of the femoral head by the Mose technique. The hips were assessed for avascular necrosis by the method of Kalamchi and MacEwen and the overall outcome graded according to Severin.

Results: For Group R and Group RS, the mean ages at first operation were 4.9 years and 3.6 years respectively, and the mean radiological follow-ups were 11.3 years and 9.6 years. The pre-operative acetabular indices were 35.0° and 35.2° indicating that the severities of dysplasia were similar. 57.5% of Group R went on to have subsequent surgery compared to 23% of group RS. In groups R & RS respectively, assessment of outcome at final follow-up revealed CE angles of 26.5° and 30.1°, mean Mose circle indices of 3.8° and 2.4°, avascular necrosis presence in 57.5% and 31%, and good (grades 1 & 2) Severin results in 63% and 81%.

In groups R/S & RS the pre-operative acetabular indices were 31° and 37.6° indicating that the hips in group R/S were less dysplastic to start. Assessment of outcome at final follow-up revealed, in groups R/S and RS respectively, CE angles of 34.0° and 29.8°, mean Mose circle indices of 2.5° and 2.1°, avascular necrosis presence in 50% and 31%, and good (grades 1 & 2) Severin results in 75% and 85%.

Conclusions: Our results show that routinely performing a Salter osteotomy at the time of primary open reduction of the hip improves the long-term outcome of the hip. The femoral head is a better shape as evaluated by both the Mose and Severin methods and the acetabulum provides better coverage as indicated by the center-edge angle. In addition, fewer subsequent surgical procedures were required and evidence of avascular necrosis was less.

It might be argued that the only effect of the Salter osteotomy is a fixed geometrical change, that it should not matter in the long run whether that change is introduced early or later, and that the Salter osteotomy could be omitted from the primary procedure and performed later only for persistent dysplasia. Having only 4 cases in our R/S group prevents us from reaching reliable conclusions but the fact that group RS was more dysplastic at the start, and arguably better at the end suggests that there is an advantage in doing the Salter osteotomy early.

Significance: These results should cause those surgeons who do not routinely include the Salter osteotomy in the primary surgical treatment of the dislocated hip to reconsider their strategy in terms of including the Salter osteotomy in their primary surgical treatment of the dislocated hip over 1.5 years of age.

4) Treatment of Subtrochenteric Fractures in Adolescent Patients with Reconstructive TAN Nail

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Introduction: It has now been well established through more than one study that the management of fractures of femur in pediatrics of the adolescent age group are best managed by reduction and secure internal fixation rather than non surgical conservative sort of treatment. This results in better outcomes including quicker healing and the less eventful complication of avascular necrosis (AVN) of the head of femur and length discrepancy, earlier ambulation and weight bearing, better psychosocial results and shortened hospital stay. (5,6,14,18,19,22,24,25).

It has also been recognized that subtrochanteric fractures of the femur implement more challenges in management as they hold limited ability to compensate for malalignment with the presence of deforming muscle forces that render maintenance of reduction difficult. In addition, there is a lack of agreement regarding definition of the fractures . A proposed definition by Mathew and Jeffrey, after reviewing the literature and cases in their hospital retrospectively, defined subtrochanteric femoral fracture in pediatrics as the fracture distance to be less than 10% from lesser trochanter compared to total shaft length, an area in which the muscle deforming action results in difficulty to control reduction (26).

Modalities of internal fixation include titanium elastic nails (TEN), cephalomedullary nails (CM), interlocking nails, Smith Peterson plates, plate and hip screw, nail and intramedullary hip screw and cancellous screws. Yet these methods of internal fixation have not addressed the challenges of this fracture type sufficiently with respect to the operative wound, dissection, maintenance of reduction, post operative ambulation and weight bearing. For the management of this injury we use trochanteric antigrade nail (TAN) a rigid intramedullary nail with a trochanteric entry point.

The Purpose of presenting these cases is to decrease wound dissection and to provide secure fixation that will enhance ambulation and full weight bearing which in turn will make a more satisfactory post-operative period, thus a quicker return to pre-operative activities, and augment bone healing.

Conclusion : It is possible to use the reconstructive TAN nail with two proximal 6.3mm and two 5.0 distal locking screws to treat adolescents' fractures of the subtrochanteric region of the femur . It spares the devastating complication of AVN of the femoral head and the possible postoperative angulation or rotational deformities at fracture site, it requires fewer incisions , provides better patient tolerance , earlier motion to the full weight bearing , all of which contribute to a better outcome of the surgery and more convenient post operative course for the patient , the family , the physiotherapy and the treating surgeon.

5) Decompressing and Fixing Symptomatic High Grade Dysplastic spondylolisthesis with S1 pedicular screws crossing into the inferior portion of L5- Case report

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Introduction: Spondylolisthesis is a radiographic/anatomic description which describes the anterolisthesis of a vertebra on the one immediately caudal to it. The degree of anterolisthesis can be defined by grade ranging from 1 to 5 with each additional grade representing an additional 25% of the distance from normal alignment to spondyloptosis (grade 5). Spondylolisthesis is usually classified by its etiology. The most common classification is that by Wiltse: Dysplastic, Isthmic (aka – Spondylolysis, lytic defect of the pars), Degenerative, Traumatic, Pathologic, and Post-Surgical.

Discussion: Dysplastic Spondylolisthesis_is due to congenital dysplastic change of the facet producing the anterolisthesis. This usually occurs at L5-S1. The facet dysplasia can occur in the axial or sagital plane, or can be due to an elongation of the facets (Wiltse sub classification). The L5-S1 facet joint is oblique to the sagital and axial plane. The facets of the upper lumbar spine most closely parallel the sagital plane. As we descend caudally down the lumbar spine the facets close to the sagital plane.

Normally, the S1 superior facet is approximately 45 degrees to the sagital plane. The S1 facet is also oblique to the coronal and axial plane. Therefore, dysplasia in the sagital or axial plane implies the S1 facet is more parallel to the sagital or axial plane respectively, allowing the L5 inferior facet to "slide" anterior because the S1 facet is no longer acting like a buttress.

Of all the spondylolisthesis types, congenital is most likely to produce neurological deficit by virtue of the anterolisthesis alone. This is because the grade of the listhesis can often progresses greater than two and the posterior ring of L5 remains attached to its anteriorly displaced body. The canal becomes narrowed between the posterior, superior corner of S1 and the anteriorly displaced L5 posterior elements resulting in subacute or acute cauda equina syndrome.