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## **PRACTICAL HINTS ON THE MANAGEMENT OF NEGLECTED DEVELOPMENTAL DYSPLASIA OF THE HIP (NDDH)**

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### **Summary**

The object of this paper is to illustrate the surgical steps in sequence, which were found more useful and informative for DDH of a limited age (8-12) years. Throughout a period of 25 years of work in this field. The retrospective study showed clearly the pitfalls, complication, how to avoid them, to be aware about them and how to solve them properly if they occurred. Few remarks will be mentioned about neglected subluxated hips and the proper way of dealing with them to serve the patient for few years before embarking on total hip replacement. Such Chiari or periacetabular triple osteotomy. The conclusion I reached finally was that experience in this part as in any other part of surgery comes slowly and gradually, it grows with years and familiarity with the subject is established from early years of management to adulthood. I believe that we can learn more from one mistake than from ten successes.

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### **Introduction**

**T**he idea of femoral shortening (FS) and open reduction (OR) started since 1932 by Hey Groves; with shelving of the pelvic part, at 1959 Stojemirovic developed the widened inferior approach for the dislocated hip making OR and FS more practical and precise.

The introduction of Chiari osteotomy at 1955 made a solid support for the uncovered reduced femoral head, at 1963 Predrage Klisic described in detail step by step his one stage operation of NDDH by FS, or / and iliac osteotomy.

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From 1963 till now nothing more has been added to the reduction of NDDH except few variations of the previous procedures, I am going in this report to illustrate in steps the procedure that was finally used which came after 25 years of work in this field.

Pitfalls and complications decreased by the experience curve and if you are aware about them you can solve them either at surgery or after it, it is true that [you can learn from one mistake more than from ten successes].

For cases with subluxation and early osteoarthritic (OA) changes alternative procedures other than total hip replacement will be mentioned as Chiari or periacetabular osteotomy.

Operative procedure:

- I don't mean the procedure I use is the best, but it's the one I'm used to and the one I found more flexible and suitable to our facilities.
- 1) Traction: Not used.
  - 2) Age: 8-12 years.
  - 3) Position: Supine with a sandbag under the affected buttock.
  - 4) Incision: One incision, which starts from the junction of the posterior and mid parts of the iliac crest to the anterior superior iliac spine then to the anterolateral aspect of the thigh to four fingers, finally we curve laterally. Only the fascia lata is cut transversely and approach to the hip upper femur is done anterolaterally.
  - 5) Release is done for the following muscles: Gluteus medius, minimus, iliacus, TFL, sartorius and rectus femoris and exploration of the redundant capsule is done at this stage.
  - 6) The proximal segment is fixed by a Schanze's screw (2.5 mm thick) directly parallel to the neck, taking in consideration the anteversion degree and valgus angulation.
  - 7) Femoral osteotomy and shortening: A Gigli saw is used and the length is measured radiologically or during surgery by the bayonet method which is usually 2-2.5 cm.
  - 8) Manipulation of the proximal piece, dissection (sharp and blunt) of part of the hip and exploration of the capsule is done inferiorly, then the psoas is cut to its insertion to the lesser trochanter.
  - 9) Open reduction: The head is freed from the capsule superiorly, anteriorly and inferiorly bypassing the false acetabulum with sharp dissection.
  - 10) Capsulotomy: Transversely around the real acetabulum and longitudinally along the neck.
  - 11) Fixation: By a plate and 5 screws with consideration of the degree of anteversion and varus angulation by the help of the Schanze's screw (the plate is positioned on the anterior surface of the proximal femur).
  - 12) Pelvic osteotomy (Chiari type): the osteotomy line passes below the false acetabulum with medialization of the distal part of the pelvis.
  - 13) Capsuloraphy: The redundant part of the capsule is excised and closed over the reduced head.
  - 14) Closure in layers and the psoas is left at the anterior part of the capsule.
  - 15) A redivac is put under the skin away from the osteotomy site.
  - 16) Transfusion; one pint is usually required.
  - 17) Complete spica on the operated side and half spica on the other side.
  - 18) Radiography is not used during surgery but is useful sometimes [I believe it's not a substitute for a wide exploration].
  - 19) Stiffness postoperatively doesn't need manipulation under anesthesia it recovers by active and assisted physiotherapy.

### ***Pitfalls and Complications***

Those observations were noticed at our early work and the work of other colleagues, which decreased markedly with time.

#### **I. Pelvic part:**

The osteotomy is high through the false acetabulum (illustrated below).

#### **II. Femoral part:**

1. Rotation of the proximal part posteriorly may lead to posterior dislocation.
2. Inferior dislocation due to extreme abduction in the Gypsona (illustrated below).

3. Avascular necrosis of the head of the femur due to insufficient shortening and reduction by force.

### ***Subluxation***

I believe those cases with NDDH and OA changes at a young age, can get benefit from osteotomy at the acetabular site such as; valgus, varus and medialization. Or osteotomy at the acetabular site such as; Chiari and triple osteotomy as an alternative for total hip replacement. Provided they have a proper indication and good selection (illustrated below).

1) Experience comes slowly, gradually and grows with years.

2) Early follow up is not enough, immediate result differ completely from the late ones.

3) At early work pitfalls and complications are acceptable, provided we learn a lesson from each problem and solve it.

4) We must learn from our mistakes and the mistake of other colleagues.

5) I believe that we can learn from one mistake more than from ten successes

### **Conclusion**