Treatment of congenital hip dislocation before the walking age

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Abstract

The condition known as Congenital Hip Dislocation (CHD) is the worst form of hip developmental dysplasia, characterized by a combination of acetabular cavity, proximal femoral segment, and ligamentus capsule apparatus dysmorphisms that cause partial or complete loss of the hip joint's relationship. We offer a sample scenario: Male, 2 month of age, with diagnosis of hip dislocation. Patient underwent traction by Morel technique: progressive longitudinal skin traction, than progressive abduction. Under general anesthesia we performed arthrography of the hip, that showed reducible and stable hip; we proceeded with spica cast immobilization in human position. The goal of the treatment is to lessen the dislocation and rebuild joint relationships in order to encourage the proper development, enhance standing posture, improve gait, and correct pelvic and spinal imbalances. The purpose of slow and gradual traction on Morel's bed is to gradually clean the structures to reduce the chances of distant Avascular Necrosis (AVN) of the femoral head development.

Introduction

The condition known as Congenital Hip Dislocation (CHD) is the worst form of hip developmental dysplasia; it is characterized by a combination of acetabular cavity, proximal femoral segment, and ligamentus capsule apparatus dysmorphisms that cause partial or complete loss of the hip joint’s relationship.

Typical skeletal changes are: small size of the femoral head, femoral neck anteversion, small size and eludent acetabular cup; all of these features lead to hip instability.

Progressive traction using the Morel method (Figure 1) has been our primary mode of treatment for the past 35 years (before the walking age); in our opinion and in our experience, this is still the best course of action to prevent avascular necrosis of the femoral head.1-3

Case Report

Here, we offer a sample scenario. Male, term birth, caesarean section, breech,. Born 2.5 kg in weight. At birth, there was an Ortolani positive sign, and the first US revealed left hip dislocation. Patient underwent traction by Morel technique: progressive longitudinal skin traction, than progressive abduction. Under general anesthesia we performed arthrography of the hip, that showed reducible and stable hip; we proceeded with spica cast immobilization in human position. The goal of the treatment is to lessen the dislocation and rebuild joint relationships in order to encourage the proper development, enhance standing posture, improve gait, and correct pelvic and spinal imbalances. The purpose of slow and gradual traction on Morel's bed is to gradually clean the structures to reduce the chances of distant Avascular Necrosis (AVN) of the femoral head development.
At the end of abduction, we brought the patient to operation room, and under general anesthesia we performed an arthrography of the hip that showed reducible and stable hip (Figure 3), so we proceeded with immobilization with spica cast in human position (90° of abduction, 90° of flexion).

After that we checked up the joint by CT scan that confirmed correct hip position.

The patient was discharged and the cast immobilization was maintained for 88 days. At cast removal, X-ray control show reduced and stable hip; then we place a Milgram brace, with monthly clinic control, and X-ray after three months.

Hip was reduced, stable, with no clinic limitations compared to contralateral one, so the patient was discharged free of any brace.

Next clinical controls were at 3 and 6 months after treatment, and X ray check was at 1 year after reduction.

Patient start walking at 12 months, clinic and radiographic exams were performed at two, three, five and seven years of age.

Hip develop correctly and femoral head did not show signs of avascular necrosis.

Conclusions

The goal of the treatment is to lessen joint dislocation and rebuild joint relationships in order to encourage proper joint development, enhance standing posture, improve gait, and correct pelvic and spinal imbalances. The purpose of slow and gradual traction on Morel’s bed is to gradually clean the structures to reduce the chances of distant Avascular Necrosis (AVN) of the femoral head development.
The main causes of femoral head necrosis are compressive, such as forced reductions, stretching, and even abduction, where the head is compressed by the muscles around it. It is also crucial that the hip is in the proper position when it is immobilized in a spica cast and then with a brace.

In order to center the femur inside the acetabular cavity without suffering from cephalic vascularization and to prevent recurrence dislocation, the femur must be properly flexed and abducted to the “safe zone.”

Safe zones are those with the hips flexed at 80–90 degrees and abducted at roughly 60–80°. There is a risk of reluxation for abduction values below 60°, and a risk of vessel stretching for values above 80°.

References