TREATMENT OF CONGENITAL HIP DISLOCATION BEFORE THE WALKING AGE

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Abstract

The worst type of hip developmental dysplasia, known as congenital hip dislocation (CHD), is characterized by acetabular cavity, proximal femoral segment, and ligamentous capsule apparatus dysmorphisms that result in partial or total loss of the hip joint’s relationship. We provide the following example: Hip dislocation has been diagnosed in a male infant 2 months old. The patient underwent progressive abduction followed by longitudinal skin traction using the Morel technique. After performing an artrography on the hip while under general anesthesia, which revealed a reducible and stable hip, we concluded with spica cast immobilization in a human position. To promote proper joint development, improve standing posture, enhance gait, and correct pelvic and spinal imbalances, the treatment aims to reduce joint dislocation and rebuild joint relationships. To gradually clean the structures and lower the risk of distant avascular necrosis (AVN) of the femoral head development, slow and gradual traction is applied to Morel’s bed.

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 ligamentous 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 displacement. After 40 days of Tubingen brace therapy, a second US confirmed the left hip displacement.

At 2 months of age, he was admitted to our department. He present limited hip abduction, still Ortolani positive sign and shortened leg. X-ray confirmed the diagnosis, as showed in Figure 2.

At this point, the patient underwent progressive traction by Morel technique on specific bed, starting with bilateral 300 hg weight of longitudinal skin traction, than progressive upgraded to 900 hg in a period of 15 days. Subsequently he started progressive abduction, same weight traction, for 10 days. He reached 90° of abduction for each hip. During this 25 days period there were no complications.

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Key words: Congenital hip dislocation; morel technique.

Funding: None.

Contributions: All the authors gave substantial contributions to the conception, design of the work, the acquisition, analysis, and interpretation of data for the work; all the authors contributed equally drafting the work and CO, the Department Chief, revised it critically for important intellectual content; the work had the final approval of the version to be published of all the authors; all the authors reached an agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflict of interest: The authors declare no conflict of interest.

Availability of data and materials: All data underlying the findings are fully available.

Ethics approval and consent to participate: No ethical committee approval was required for this case report by the Department, because this article does not contain any studies with human participants or animals. Informed consent was obtained from the patient included in this study.

Consent for publication: The patient’s guardians gave their written consent to use the patient’s personal data for the publication of this case report and any accompanying images.

Received for publication: 30 September 2022.
Revision received: 4 October 2022.
Accepted for publication: 4 October 2022.

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La Pediatría Medica e Chirurgica 2022; 44(s1):300
doi:10.4081/pmc.2022.300

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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 recurrent 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