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Total Hip Replacement in Congenital Hip Dislocation in 14 Years Female Patient

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Rezumat

Artoplastia totală de șold în luxația congenitală de șold la pacientă de 14 ani

Introducere: Displazia de dezvoltare a șoldului este una din afecțiunile frecvente ale șoldului în ortopedia pediatrică. Aceasta necesită un tratament ortopedic precoce. Cazurile neglijate pot duce la luxația șoldului, aceasta având o incidență de 1.4‰ nounăscuți, fiind în 70-80% din cazuri bilaterală, iar prevalența fetelor fiind de 7/1-4/1 (fete/baieți). Luxația congenitală de șold necesită un tratament ortopedic și chirurgical complex. În majoritatea cazurilor dezvoltă la vârsta adultă coxartroză, ce necesită artoplastie totală de șold. În anumite cazuri selecționate artoplastia totală de șold se impune încă de la vârsta pediatrică.
Prezentarea cazului: Vă prezentăm cazul unei paciente în vârstă de 14 ani ce s-a internat în clinica noastră pentru tulburări de mers, cu mers șchiopătat, inegalitate membre inferioare, durere șold drept. Boala a debutat insidious odată cu apariția mersului. Tratamentul a fost refuzat până la vârsta de 9 ani, când s-a practicat repunere sângerândă, osteotomie de scurtare a femurului, tenotomie mușchi aductori șold drept. În ciuda tratamentului boala are o evoluție nefavorabilă, pacienta prezentând la vârsta de 14 ani o scurtare a membrului inferior drept de 7 cm, semne de ascensiune trohanteriană, semn Trendelenburg pozitiv, limitare a activităților zilnice, scor Harris 48. Se practică tracțiune transcheletică timp de o lună, după care se efectuează artoplastie totală de șold. Evoluția postoperatorie este favorabilă, pacienta neavând dureri, cu o inegalitate a membrelor inferioare de 2 cm și a mers la 3 luni după intervenția chirurgicală.
Concluzii: Deși atroplastia cu proteză totală a șoldului în luxația congenitală de șold la vârsta pediatrică este o procedură de excepție, în anumite cazuri atent selecționate se dovedește a fi o alternativă viabilă pe termen mediu.

Cuvinte cheie: luxație congenitală de șold, șold, proteză totală șold, componența femurală

Abstract

Introduction: development dysplasia of the hip is one of the common disorders in pediatric orthopaedics. This requires an early orthopaedic treatment. Neglected cases can lead to hip dislocation, which has an incidence of 1.4 ‰ new-borns, being bilateral in 70-80% of cases and prevalence of girls being 7 / 1-4 / 1 (girls / boys). Congenital hip dislocation requires a complex surgical and orthopaedic treatment. In most cases develop hip osteoarthritis in adulthood, requiring total hip replacement. In certain selected cases total hip replacement is required since the pediatric age.
Methods: We present the case of a 14 year old patient who was admitted to our clinic for limping with leg-length discrepancy, pain in the right groin. The disease has an insidious onset at the start of the walking age. The treatment was denied until the age of 9, when was performed open reduction of the hip, shortening osteotomy of the femur, right hip adductor tenotomy muscles.

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Despite treatment the disease has an poor outcome, patient was presenting at age of 14 a shortening of the right leg 7 cm, with the greater trochanter elevated, positive Trendelenburg sign, limiting of daily activities, Harris score 48. We performed transkeletal traction for one month, after that performing total hip replacement. The postoperative evolution was excellent, the patient having no pain, with a 2 cm leg-length discrepancy, starting to walk at 3 month after surgery.
Conclusions: Although total hip replacement in congenital hip dislocation at pediatric age is an exceptional procedure, in some cases carefully selected it proves to be a viable alternative in the medium term.

Key words: congenital hip dislocation, hip, total hip prostezis, femoral stem

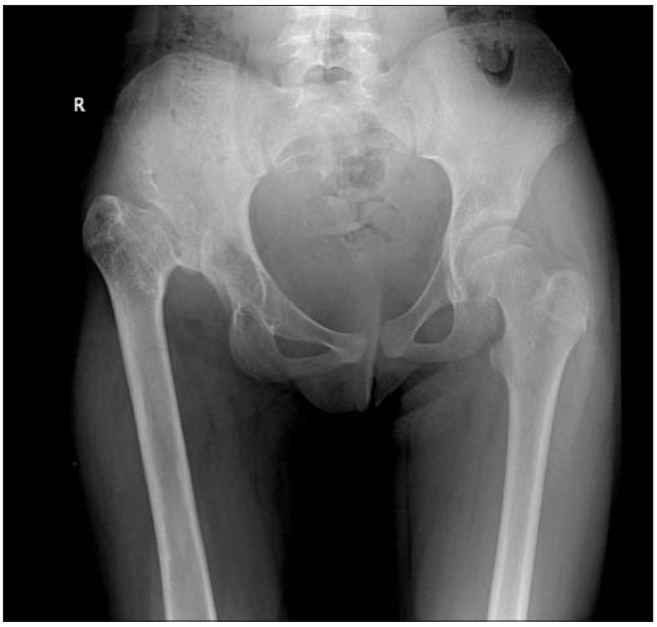

Figure 1. *AP x Ray view*

Introduction

Development dysplasia of the hip is one of the common disorders in paediatric orthopaedics. This requires an early orthopaedic treatment. Neglected cases can lead to hip dislocation, which has an incidence of 1.4 ‰ new-borns, being bilateral in 70-80% of cases and prevalence of girls being 7/1 - 4/1 (girls - boys) (1,2,7). Congenital hip dislocation requires a complex surgical and orthopaedic treatment. In most cases develop hip osteoarthritis in adulthood, requiring total hip replacement. In certain selected cases total hip replacement is required since the paediatric age.(8) The parents of the patient were informed that data concerning the case would be submitted for publication, and they consented.

Case presentation. We present the case of a 14 year old patient who was admitted to our clinic for limping with leg-length discrepancy, pain in the right groin. The disease has an insidious onset at the start of the walking age. The treatment was denied until the age of 9, when was performed open reduction of the hip, shortening osteotomy of the femur, right hip adductor muscles tenotomy (5). Despite treatment the disease has a poor outcome.

At clinical examination the patient presents postoperative scars on the right hip, normally healed, leg-length discrepancy, with a shortening of the right leg 7 cm and hip dislocation signs positive: Galeazzi sign, the greater trochanter elevated, the great trochanter is elevated above Nelaton Roser line, Schoemaker line below umbilicus, Bryant trangle modified, Trendelenburg sign, on the right side. (1,2,6,7) The range of motion of the right hip is slight decreased: flexion 100°, extension 10 °, internal rotation 40 °, external rotation 10 °, abduction 20 °, adduction 30 °. The neurological examination was in normal limits. The gait was difficult with limping. Harris hip score was 48. (3)

We perform a serial investigation including blood cell count and radiographs. Blood cell count was unremarkable. The AP pelvic view (*Fig. 1*) demonstrated a dislocation of the right hip. The metaphysis lies lateral the Perkins line, and above Hilgenreiner line, in the upper- external quadrant, Shenton line is broken, neck-shaft angle is 110 °. The femoral head is deformed with an aspherical appearance located in a neo-acetabulum. Paleo-acetabulum is aplastic. (1,2,6,7)

Because of the high position of the femoral head we decided to perform transkeletal traction of the right leg for 1 month. After traction we obtained a decreasing of leg length discrepancy from 7 cm to 5 cm. (*Fig. 2*)

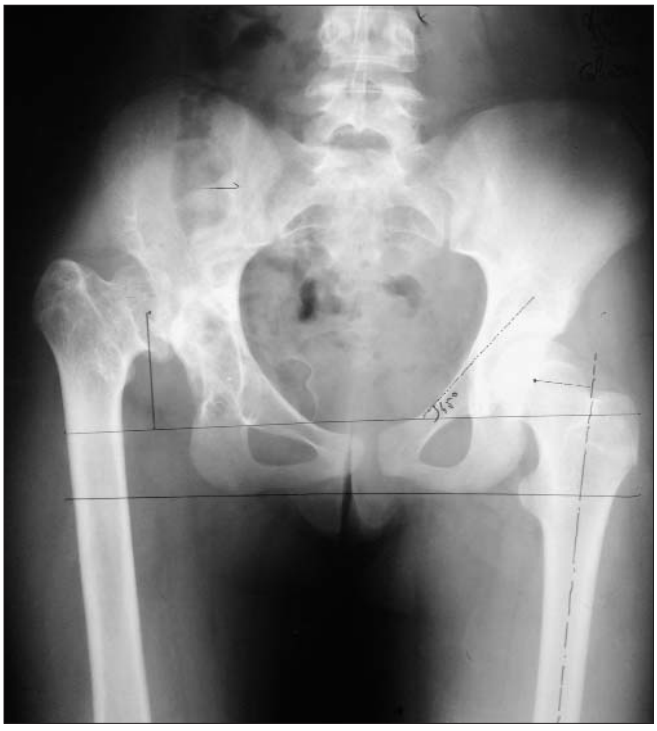

Figure 2. *xRay after traction*

After that, we decided to perform a total hip replacement with a cementless total hip prosthesys.

We performed preoperative planning to find the right position of the acetabular component and to determine the size of the implants.

With the patient in lateral decubitus we used the modified lateral Hardinge approch, with "T" incision of the capsule. After the dislocation of the femoral head, we performed the femoral head osteotomy. (*Fig. 3*)

We identified the right place of the future acetabular component with a "K"-wire under X-ray control. We made an acetabular reconstruction with femoral head graft and then we reaming. We inserted the trial implant, after that we inserted the final component and the plastic liner.

We started the femoral reaming, inserted the femoral trial, assessment of rotational stability, and reduced the hip with the femoral head trial, assessment of mobility and stability of the hip, dislocation of the femur. At the insertion of the femoral component we had a periprosthetic fracture that we solved with tree wires cerclages. We inserted the femoral head. Finally we reduced the hip and checked the stability and mobility of the hip. We performed suture in anatomical layers, insert two drains and sterile dressing. (*Fig. 4*)

Postoperative care. We initiated an anticoagulant therapy with enoxaparin 40 mg (equivalent to 4.000 IU anti-Xa activity) for 35 days, pain control medication, drains removal after 2 days, suture removal after 21 days, non-weight bearing walking after 6 weeks, passive ROM exercise (abduction) avoid in first 3 months, avoid flexion of the operated hip at 90° or over, adduction of the hip and external rotation, radiological control at 6 weeks, 3, 6 and 12 months, antibiotics prophylaxis in case of other surgical and dental procedures.

At 6 months after surgery follow-up the patient presented a leg length discrepancy by 2 cm, Harris score 74 and pain free. The range of motion was: flexion 90°, extension 10°, internal rotation 30°, abduction 35°. (3,4,8)

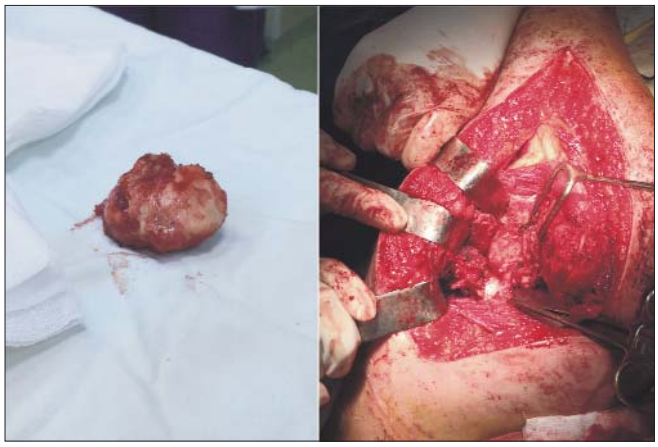

Figure 3. *Intraoperative aspects of the displastic femoral head after resection (right side) and the aplastic acetabulum (left side)*

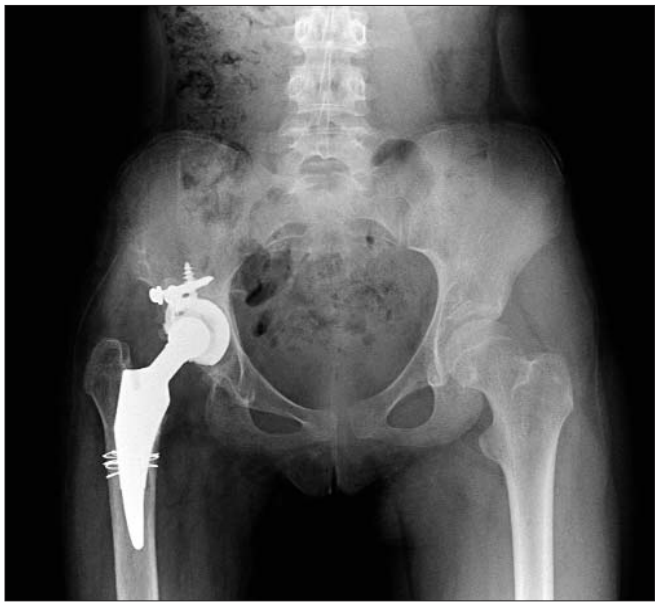

Figure 4. *Final xRay*

Discussion

Development Dysplasia of the Hip can be diagnosed in first 6 month by ultrasonography, so the treatment can be applied from very early stages. In some cases when the diagnostic is delayed the treatment becomes more difficult and complex, most of time including a pelvic osteotomy. Very few cases remain without a proper treatment before the age of 8 years old. (1,2) Total hip replacement is a very rarely procedure in paediatric orthopaedics, especially in the treatment of DDH. In some cases, when DDH is neglected, and the stage of the disease is advanced decreasing the daily living activities levels, total hip replacement seems to be a fair solution. Unfortunately we don't have studies about total hip replacement in children, especially in children with DDH. In those cases, we must be careful choosing the right moment of the total hip replacement, best option being the age of skeletal maturity. (8) Although in adult orthopaedics is a routine procedure, in paediatric orthopaedics could be a challenging procedure. Being so challenging total hip replacement in children involves some particularities. In most of cases the acetabulum must be reconstruct and in some cases the femoral head can't be descended in the paleo-acetabulum, so a new acetabulum must be created.(3) In DDH the leg length discrepancy is one of the reason of surgical treatment, but this can't be achieved in totality because of the risk of the sciatic nerve elongation when we attempt to descend femoral head over 5 cm from neo-acetabulum. (5) Due to the narrow femoral canal is very hard to find a proper femoral stem and is a high risk to fracture the proximal femur when you insert the femoral component. (3,5)

Conclusion. Although total hip replacement in congenital hip dislocation at paediatric age is an exceptional procedure, in some cases carefully selected it proves to be a viable alternative in the medium term.

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