

Possibilities of minimally invasive treatment of hip subluxation in children with cerebral palsy

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Abstract

Introduction: Hip subluxation is one of the main problems in children with cerebral palsy (CP) after the equine foot. Without treatment, we see a deterioration of around 7% per year. In addition to the delayed verticalization, the main cause is the pathological muscle tone of the muscles surrounding the hip. Children with restricted ability to walk and stand independently are most affected, which is assessed using the classification system for gross motor function (GMFCS). It is a common therapeutic measure to treat muscle imbalance by releasing the shortened soft tissue in early childhood. Here we prefer percutaneous myofasciotomy to lengthen short muscles. The iliopsoas muscle cannot be lengthened percutaneously. Since muscle lengthening is not sufficient for older children with hips at risk, we use additional guided growth as a minimally invasive method to prevent further hip subluxation. In this regard, two other studies already showed a positive effect.

Methods: This was a prospective follow-up study from 2010 to 2016 of 52 children aged 2.8 to 6.7 years (29 boys and 23 girls) who were to be treated surgically with a percutaneous muscle fascia release due to structural muscle shortening. In the preoperative examination, an X-ray image revealed a Reimer migration index (RMI) of over 25%. All children were classified according to their functional possibilities (GMFCS II 3 children, III 14 children, IV 18 children, V 17 children) and the mobility of both legs (ROM) was measured. The second group of 12 children over the age of 6 (6.1 to 12.7 years) (7 boys, 5 girls) underwent femoral head epiphysiodesis in addition to the release of the fascia between 2016 and 2018. The group was also examined according to the same criteria (III 2 children, IV 5 children, V 5 children). We followed these children postoperatively and reevaluated radiological and clinical findings.

Conclusion: Further studies have to prove the effectiveness of this method in the long term.

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Biography

Dr. Peter Bernius studied medicine at the University of Heidelberg. In his orthopedic and pediatric orthopedic training, he went through various stages at the Surgical Clinic in Darmstadt, at the University Hospital Oskar-Helene-Heim in Berlin and the University Hospital in Freiburg. Since 2001 Dr. Bernius works as chief physician of

the Center for Pediatric and Neuro-Orthopedics of the Schön Klinik Munich Harlaching. He is an internationally recognized specialist in minimally invasive surgical procedures, early functional rehabilitation, functional orthotics, and specialized learning programs to support neuroplastic regeneration.