TITLE: Extreme femoral shortening: an approach to the chronically dislocated hip in the non-ambulatory pediatric population

AUTHOR(S): Jay V. Kalawadia, MD

AFFILIATION(S): Department of Orthopaedic Surgery, Children’s Memorial Hospital, Chicago, Illinois

Objective:
Hip subluxation and eventual dislocation is a common problem in patients with neuromuscular spasticity. In those patients with greater neurologic involvement who are non-ambulatory, the goals of treatment are to alleviate pain, improve sitting tolerance, and ease hygiene care. Many surgical techniques have been described for the painful chronically dislocated hip in this population, but each has been reported with significant complication rates. The purpose of this study was to investigate the outcomes of a novel technique, an extreme varus femoral shortening osteotomy, in non-ambulatory patients with neuromuscular spasticity.

Methods:
After IRB approval was obtained from the home institution, patients were identified retrospectively by surgical codes. The medical records were reviewed for range of motion, pain and functional assessment, surgical indications, complications, and results. The pre-operative and post-operative radiographs were assessed. Caretaker questionnaires were also collected and reviewed.

Technique: The operation consisted of a lateral proximal femoral approach and an average five-centimeter varus osteotomy of the subtrochanteric femur. A fixed angle dynamic condylar screw implant was then applied as internal fixation. The patients remained in the hospital, on average, for three days for standard post-operative care.

Results:
From 2001 to 2010, six femoral shortening osteotomies were completed in five non-ambulatory patients with neuromuscular spasticity by one surgeon. Two males and three females were followed for a minimum of two years (range: 2-8 years). All of the patients suffered from pain pre-operatively, and following the procedure had substantial improvement. Only one of the five patients was unable to sit post-operatively; however, this was secondary to severe lower extremity contractures. All caregivers noted improvement in ease of hygiene and transfers. There were no post-operative complications such as wound infections, deep venous thrombosis, hardware failure, or increased pain. One patient had mild heterotopic ossification that was incidentally noted on routine follow-up examination.

Conclusions:
The surgical technique of extreme femoral shortening provides non-ambulatory children with symptomatic hip dislocations due to neuromuscular spasticity a reproducible way to alleviate pain and improve ease of hygiene. The complication rate in our series was found to be less than that of other described procedures.