



Limited Quadricepsplasty During Femoral Lengthening

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What was the question?

Extension contracture of the knee is common during femoral lengthening. Recovery of knee range of motion (ROM) is a difficult and lengthy process. Stretching out the contracture with therapy alone may place increased stress on the knee, especially the patellafemoral joint. Can a planned quadricepsplasty improve knee mobility and pain without compromising strength?

How did you answer the question?

A limited quadricepsplasty that involves division of the iliotibial band and the quadratus intermedius tendon was performed through a 5 cm incision in six patients after the end of the distraction phase of femoral lengthening. These patients were prospectively followed and knee mobility and strength were measured. SF-36 Scores were recorded.

What are the results?

There were 4 men and 2 woman with an average age of 29 years (13-54). Leg length discrepancy (LLD) improved from 4.2 cm (2.1-5.2) to 1.1 cm (0-1.5). The diagnoses included post-traumatic growth arrest, malunion with shortening, radiation induced growth arrest, and absent femoral neck and head from neonatal hip sepsis and congenital hip dysplasia. The femoral lengthening performed was 5.1 cm (3-7). Monolateral frames were used in 2 patients and Ilizarov frames were used in 2 patients. Time interval from end distraction to quadricepsplasty was 31 days (22-43). Time in frame was 6 months (5.3-7). ROM prior to treatment was 0°-135°. ROM before quadricepsplasty was 0°-37°. ROM achieved during quadricepsplasty was 0°-100°. (90° was maximum possible for 2 patients because the rings limited further flexion. ROM at 3 months postoperatively was 0°-104° and at 6 months was 0°-130°. Quadriceps strength was 5/5 in all cases. Extensor lag was 0° in all cases. Complications included superficial pin tract infections and fracture of the proximal femur from a fall in one patient successfully managed by extending the frame to stabilize the fracture. There were no complications related to the quadricepsplasty. SF-36 scores improved in most categories and the average score improved from 80 to 96.

What are your conclusions?

Limited quadricepsplasty after the end of distraction of a femoral lengthening seems to be a safe and effective procedure to improve recovery of knee flexion. This compares favorably with historical controls. Pain is decreased, ROM recovery is hastened, and

strength is not compromised. Additional patient experience will be necessary.