PAPER SESSION 8: HINDFOOT

Moderators:
Ruth L. Thomas, MD (Little Rock, Arkansas)
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8:23 am
Lateral Column Lengthening of the Symptomatic Flexible Flatfoot: Differences between Children and Adults

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Summary:
The purpose of this study was to compare radiologic and clinical results of LCL between children and adults with symptomatic flexible flatfoot deformity. Lateral column lengthening of the symptomatic flexible flatfoot deformity is considered as an effective surgery in children, whereas osteoarthritis of the calcaneocuboid joint after lateral column lengthening should be regarded as a significant complication causing lateral pain in adults.

Introduction:
Lateral column lengthening (LCL) restores the medial longitudinal arch and decreases forefoot abduction, which are components of the flatfoot deformity. LCL has been used with good clinical results in children, especially with neuromuscular disorder. Some authors reported that LCL led to lateral discomfort in adults. The purpose of this study was to compare radiologic and clinical results of LCL between children and adults with symptomatic flexible flatfoot deformity.

Methods:
This study includes 18 feet (13 patients) in children (under 18 years old) and 14 feet (14 patients) in adults with the persistent pain and functional limitations by flexible flatfoot deformity who underwent LCL through osteotomy of the anterior calcaneus. Mean age was 11.9 years (range, 8 to 17) old in children and 41.6 years (range, 21 to 75) old in adults. Mean follow-up period was 2 years (range, 12 to 32 months) in both groups. Clinical assessment was performed with use of the American Orthopaedic Foot and Ankle Society (AOFAS) clinical ankle-hindfoot score, Visual Analog Scale (VAS) for pain and overall satisfaction from the surgery. Standard preoperative and postoperative radiographic parameters were measured. Initial and most recent follow-up radiographs were reviewed for calcaneocuboid joint subluxation and osteoarthritic changes.

Results:
The mean AOFAS score and VAS scales improved significantly in both groups. Significant improvement was noted for the AP talonavicular coverage angle, AP talar-first metatarsal angle, lateral talar-first metatarsal angle and calcaneal pitch angle in both groups. Whereas children rated their clinical results as excellent in twelve, and good in six, adults rated their clinical results as excellent in five, good in three, fair in five, and poor in one (Chi-square test, P=0.02). All preoperative clinical and radiologic measurements between children and adults were not different. The changes in AOFAS score and VAS score after LCL were significantly better in children (both, P=0.00), but the changes of radiographic parameters after LCL were not different between the two groups (AP talonavicular coverage angle; P=0.45, AP talo-1st metatarsal angle; P=0.69, lateral talo-1st metatarsal angle; P=0.09 and calcaneal pitch angle; P=0.96). The magnitude of subluxation in calcaneocuboid joint was not significantly different between the groups (P=0.49). Subjective lateral discomfort was observed in three of 18 children, in contrast to ten of 14 adults (Chi-square test, P=0.002). Osteoarthritic change at the calcaneocuboid joint was demonstrated in eleven of 14 adults, whereas no osteoarthritic change was found in children. Subjective lateral discomfort was correlated with osteoarthritic change at that joint (p=0.001).

Conclusion:
Lateral column lengthening of the symptomatic flexible flatfoot deformity showed promising clinical improvement and radiographic correction of deformity in all children and some adults. Lateral column lengthening of the symptomatic flexible flatfoot deformity is considered as an effective surgery in children, whereas osteoarthritis of the calcaneocuboid joint after lateral column lengthening should be regarded as a significant complication causing lateral pain in adults.