

Treatment of the Progressive Neuromuscular Planovalgus Foot Deformity with the Combined Batchelor-Grice Procedure

Reference:

Vlachou Maria, M.D and Dimitriadis Dimitrios, M.D (2008). Treatment of the progressive neuromuscular planovalgus foot deformity with the combined Batchelor-Grice procedure. *Journal Pediatric Orthopaedics B* 2008, 17:183-187

Scientific Literature Review

Reviewed by: Ameneh Aminian, DPM

Residency Program: Massachusetts General Hospital, Boston, MA

Podiatric Relevance:

Since 1907, subtalar arthrodesis has been used as a surgical treatment for foot deformities due to injury and paralysis. In 1945, Grice introduced an extra-articular fusion technique. In 1968, Batchelor suggested a modified extra-articular arthrodesis, which did not prove superior to the Grice technique. In 1986 Hsu *et al* published their method of subtalar extra-articular arthrodesis, combining both the Batchelor and Grice procedures.

Methods:

Twelve (12) patients (17 feet) with progressive neuromuscular planovalgus foot deformity underwent extra-articular subtalar arthrodesis with the combination Batchelor-Grice procedure. The study included nine (9) patients with cerebral palsy, two (2) with myelomeningocele and one (1) patient with core-tethering syndrome. Five (5) patients underwent bilateral fusions and seven (7) patients unilateral fusion. The average patient age was 10.4 (4-14) years, and the average follow up period was 10 (5-17) years. Preoperative complaints included deformity, skin irritation and pain beneath the talar head. All patients had initial conservative treatment with special shoes and AFOs. Postoperatively, all patients were immobilized in a short leg cast for six (6) weeks, followed by use of an orthosis.

Results:

Postoperative recovery in each case was uneventful, with no infections or wound complications. Clinically, all grafts and fusion sites were stable and consolidated. Radiographically, the talonavicular joint returned to normal with full coverage of the talar head, and the mean lateral talocalcaneal angle was reduced from an average of 40.7° (30-64°) to 32.6° (30-48°). At the conclusion of the study, the patients reported relief from pre-operative pain, as well as increased mobility. Each hind foot was markedly improved in stance, with positions ranging from neutral to < 5° valgus.

Conclusions:

Although this study group was small, the authors are convinced that the combined Batchelor-Grice subtalar extra-articular technique is easier to perform and results in a more favorable outcome than either procedure used individually. In cases of complex paralytic planovalgus deformity, the procedure may need to be supplemented with other soft tissue procedures, to achieve improved muscle balance and foot function.