Gastrocnemius recession:
Effective remedy for recalcitrant foot pain

By Annie Hayashi

Impact of the calf muscle on foot and ankle conditions

According to Dr. Anderson, gastrocnemius recession is commonly performed to correct an equinus contracture of the ankle that may accompany foot and ankle pathology in adults. The equinus deformity leads to excessive pressure and pain that manifests as plantar fasciitis, metatarsalgia, posterior tibial tendon insufficiency, osteoarthritis, and foot ulcers. The procedure is also performed on individuals who have limited ankle dorsiflexion.

Over the past 10 to 15 years, Dr. Anderson and his colleagues have used gastrocnemius recession to treat other foot and ankle conditions. Many patients with collapsed arches also have an associated contracture that causes the foot to lose its structural integrity. The patient is able to keep his or her heel down but the arch falls.

An analysis of their data on tarsometatarsal fusions showed that the fusion rate was better in those patients in whom the calf muscle was lengthened compared to those in whom it wasn’t. “We hypothesized that our success was largely due to lengthening the calf. Our fusion rate improved by taking stress off the foot or, in other words, off the arch,” said Dr. Anderson.

The dramatic results

This retrospective study followed 29 patients (34 feet) for an average of 19.5 months after a gastrocnemius recession. All patients had foot pain, without any structural abnormality other than an isolated equinus contracture. “Typically there should be 10 degrees to 15 degrees of ankle dorsiflexion,” noted Dr. Anderson. “Our patients had dorsiflexion limited to 0 degrees or less.”

The outpatient surgery was performed through a 2-cm, midcalf incision, although this procedure can also be done endoscopically.

“Recovery time included 2 to 4 weeks in a protective boot with daily home stretching exercises and a gradual return to activities as tolerated,” Dr. Anderson said. “Most patients reached maximum recovery within 6 to 12 weeks.”

The outcome measurements were based on pain relief, using the Visual Analog Scale (VAS), and patient satisfaction. The average preoperative pain score of 8/10 showed a dramatic improvement to 2/10. More than 90 percent of patients (27 of 29) expressed satisfaction with the results of the procedure. Of the 25 patients who had a unilateral procedure, 23 (92 percent) said they would have the contralateral leg done if needed.

“These patients had all rated their foot pain as severe and had not been helped by long-term conservative treatment options. Most also had plantar fasciitis,” Dr. Anderson explained. “We were able to obtain satisfactory results without weakening the arch by 11 percent to 15 percent, as a plantar fasciectomy would have done. In general, we had very few complications.”

The patients selected for this study did not have existing calluses, prominent metatarsal bones, arthritis of arch collapse and deformities—bunions, flatfeet, calluses, inflammation, and arthritis,” said Dr. Anderson.

“This study supports the concept that the painful foot can begin well before this collapse occurs and can be present without any significant structural deformity. In these carefully selected patients, pain can be successfully treated by addressing the underlying gastrocnemius contracture.”

“The most important finding from our study is that disabling pain in the foot can be alleviated by addressing pathology present in the leg, namely a contracture, or shortening of the gastrocnemius muscle,” Dr. Anderson concluded. “None of our patients had concomitant procedures on their foot, so clearly their foot pain was not a result of intrinsic foot pathology.”

Dr. Anderson co-authored the study, "Gastrocnemius recession to treat isolated foot pain," with John David Maskill, MD. Contributing authors are Donald R. Bohay, MD, and Danielle Conaway, MD.

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