Double calcaneal osteotomies for the pediatric flatfoot: A case series

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Introduction

Flatfoot deformity is a common foot condition that occurs frequently in children and young adults. It is characterized by a flattening of the arch of the foot, which can lead to pain, discomfort, and potential long-term complications if left untreated. Over the years, various surgical techniques have been developed to correct flatfoot deformity, each with its own advantages and disadvantages. This study presents a case series of pediatric patients who were treated with double calcaneal osteotomies for flatfoot, with a focus on the surgical technique, patient outcomes, and the results of the treatment.

Patients and Methods

We retrospectively reviewed 21 pediatric patients between 11 and 17 years of age who underwent double calcaneal osteotomies for flatfoot correction. All patients had severe flatfoot deformities with significant forefoot abduction, heel valgus, and plantarflexion. The surgical technique involved a combination of calcaneal osteotomies and tendon transfers, as necessary. Postoperatively, all patients were non-weight-bearing for 8-10 weeks, with physical therapy initiated at 3 weeks to facilitate gradual weight-bearing.

Surgical technique of the calcaneal osteotomies

Peroneal medial sliding osteotomy: This osteotomy is performed to correct forefoot abduction by sliding the calcaneus medially. The osteotomy is typically performed in the inferomedial aspect of the calcaneus, with care taken to preserve the integrity of the subtalar joint. Postoperatively, patients are monitored for consolidation and positioned in a CAM boot for 6-8 weeks.

Posterior calcaneal osteotomy: This osteotomy is performed to correct heel valgus by lengthening the calcaneus. The osteotomy is performed in the inferolateral aspect of the calcaneus, with care taken to preserve the integrity of the calcaneocuboid joint. Postoperatively, patients are monitored for consolidation and positioned in a CAM boot for 6-8 weeks.

Results

Average BMI for the patients was 18.9. None of the reported cases of nonunion delayed union were observed. Average postoperative follow-up was 18.5 months. Nineteen patients had an average VAS score at 3 and 8 months follow-up of less than 2. Inclusion criteria: follow-up at least 3 months since final surgery. Ten patients underwent isolated calcaneal osteotomies, and 4 patients underwent calcaneal osteotomy combined with tendon transfer.

Discussion

Surgical management of the pediatric flatfoot is contingent on a number of factors including the degree of flatfoot deformity, bone and tendon insufficiency, and the patient's age and maturity. In this study, the authors present a case series of pediatric patients who were treated with double calcaneal osteotomies for flatfoot, with a focus on the surgical technique, patient outcomes, and the results of the treatment. The authors emphasize the importance of careful patient selection and the need for proper postoperative care to achieve satisfactory outcomes.