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## **Malerba Z-type osteotomy for the treatment of adult acquired flatfoot deformity**

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### **ABSTRACT**

**Introduction:** Adult acquired flat foot deformity (AAFD) is a condition characterized by tendon and ligament failure that leads to progressive midfoot collapse and to hindfoot valgus. Calcaneal osteotomies are among the oldest and most conventional procedures for the treatment of angular limb deformities; they aim to reestablish the alignment and the line of action vector of the triceps surae muscle. Various disadvantages of classic osteotomies have been established in recent years, such as fixation loss, insufficient correction and reduced tarsal tunnel volume. Malerba Z-type osteotomy aims to resolve possible complications resulting from the usual incisions, to enhance the procedure and to allow multiplane corrections.

**Objective:** To describe the functional and radiographic outcomes of Malerba Z-type osteotomy in patients with AAFD subjected to reconstructive surgery.

**Methods:** Ten patients diagnosed with AAFD, with a mean age of 45 years (35-55), were operated on from January 2017 to January 2018. All patients underwent weight-bearing radiographs and alignment measurements and functional assessment using the pain visual analog scale (VAS) and the American Orthopedic Foot and Ankle Society (AOFAS) scale preoperatively and at the final evaluation at a mean of 12 months (6-18 months) after surgery.

**Results:** The 10 patients showed positive progression after the surgery, reporting no major complications. Only one case of superficial dehiscence and one case of transient sural nerve neuropraxia (in different patients) were observed. On average, the AOFAS score increased by 50 points on average (25.7 to 76.6), and the VAS score decreased by 4 points (8.3 to 3.4). The mean calcaneal pitch increased from 5.5° to 15.2°. Nine patients transitioned from valgus malalignment (hindfoot angle greater than 10°) to the physiological (5 to 10° valgus) range.

**Conclusion:** Ankle-foot realignment is an essential condition for surgical success in AAFD; it promotes a soft-tissue healing environment while maintaining an adequate muscle line of action. Malerba Z-type osteotomy was found to be a safe technique with high potential for deformity correction, leading to functional and radiographic improvement in patients who undergo this surgery.

**Keywords:** Flatfoot/surgery; Malerba osteotomy; Outcome assessment (Health care).

