Metatarsus Adductus and Symptomatic Hallux Valgus Correction: A Case Series of Outcomes for Simultaneous Correction

Trudy Salmon Fellow, DPM¹, Douglas Blackledge FACFAS, DPM², J. Michael Miller FACFAS, DPM²
American Health Network, Reconstructive Foot and Ankle Surgery Fellowship. Indianapolis IN

Statement of Purpose

The purpose of this case series was to report on the outcomes of patients who underwent simultaneous correction of metatarsus adductus and symptomatic hallux valgus with a focus on pain relief and satisfaction with the procedure.

Literature Review

Osseous surgery for MA is described in the literature as early as 1921 when Bankart suggested the cuboid bone be excised for correction in children (3). For adult metatarsus adductus with hallux valgus the most popular procedures described in literature include that of Berman and Girdler who recommended dome shaped osteotomies to metatarsal bases and Lepird in 1981 describing closing base wedge osteotomies (27). Authors have also supported excision of metatarsal bases and arthrodesis of the medial tarsometatarsal complex (4,14). Consideration of the center of rotation and angulation (CORA) as well as the literature agrees the apex of the deformity lies in the region of the tarsometatarsal joint. More aggressive correction with smaller resections can be obtained as on moves proximal (8,9,16).

Various technique guides and few small case series regarding simultaneous correction of hallux valgus and metatarsus adductus have been published. Mahan and Jacko published a report on a 9-year-old with simultaneous correction utilizing closing base wedge osteotomies in metatarsals one through five (11). Literature supports procedures like base osteotomies in populations greater than 7 to 8 years of age (17). In 2002 Okuda and colleagues published a case report on one subject surgically addressing hallux valgus and metatarsus adductus and reported within their text that to their knowledge, no previous description of surgical correction of both HAV and MA for adult symptomatic HAV existed in the literature (14). Lahotz, in 2010, presented effective results correlating HAV with associated MA, employing only a rotational scar osteotomy and akin and without addressing lesser metatarsals in 32 feet (8). In 2014 Ayer and colleagues concluded metatarsus adductus did not predispose patients with HAV to poorer functional outcomes after scar osteotomy alone, in a prospective comparative study (1). Recent literature appears to support effective and satisfactory correction of HAV without surgically addressing lesser metatarsals in metatarsus adductus (8,10). Literature displaying outcomes after the intervention for both concomitantly is scarce.

Ayer and colleagues compared functional outcomes of patients with a metatarsus angle above 20 degrees and below 20 degrees. They utilized the visual analog scale, AOFAS hallux abducto valgus index, and the American Podiatric Medical Association’s Foot Function Index (FFI). As a result of their study, they concluded there is no significant difference in functional outcomes between patients with metatarsus adductus with or without hallux valgus.

Patient #1: A 68 year old female presented to the office complaining of painful bunion deformity persisting for many years. She had progressive increasing pain on the dorsal tarsometatarsal joints (TMTJ) which progressed to be more symmetrical than the bunion deformity and lead her to decide to correct her bunion due to progressive pain throughout the central TMTJs as her bunion a 1-3 TMTJ fusion was in her best interest.

Patient #2: A 55 year old male presented to the office after failing conservative therapy with recurrent fracture of the proximal 4th metatarsal shaft and associated pain. He had difficulty pain in his foot in shoe gear large his a small factory. We specifically discussed his foot structure and the relationship to his chronic stress fracture. We discussed the option of resection of the stress fracture region and reduction of his metatarsus adductus deformity in hopes of changing the forces through the foot. We proceeded with closing base wedge osteotomies for his lesser metatarsals and opening base wedge of his first metatarsal for correction of his metatarsus adductus.

Patient #3: A 54 year old female presented to the office complaining of progressive deformity and pain to forefoot especially her great toe joint. The decision was made that due to her severe metatarsus adductus and lesser metatarsals via closing base wedge would be appropriate. Due her rigidity and painful first metatarsal phalangeal joint (MTPJ) and short metatarsal length a first MTPJ arthrodesis and opening base wedge osteotomy was in her best interest.

Analysis and Discussion

Budimka and colleagues in a systematic review of the literature concluded that the Foot Function Index (FFI) is used extensively worldwide, pioneered a quantifiable measure of foot function and is reliable and has responsive hard data endpoints (5). Higher scores indicate greater disability/decreased function and its range is from 0%-100%. We chose this outcome measure for our patients and display satisfactory results with significant follow-up. This retrospective case series provides a pictorial review of the relationship of simultaneous correction of hallux valgus and metatarsus adductus. This case series also displays favorable and satisfactory outcomes.

Results

Follow-Up Time Food Function Index Score Pre Operative Images Post Operative Images

Patient #1

68F

16 month F/U

FFI 12.2%

Patient #2

55M

38 month F/U

FFI 2.5%

Patient #3

54F

38 month F/U

FFI 15.71%

References


