

Fifth Metatarsal Osteotomies



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KEYWORDS

• Bunionette • Osteotomy • Scarfette • Tailor's bunion

KEY POINTS

- A tailor's bunion or bunionette deformity is a combination of an osseous and soft tissue bursitis located on the lateral aspect of the fifth metatarsal head.
- A variety of surgical osteotomy procedures has been described for the bunionette deformity.
- Metatarsal osteotomies of the 5th metatarsal narrow the forefoot, maintain the length of the metatarsal, and preserve function of the metatarsophalangeal joint.

INTRODUCTION

A tailor's bunion or bunionette deformity is a combination of an osseous and soft tissue bursitis located on the lateral aspect of the fifth metatarsal head, and was first described by Davies¹ as a condition caused by splaying of the fifth metatarsal. The condition is often present with hallux valgus deformity, both of which are noted with a flexible splayfoot (**Fig. 1**).

Chronic shoe pressure over the lateral part of the fifth metatarsal head leads to hypertrophy of the overlying soft tissue; bursal thickening; and, less often, localized hyperkeratosis. In the presence of hallux valgus deformity, the width of the forefoot is increased, thereby causing increased pressure on the lateral side of the fifth metatarsal head. The cause of the deformity of the fifth metatarsal head can be a localized, enlarged bony prominence but most often the cause is a rotational movement of the fifth ray at its articulation with the cuboid. The fifth ray excessively pronates, leading to a progressive deformity that is accompanied by the fifth toe seeking an adductovarus position.²⁻⁴ The condition can also occur as a result of a structural deformity with both plantar flexion and abduction of the fifth ray, producing a plantar keratosis as well as a bunionette deformity. The plantar keratosis condition is most frequently seen in a cavus foot type.⁵

As in hallux valgus deformity, several retrospective studies indicate that the condition is between 3 and 10 times more common in women than in men and has

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Fig. 1. Classic bunionette deformity.

a peak incidence during the fourth and fifth decades of life.^{2,6} Conservative treatments may resolve some of the associated bursitis or fifth metatarsal-phalangeal joint, but are not likely to create any long-term benefits.²

SURGICAL PLANNING

In 1990, Fallat and Bucholz⁷ described a classification system for surgical management of symptomatic tailor's bunion. Type 1 is an enlargement of the lateral aspect of the fifth metatarsal head; type 2, a lateral bowing of the distal aspect of the pronated fifth metatarsal; type 3, an increased fourth-fifth intermetatarsal (IM) angle; and type 4, a combination of 2 or more deformities. Coughlin⁸ postulated that these criteria should enable the surgeon to better recognize the type of bunionette deformity and assist in the choice of an appropriate surgical technique.

A key radiographic measurement associated with a bunionette deformity is the IM angle between the fourth and fifth metatarsals, which normally averages 4.5° .^{2,7} This finding usually relates to the fifth metatarsal prominence distance (protrusion of the lateral metatarsal head surface from the shaft, measured by a line drawn along the lateral cortex of the fifth metatarsal shaft and another line drawn along the lateral cortex of the fifth metatarsal head; normal <4 mm)⁹; 4-5 metatarsal head distance (distance between the lateral cortex of the fourth metatarsal head and the medial cortex of the fifth metatarsal head; normal <3 mm)¹⁰; and the fifth metatarsal plantar-declination angle (horizontal bisection of the fifth metatarsal in relation to the weight-bearing surface; normal 108°).² The normal length of the fifth metatarsal is considered to be 12 mm shorter than the fourth metatarsal, producing a gentle oblique

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