

'Tightrope' Spares Bone

Alternative to osteotomy corrects bunions

By George B. Holmes Jr., MD

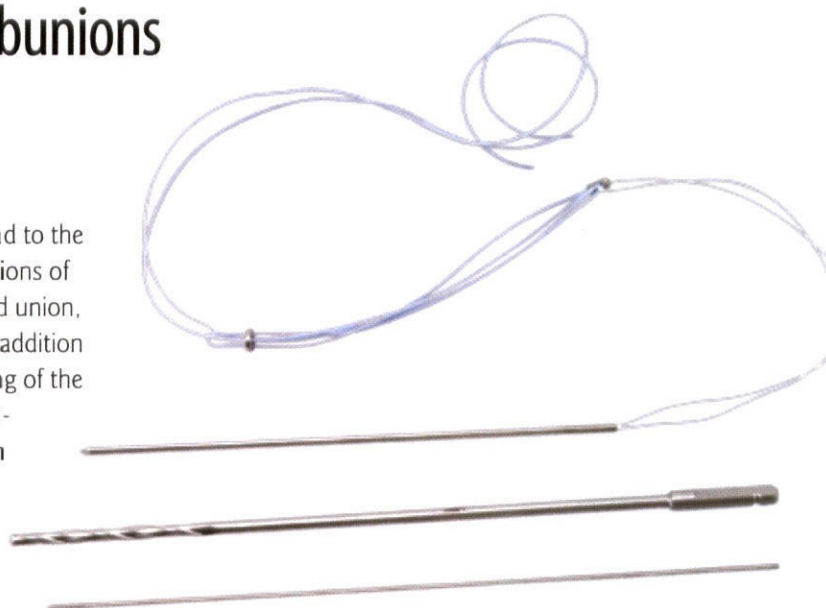
When you mention the word "bunion," what immediately comes to mind are the unsightly deformity of the great toe and tales of pain associated with the surgery to correct it. An estimated 200,000 bunion corrections are performed in the U.S. each year. Ten percent to 30 percent of these patients undergoing the traditional osteotomy technique for correction will experience significant complications.

The components of a bunion include a medial prominence of the great toe and a deviation of the great toe toward the second toe (Figure 1). This deformity can lead to pain whether wearing shoes or barefoot.

Traditional surgical correction requires an osteotomy (cutting of bone) in the first metatarsal to correct the deformity. However, in addition to postoperative pain, the

osteotomy can lead to the specific complications of nonunion, delayed union, and malunion. In addition to improper healing of the bone, further complications that can occur include shortening or dorsiflexion at the osteotomy site, which predisposes the forefoot to the development of lateral metatarsalgia (pain beneath the ball of the foot), transfer lesions, and intractable plantar keratosis (persistent calluses). At times it is very difficult to correct these complications.

Recent development of the mini-tightrope technique provides a surgical option other



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Figure 1 – Before surgery, the big toe (first metatarsal) is deviated away from the adjacent toe, a painful deformity called a bunion.



Figure 2 – The mini-tightrope procedure corrects the bunion by holding the toes closer together with two metallic buttons (shown) linked by wire.

than the selection of one of the many different types of osteotomies for to correct the intermetatarsal angle associated with a moderate to severe deformity. This new procedure decreases the degree of postoperative pain and reduces the degree and extent of potential postoperative complications.

Instead of the osteotomy and realignment of the first metatarsal closer to the second metatarsal, the mini-tightrope spans across both metatarsals and brings them together with a series of two Fiberwire attached buttons (Figure 2). Essentially, two metallic buttons are placed on either side of the first

and second metatarsals. They are attached by Fiberwire to reduce the intermetatarsal (IM) angle between these two metatarsals (Figure 3). Full correction of the IM angle between the first and second metatarsals, using the button, still requires removal of the medial eminence of the bunion as well as various soft tissue corrections.

After surgery, the patient wears a postoperative shoe or short walking boot for four to eight weeks. During this time, the patient wears a soft dressing changed on a weekly basis. The patient then returns to a firm, wide shoe and a toe spacer for an additional variable patient-specific period of time.

Advantages for the patient are that even if they develop the most common complication—recurrence of their bunion—they will have avoided the debilitating complications of avascular necrosis (lack of blood supply to the bone), malunion (healing of the bone in a poor position), nonunion (failure of the bone to completely heal), and shortening of the first metatarsal (leading to pain under the ball of the foot beneath the second metatarsal).

Pain and discomfort should be the major considerations for proceeding to surgical correction for bunion deformities. It is often difficult to distinguish between a patient's concern for appearance and actual discomfort, which emphasizes the importance of shoe modifications as the primary treatment option. If conservative care does not reduce symptoms, surgical correction can be considered.

However, most patients do not address all the steps they can take to lessen daily discomfort from bunions. These steps include the following.

Wear the correct size shoe. Wearing the correct size shoe is the single most important factor in achieving some level of comfort for patients with bunions. Because our feet widen as we age, most people need to move up to a larger size shoe, and sometimes more than one size.

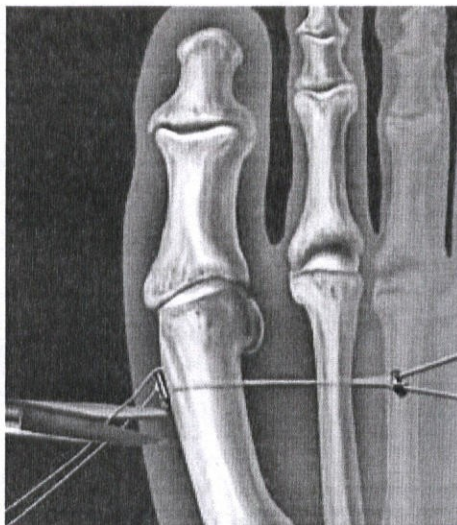


Figure 3 – The buttons and wire work to straighten the big toe and reduce the angle between it and the adjacent toe.

Modify shoe styles. The presence of bunions also requires patients to modify their expectations about shoe styles. Choosing shoes that have a wider, rounder toe box will result in a more comfortable fit because these shoe styles allow the toes to spread out. Shoes with pointed toes as well as high heels tend to aggravate bunions. If women want to wear heels, they should consider platform heels because they bend less than other types of heels and have a thicker cushion to pad the bottom of the foot, especially the ball of the foot.

Make small lifestyle changes. It is not necessary for women to discontinue wearing their higher heels altogether. However, reserve them for special occasions and events, wearing basic, comfortable shoes the remainder of the time.

Take OTC pain relief. Finally, anti-inflammatory drugs such as Motrin or Naproxen may provide relief from a throbbing bunion.

Note that devices marketed to the public such as bunion splints to straighten the toe and ease bunion pain when barefoot (typically overnight) generally do not perform because bunions are caused by significant contracture. Toe spacers, foam, rubber, or silicone gel devices worn between the toes can

make them more comfortable while wearing shoes, but they cannot correct the bunion. Only surgery can correct the deformity.

Discussions about surgery should begin after patients have made the above modifications in their footwear but continue to experience pain on a daily basis, and if the deformity interferes significantly with the normal activities of their lives. Age is also a critical factor. Typically, older patients respond more favorably to bunion surgery than those who are younger. The younger the patients, the more sensitive are the pain fibers. The older the patients, the more adept they are at handling the pain and discomfort that may accompany surgery. Statistically, younger patients are also more likely to have a recurrence of the deformity.

If surgery is indicated, the osteotomy-sparing technique offers a new approach to an old problem. We hope this new technique offers patients a less surgically invasive option to correct their painful bunion deformity. For information and video instruction, visit www.arthrex.com.



George B. Holmes Jr., MD, is a board certified orthopaedist who received his medical degree from Yale University. He completed two years of general surgery at Columbia Presbyterian Hospital in New York City, then completed his orthopaedic residency at Harvard University and Massachusetts General Hospital in Boston. Dr. Holmes completed fellowships in both foot and ankle surgery at Midwest Orthopaedics at Rush in Chicago. He has held a position on the editorial board of *Foot and Ankle International* since 1989.

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