CHAPTER **14**

MAKING THE LAPIDUS EASY

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The popularity of the Lapidus bunionectomy seems to ebb and flow over the years. When we compare it to other bunionectomy procedures, such as an Austin or similar distal metaphyseal osteotomies, there seems to be more reasons not to do a Lapidus. The main reason not to do an Austin bunionectomy may be that the deformity is too large or too flexible/unstable. For a Lapidus bunionectomy, the reasons for not choosing the procedure include: fear of excessive metatarsal shortening, delay or non-union of the fusion site, malunion with excessive dorsiflexion or plantarflexion of the first metatarsal, cast immobilization (and associated sequelae), technically more difficult than a distal metaphyseal osteotomy, and lack of experience with the procedure.

It is like anything else, there is a learning curve when doing a procedure a few times a year versus every week. We choose to do what we do best. We choose procedures that we feel confident that we can technically perform well. I hear all the time from colleagues that "I pushed the Austin" or "I did an Austin, but probably needed a base wedge or Lapidus." So for those cases, maybe we should hone our skills to perform a Lapidus when needed. The Lapidus bunionectomy certainly has its merits and I do them on occasion. In the right patient, you can get great correction especially in larger deformities. So, I want to break it down for you…"making the Lapidus easy." The technique that I use allows excellent visualization of the entire joint, and eliminates wedging and removing any "significant" bone.

First, there is some debate as to whether a lateral release needs to be done. My opinion is that if you have a young patient, there probably is not a significant hypertrophic metatarsal head (i.e., bunion) and if you can realign the great toe joint, then you do not need to do the distal metatarsophalangeal joint (MPJ) dissection. Similarly, in patients that really do not have a large intermetatarsal angle, but have a moderate to severe metatarsus adductus, then typically a lateral release is not necessary (Figures 1-3). In older patients, I tend to do a modified McBride as I feel there is hypertrophy of the medial metatarsal head and significant contractures/adaptation on the lateral MPJ. So in this scenario, the lateral release is beneficial. Remember the key to a successful long-term result in bunion surgery is that the metatarsal head is sitting on top of the sesamoids

Figure 1.

Figure 2.

Figure 3.

Figure 4.

and the medial condyle of the base of the proximal phalanx is sitting in the sagittal groove of the metatarsal head. If you obtain that, then the joint is congruent. Older patients have frozen sesamoids, joint contractures, and hypertrophy of bone. It order to realign the joint, one is going to need to do more than just reduce the intermetatarsal angle.

For illustration purposes, let us assume that we are going to do a modified McBride with the Lapidus. I do not use a tourniquet and it really is not necessary with anatomic dissection. However, it is surgeon's preference and you can certainly use one. I start the procedure with a standard modified McBride through a dorsomedial incision. Once that is complete, I will do a medial incision for the Lapidus. I will mark the midline bisecting the dorsal and plantar margins of the foot. The incision is then made over the proximal metatarsal and medial cuneiform. The incision is typically 4-5 cm in length. Once the incision is made, you will encounter small veins that you can cauterize with a Bovie. Next the pseudo deep fascia layer is encountered, which can be cut with a scissors. The larger veins are now visible in this layer of the fat. Tributaries from the medial marginal vein are running dorsal to plantar. These tributaries will need to be clamped, cut, and tied. The dorsal tissues will have the main vein trunk, which is protected with retractors.

Now that the vein has been appropriately managed, a scalpel can be used to incise the deep tissues, which include the capsule and periosteum layer. The tibialis anterior tendon will always be in the way and you may need to partially release some of the inferior attachments to work around it. Unlike the more dorsomedial approach to the joint, there are no significant nerve trunks in this area. The capsule and periosteum are then reflected and it is paramount that the dorsal joint ligaments are released. A simple trick is to take a Freer elevator or mini-Hohmann retractor to tent up the dorsal tissues and then you can slip the scalpel blade inside to outside of the joint releasing soft tissues and ligaments. Complete mobilization of the first metatarsal base is required to get the correction that you need.

Once the first metatarsal base is released from soft tissues, I will use a mini-joint distractor to open the joint. You can use an AO mini-joint distractor or a Hintermann type device (Figure 4). When the joint is distracted, you will know if you have any remaining soft tissues that need to be released and if so, you can do that now. I generally will remove the cartilage with curettes down to the subchondral bone plate. Subchondral drilling can be done at this time or you can fish scale with a narrow osteotome, or take a small round burr to make holes to break through the subchondral bone. The next step is to remove the joint distractor and to use a small periarticular clamp, which is placed on the medial first and lateral second metatarsal necks. The clamp is gently squeezed until the intermetatarsal angle is reduced to zero or having the first metatarsal parallel to the second metatarsal. I will generally make a small stab incision on the lateral border of the second metatarsal neck for the placement of the clamp.

Once the desired correction is obtained, I will use a sagittal saw to plane the first metatarsocuneiform joint in the corrected position. The saw is inserted medial to lateral

making sure the dorsal and plantar edges are planed as well. Typically, one is taking more bone off of the cuneiform at the lateral side to "straighten" out the joint. Once the surfaces are prepared with the saw, I will use a rongeur to remove bone and cartilage fragments. At this point, it is imperative to make sure that there is not a ledge of bone on the plantar aspect of the fusion site. You can always use the joint distractor to better visualize the joint surfaces.

The clamp is left intact while placing a 0.062 Kirschner wire for temporary fixation. At this time, you can implement whatever permanent fixation you like. I prefer two Nitinol compression staples, one dorsal and one medial. The staples provide extra-articular fixation as well as bi-cortical compression (Figures 5-8). Technically this is much easier and quicker than inserting lag screws with or without a plate. Standard layer closure and dressings are applied in addition to a well padded below knee posterior splint.

Regardless of the type of fixation employed, I will typically keep these patients non-weightbearing for 4-6 weeks. After the first postoperative check up, I will place the patient in a fracture boot. They can now do range of motion exercises of the great toe joint and ankle joint motion to prevent deep venous thrombosis and minimize calf atrophy. Hopefully, this technique guide breaks down the Lapidus bunionectomy into something that is simple and straight forward.

Figure 5.

Figure 6.

Figure 7.

Figure 8.