

Minimally Invasive Morton's Neuroma Decompression Surgical Technique using the KobyGard™ System

Indications for Intermetatarsal Nerve Decompression:

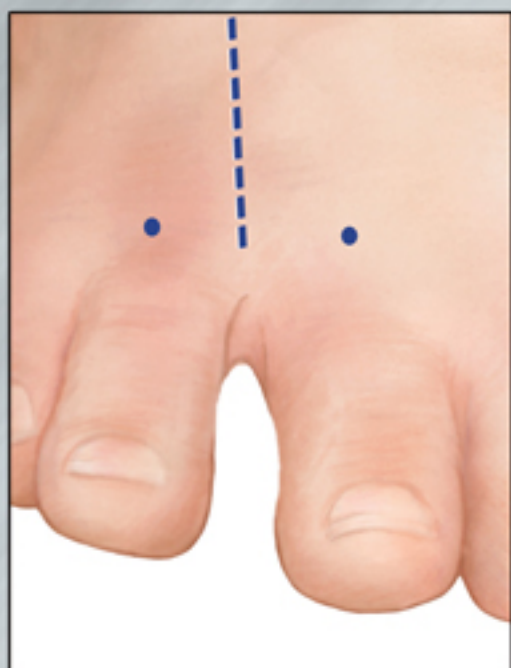
1. Chronic Neuroma pain unresponsive to conservative treatment.
2. Surgeon wishes to decompress the nerve rather than excising it.

Patient Preparation:

The patient is placed in the supine position and local anesthesia is achieved. The patient is prepped and draped in the usual manner. Hemostasis is achieved according to the surgeon's preference.



SURGICAL TECHNIQUE



STEP 1

In order to ensure proper alignment of the instrumentation, a line is made with a surgical marker and straight edge that is parallel to the adjacent metatarsals in the appropriate interspaces.



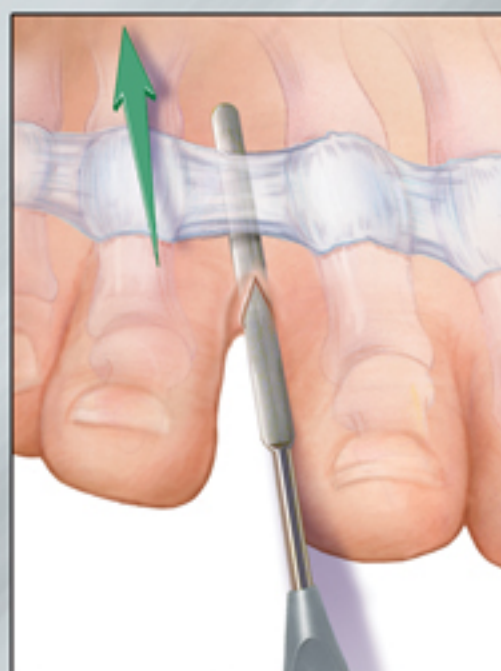
STEP 2

Using a #15 blade, a 7mm vertical incision is made in the web space. This incision is made vertically to protect the neuro-vascular bundle to the toe.



STEP 3

A small curved Metzenbaum scissor is then used to palpate and create a small plane on the plantar aspect of the transverse metatarsal ligament (TML).



STEP 4

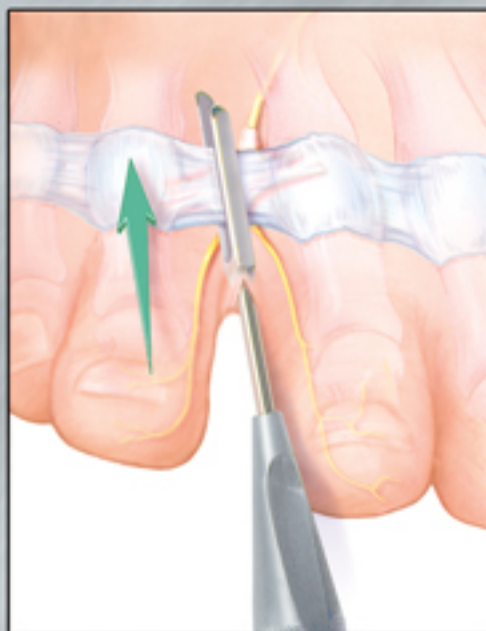
The Tissue Locator is then used to extend the plane across the underside of the TML. Care is taken to insure that all instruments are introduced in a parallel manner to the adjacent metatarsals.



A COLSON ASSOCIATE



Morton's Neuroma Surgical Technique (continued)

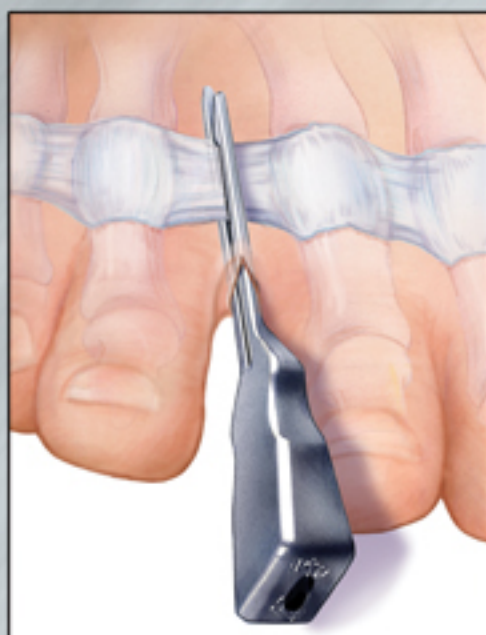
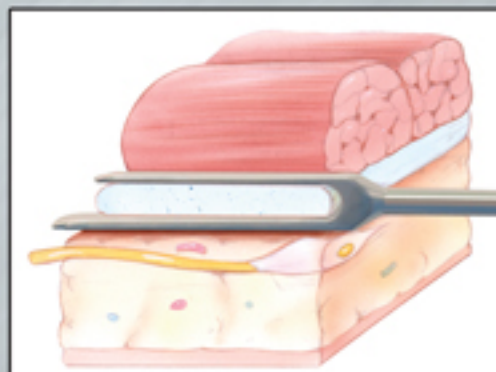


STEP 5

The Ligament Separator is then introduced in order to separate the TML from surrounding tissue and to create planes plantar and dorsal to the TML to assist in the proper placement of the KOBYGARD™ instrument.

STEP 5a

The cross-section shows the Ligament Separator in place with the TML captured. The Separator has a 5mm gap between the upper and lower prongs. The lower prong extends approximately 1/2 inch further than the upper prong to allow for initial palpation of the underside of the ligament before introduction and capture of the TML.

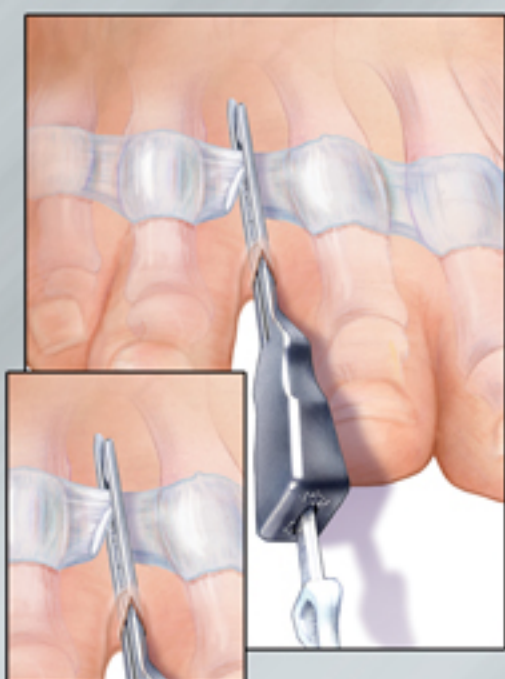
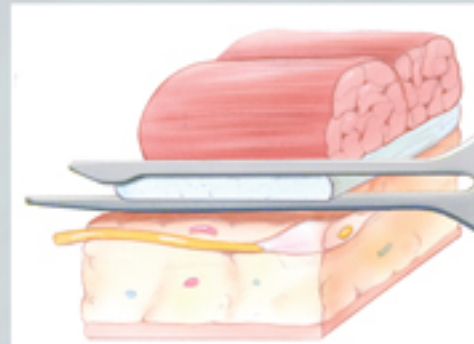


STEP 6

After removal of the Ligament Separator, the KOBYGARD™ instrument is introduced and positioned securely around the ligament using the same palpation technique used previously with the Tissue Locator and Separator. Care is taken to insert the KOBYGARD™ into the previously separated tissue planes dorsal and plantar to the ligament.

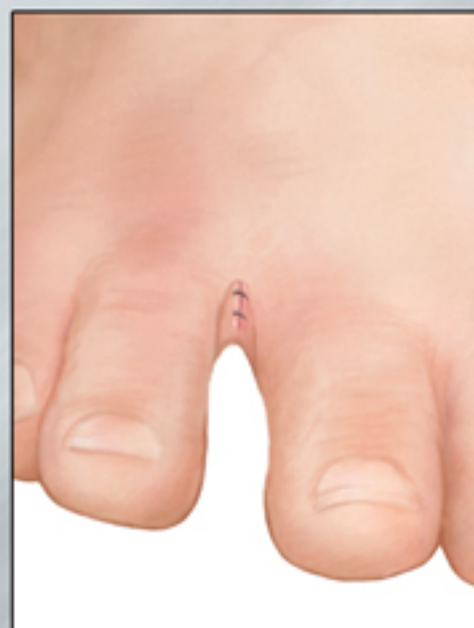
STEP 6a

The cross-section shows the KOBYGARD™ instrument positioned around the TML. The KOBYGARD™ Flex Tip design allows for isolation of the TML regardless of its thickness and protects the nerve and surrounding soft tissue structures from damage during the procedure. The longer, lower prong of the KOBYGARD™ is plantar to the ligament and the short upper prong is dorsal. The KOBYGARD™ has a slotted channel extending through the handle and passing throughout the length of the instrument allowing the passage of the blade while incising only the enclosed TML.



STEP 7

Once the KOBYGARD™ instrument is properly positioned, the blade is introduced into the slotted channel until initial resistance of the distal edge of the TML is felt. The blade is advanced proximally within the KOBYGARD™ instrument incising the TML with a controlled cut. When resistance from the TML is no longer felt, the ligament has been completely incised.



STEP 8

The KOBYGARD™ instrument and blade are then removed. The Tissue Locator can then be reintroduced to palpate between the metatarsal heads for confirmation of a successful release. The incision is closed with one or two interrupted sutures.

SURGEON'S POST-OP TREATMENT PROTOCOL

1. The patient is placed in a post op shoe for ambulation.
2. Immediate ambulation is allowed as tolerable.
3. The surgical dressing is removed at 48 hours with return to comfortable shoe gear as tolerable.
4. The sutures are removed at one week and full activity is allowed as tolerable.

These are only recommended protocols and each case should be treated independently at the surgeon's discretion.

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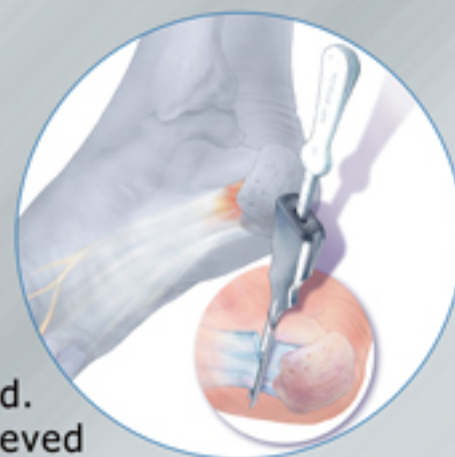
Minimally Invasive Plantar Fasciotomy Surgical Technique using the KobyGard™ System

Indications for Plantar Fasciotomy:

Chronic plantar fasciitis unresponsive to conservative treatment.

Patient Preparation:

The patient is placed in the supine position and local anesthesia is achieved. The patient is prepped and draped in the usual manner. Hemostasis is achieved according to the surgeon's preference.

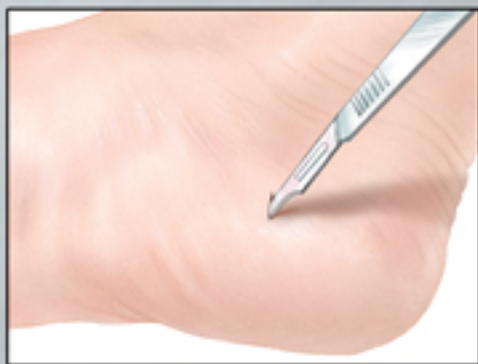


SURGICAL TECHNIQUE



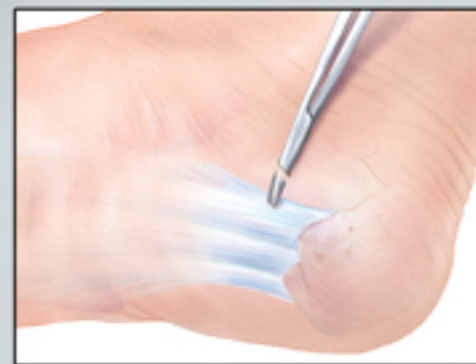
STEP 1

The surgeon palpates the medial calcaneal tubercle. A one centimeter vertical incision is marked one centimeter distal to the palpated tubercle on the medial inferior aspect of the heel. This will avoid the neurovascular bundle.



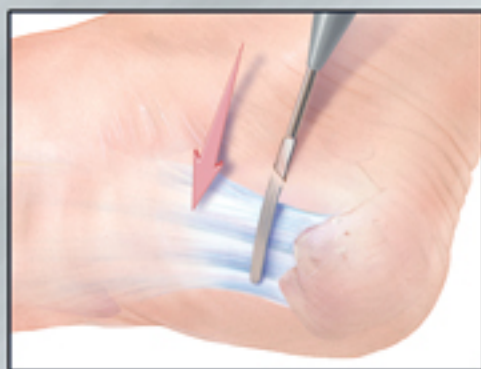
STEP 2

Using a #15 blade, the vertical incision is made at the previously marked incision site.



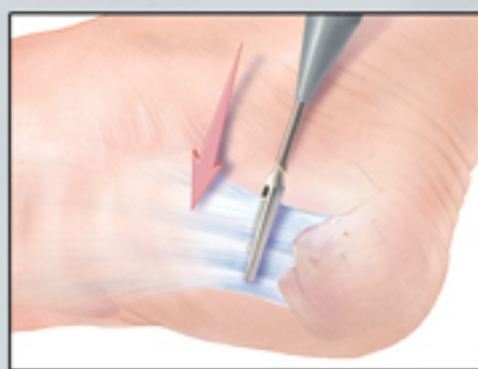
STEP 3

Utilizing small curved Metzenbaum scissors, the incision is deepened to start a plane under the plantar fascia and dorsal to the subcutaneous tissue. This plane is initiated by palpating the underside of the medial aspect of the plantar fascia.



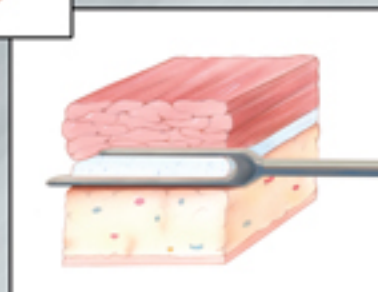
STEP 4

The Tissue Locator is used to extend the plane created by the Metzenbaum scissors across to the lateral aspect of the plantar fascia.



STEP 5

The Fascia Separator is then introduced to isolate the plantar fascia between the subcutaneous tissue and first layer of intrinsic muscles.



STEP 5a

The cross-section illustrates the Fascia Separator positioned around the plantar fascia. The Fascia Separator has an upper and lower prong separated by a 5mm gap. The lower prong extends approximately 1/2 inch

further than the upper prong to allow for initial palpation of the underside of the fascia before introduction and capture of the plantar fascia.



A COLSON ASSOCIATE



Plantar Fasciotomy Surgical Technique (continued)

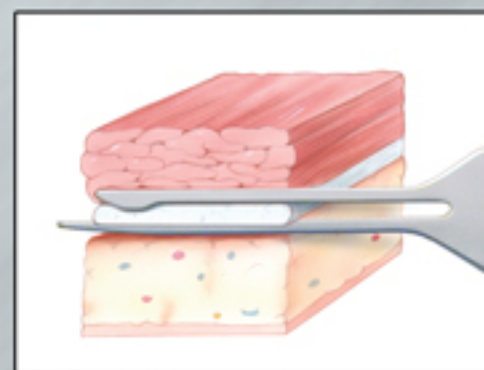


STEP 6

After removal of the Fascia Separator, the Kobygard™ instrument is introduced and positioned securely around the plantar fascia using the same palpation technique used previously with the Tissue Locator and Fascia Separator. Care is taken to insert the Kobygard™ into the previously separated tissue planes dorsal and plantar to the fascia.

STEP 6a

The cross-section illustrates the Kobygard™ instrument positioned around the plantar fascia. The Kobygard™ Flex Tip design allows for isolation of the plantar fascia regardless of its thickness and protects the surrounding soft tissue



structures from damage during the procedure. The longer, lower prong of the Kobygard™ is plantar to the fascia and the short upper prong is dorsal. The Kobygard™ has a slotted channel extending through the handle and passing throughout the length of the device allowing the passage of the blade while incising only the enclosed fascia.

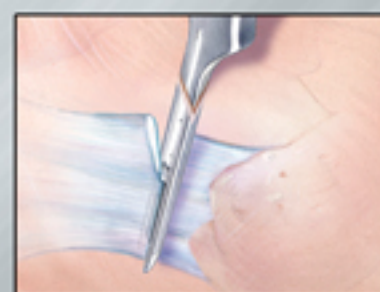
STEP 7

The calibrated shaft of the cutting blade is marked with ½ centimeter increments that are used as a reference point to the proximal end of the Kobygard™ handle when the blade is placed on the bottom of the foot in the position needed to make the desired length of the cut. This illustration represents the marking and premeasuring needed to incise ½ the plantar fascia. A surgical pen can be used to mark the blade shaft at the stopping point if desired.



STEP 8

The blade is then placed into the Kobygard™ instrument and pushed toward the lateral aspect of the foot as the foot is dorsiflexed to create tension on the plantar fascia. The surgeon can feel the resistance of the plantar fascia as it is incised. When the blade reaches the previously determined calibrated mark, the desired length of cut has been achieved.



STEP 9

The Kobygard™ instrument and blade are then removed and the incision is closed with one or two interrupted sutures.

SURGEON'S POST-OP TREATMENT PROTOCOL

1. A compression dressing is applied to the foot.
2. Immediate ambulation is allowed as tolerable. (A removeable cast boot can be utilized for the first three weeks. This can provide additional protection of the foot during ambulation and keep the fascia stretched in a lengthened position when patients are immobile.)
3. The dressing is removed after 3 to 7 days, and the patient is allowed to return to comfortable shoe gear as tolerable.
4. The sutures are removed after 14 days.
5. Full activity is allowed as tolerable.

These are only recommended protocols and each case should be treated independently at the surgeon's discretion.