AM™ SURGICAL
Endoscopic Gastrocnemius Release
SURGICAL TECHNIQUE
Endoscopic Gastrocnemius Release Surgical Technique

Surgical technique developed by:
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Indications
Endoscopic Gastrocnemius Release (EGR) is indicated in the treatment of posterior heel cord contracture (equinus) in those patients who fail to respond to a full course of conservative management. Appropriate patients include those undergoing reconstruction of foot deformity and those with potential for neuropathic ulceration (i.e., diabetics). A patent has been applied for.

Training
For safe and effective use, surgeons must have thorough knowledge of leg anatomy, open procedures for the gastrocnemius release/recession and surgical technique using this instrumentation (Figure 1). Instructional video tapes and cadaver workshops are strongly recommended.

Warning
If, while performing this technique, any problems should arise (such as anatomical anomalies, inadequate visualizations, inability to identify anatomy, or questions concerning technique or instrumentation), the surgeon should abandon the endoscopic gastrocnemius release and convert to an open procedure.

Acknowledgements
We would like to thank:
Dan Bareither, Ph.D., for access to the cadaver lab at the Scholl College of Podiatric Medicine.
Arthur Widtfeldt, D.P.M., for contributing his patients and ideas.

Proper surgical procedures and techniques are the responsibility of the medical professional. The following guidelines are furnished for informational purposes only. Each surgeon must evaluate the appropriateness of the procedures based on his or her personal medical training and experience. Prior to use of the system, the surgeon should refer to the product package insert for complete warnings, precautions, indications, contraindications and adverse effects. Package inserts are also available by contacting Wright Medical Technology, Inc.
Surgical Technique

Introduction
There are advantages to the Endoscopic Gastrocnemius Release (EGR). They include smaller incision(s) with less loss of function in the early postoperative period and the ability to regain propulsion. Concerns with endoscopic surgical techniques include potential complications (such as neurovascular injury), as well as a learning curve.

Positioning the Patient
The heel may be placed on a sterile bulky towel roll if the patient is supine. This allows the instruments to pass freely. The surgeon must take care, however, not to allow the knee to be in recurvatum when assessing ankle dorsiflexion. Alternatively, as an isolated procedure, the EGR may be performed with the patient in the prone position.

Anesthesia
General anesthesia is preferred.

Incision
Palpate the Achilles tendon. Identify a region 10 cm–15 cm proximal to the medial malleolus. Make a 1 cm–2 cm vertical incision medially, posterior to the neurovascular structures and 2 cm–3 cm below the medial gastrocnemius muscle belly (Figure 2 and Figure 3).

Figure 1 | EGR Instrumentation

Figure 2 | 1-2 cm Vertical Incision

Figure 3 | Elevator
Creating the Pathway

Using the Fascial Elevator, bluntly dissect down to the fascia. Separate the subcutaneous tissue (which contains the neurovascular structures including the greater saphenous vein, medial sural cutaneous, sural, and saphenous nerves) from the gastrocnemius fascia.

Remove the Fascial Elevator and introduce the Cannula/Obturator assembly into the same pathway. Remove the Obturator from the Cannula and insert a 4 mm, 30° endoscope. The neurovascular structures are completely protected in this manner.

Identification of the Gastrocnemius Fascia

Insert the endoscope into the Cannula to visualize the gastrocnemius fascia (Figure 4). The fascia is well visualized and looks similar to endoscopic visualization of the plantar fascia. If the fibers of the gastrocnemius fascia are not clearly defined, the Rasp may be passed through the Cannula several times to remove soft tissue adhering to the gastrocnemius fascia.

Note: Throughout the procedure, whenever necessary, sterile absorbent swabs may be used to remove fluid from within the Cannula. With the endoscope reintroduced into the Cannula, rotate 180° to view the sural nerve laterally. Identification of the nerve will aid in avoidance. Once identified, rotate the Cannula back 180° to protect the neurovascular structures.

Lateral Port

In order to improve visualization, an optional lateral port may be created by first transluminating laterally from the medial approach. This should help reveal any potential branches from the sural nerve. Also, the Cannula may be angled upward slightly since the lateral gastrocnemius muscle belly does not extend as far inferiorly as it does medially. Carefully make a cut down incision over the protruding Cannula laterally. Introduce a Fraser suction tip irrigation device into the Cannula through the lateral portal, thus improving visualization throughout the procedure.

Division of Gastrocnemius Fascia

Temporarily remove the endoscope and affix the patent-pending Scope-Mounting Blade onto the endoscope using the locking device (as shown on page 6).

Introduce the Scope-Mounted Blade into the Cannula and, as you observe the monitor, divide the gastrocnemius fascia in a medial-to-lateral direction by advancing the Scope-Mounted Blade through the Cannula (Figure 5). Follow the curvature of the gastrocnemius fascia while making your release. Dorsiflexion while cutting, as well as pushing against the Cannula from below, are two technical maneuvers that will increase the depth of the gastrocnemius transection.

If inadequate release is obtained from the medial approach, a lateral portal can be created. After transluminating, carefully make an incision, avoiding neurovascular structures laterally over the Cannula with a slight angle. Angling superoposteriorly may improve visualization, as the lateral gastrocnemius aponeurosis extends more superior. Remove all instrumentation and reinsert laterally to perform an additional lateral-to-medial release.
Confirming Adequate Release

Remove the Scope-Mounted Blade from the endoscope and introduce the endoscope into the Cannula to visualize the divided fascia. A complete division is accomplished when the overlying muscle is seen without any intervening fibers of the gastrocnemius fascia (Figure 6). Additionally, rotate your view to ensure the neurovascular structures are intact.

If at least 10° of dorsiflexion is not noted, explore the medial incision and extend as necessary. This is in order to transect, under direct visualization, any remaining medial fibers of the gastrocnemius aponeurosis and the plantaris tendon.

*Warning:* The disposable Scope-Mounting Blade is designed for one-time use only. Resterilization may result in blade detachment, potentially causing harm to the patient.

Skin Closure/Dressings

Remove the Cannula from the foot using the Obturator and flush the area with normal saline.

Close the incision with horizontal suture(s). Infiltrate the surgical area with 5 cc of 0.5% marcaine plain.

Apply a sterile compressive gauze dressing and release the tourniquet. Apply a 4-inch elastic bandage, along with a posterior splint or below-the-knee cast, at 90°.

Postoperative Care

Allow patients to be fully weight-bearing if no other procedure is performed. An additional reconstructive procedure determines weight-bearing and immobilization status.

Re-evaluate the patient at the 2nd or 3rd week for suture removal and at two or three months, with a one-year postoperative follow-up.

Encourage weight-bearing to the patient’s own tolerances. Depending on the patient’s occupation, return-to-work intervals can vary from 3 days to 4 weeks (Saxena).
Use of Locking Device (use with 4mm, 30º Scope)

Before attempting to insert the Scope-Mounting Blade into the locking device, be sure the lever is positioned toward the straight side of the device, which is the “open” position (as shown).

Gently insert the flared end of the Scope-Mounting Blade into the angled side of the locking device, aligning the flat side of the Scope-Mounting Blade’s ring with the bottom of the locking device. A click will be heard when the Scope-Mounting Blade is properly engaged.

Insert Scope-Mounting Blade onto the 4mm 30º endoscope. When the endoscope is almost touching the Scope-Mounting Blade, gently push the lever forward until finger tight. DO NOT OVERTIGHTEN LEVER (TO AVOID DAMAGING ENDOSCOPE).
Suggested References:


### Ordering Information

#### Instruments

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#### Scope-Mounting Blades

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