SYMPOSIUM 7:  
WHAT’S NEW WITH THE GASTROC?

FRIDAY, July 19, 2013
11:50 am – 12:10 pm

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WHAT’S NEW WITH THE GASTROC?

Moderator:
Judith F. Baumhauer, MD, MPH
Rochester, New York

11:50 am
Indications: Who, What, When, Where and Why?
Donald R. Bohay, MD
Grand Rapids, Michigan

11:55 am
Gastrocnemius Lengthening Techniques: Go High; Go Low; Go Medial; Go Lateral?
Samuel and Pierre Barouk, MD* (supplied handout)
Yvrac, France

Pascal F. Rippstein, MD ** (presenting)
Zurich, Switzerland

Different locations are performed to lengthen the Gastrocnemius. The two main are Proximal (Go High), or Distal (Go Low).

Go High: Proximal section, very close of the condyle insertion.
-Historically: First, on spastic patients, a total proximal section, including muscular fibers, was performed by Silfverskiold in 1923, (9). Since 1996, on NO spastic patients, LS Barouk performed the proximal section only of medial and lateral white fibers
(1). The lateral section may provide some problems with the deep fibular nerve, and anyway in this location there is no tendon, just aponeurosis. So that, Since 2005, LS, P Barouk and JA Colombier (2), then De los Santos (3) performed the only section of the medial tendon, which is by far the most important, (4) (so Go Medial) with similar results, and this last technique continue to be performed, being the current standard of proximal gastrocnemius lengthening.

-Advantages:
1.-Post operatively: with this last technique, (High medial), no immobilization, return to walk the day following the operation, No post-operative training, just a heel support shoe during 3 weeks.
2. The bilateral section is very easy, and it is often necessary, because the gastrocnemius tightness is bilateral.
3. This technique is without any risk, really mini invasive and without gastrocnemius strength decreasing.

-Limitation: the patient has to be in prone position, so that it is difficult to perform in the same time a foot surgery, but this is compensated by the frequent necessity of a bilateral recession, which is very easy with this technique.
When to perform? Generally one week minimum before a local surgery on the foot, when necessary, or isolated, when the gastroc. recession is enough to correct the troubles.

**Go Low. On the distal junction of the soleus and gastrocnemius.**

- **Open procedure** This distal recession was performed first by Vulpius in 1913 (11), it was just an horizontal section of the gastrocnemius distal aponeurosis; then Vulpius adopted a section in V. Baker performed a section in U, and Strayer (8) the same horizontal section than Vulpius first description but with a suture. The currently used technique is the first described by Vulpius, so not the Strayer one. The incision may be strictly Posterior, but it may be more medial, as showed by Delmi (4). this allowing to reach easily the medial part which is thicker and more important to cut. (Go medial) This medial approach is furthermore easier to cut only the gastrocnemius aponeurosis.

- **Endoscopic section** It was first performed by Saxena in 2002 (7), then by Tashjian (10 ), then Rabat (5). It is a minimally invasive technique, reliable, and with less risk of sural nerve lesion. It seems to be used more and more, but less than open procedure.

**Advantages** of both open or endoscopic procedure: They may be performed in prone or supine position, and in the same time that a foot surgery. Furthermore, It provides a large lengthening of the gastrocnemius.

**Limitations** of both low techniques -
1. Post operatively, a cast or splint is necessary, and training is necessary.
2. This technique may provide lesion of the sural nerve, fortunately rare, and secondary rupture of the Sagittal fascia of the soleus.
3. Since the distal junction of the soleus and gastrocnemius is extended, it may be difficult to cut only the gastrocnemius aponeurosis. In many cases, the cut is more distal, involving the aponeurosis of both soleus and gastrocnemius. P Rippstein (6) propose 3 levels of section: proximal for just gastrocnemius cut, distal for both soleus and gastrocnemius aponeurosis section, and intermediate. Furthermore, the low technique is generally performed unilaterally, while the gastrocnemius tightness is in almost all cases bilateral.

When to perform? Generally in the same time than a foot surgery. A specific indication is when it is combined to a rear foot surgery, like Achilles rupture or avulsion, but this technique has also the same indications that the proximal section.

**Conclusions**

Whatever their location, the only gastrocnemius lengthening is sometimes sufficient to correct some troubles like metatarsalgia, plantar fasciitis, Achilles tendinopathy, lombalgia, instability of the lower limbs or of the ankle. But, whatever the foot problem, the gastrocnemius lengthening, in case of their tightness, ensure the result of any local surgery. **Go high and medial** is very simple, without any risk or decreasing the calf strength. But it needs a prone position to be performed, so cannot be performed in the same time that a foot surgery **Go Low** is more powerful if it includes a part of soleus aponeurosis, but may jeopardize the sural nerve. It requires a post-operative immobilization, but it can be performed in a prone or supine position, so that in the same time than a local surgery, above all when post op. immobilization is required.

So, each location and technique has his own indication, So may are complementary.

**REFERENCES**


9. **Silfverskiold N.** Reduction of the uncrossed two joints muscles of the leg to one joint muscles in spastic conditions. *Acta Chir. Scand.*, 56:315-104. 1924


**12:00 pm**

**Horror Stories and How to Avoid Them**

G. Andrew Murphy, MD
Germantown, Tennessee

**12:05 – 12:10 pm**

Discussion