The Italian Center of Excellence for Hernia Surgery

A NEW VARIANT OF THE GUARNIERI’S TECHNIQUE FOR INGUINAL HERNIA REPAIR

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Right Inguinal Canal

The new variant

Why use this technical variant:

according to the Laplace law of physics we have to reduce and reinforce the inguinal triangle. With this new variant we do not use any mesh for treating inguinal primary hernia. We have now a recurrence rate of 0.5%.
The internal ring is involved in External Oblique Hernia

The internal ring must be:
- Calibrated
- Reinforced

The inguinal triangle must be:
- Reduced
- Reinforced
Treatment of the internal ring (indirect hernia)

Isolation of the transversalis fascia under the internal oblique muscle: at this level the transversalis fascia is stronger

The cremasteric fibers are incised medially and cranially to isolate the cord elements

Treatment of the internal ring (indirect hernia)

Preliminary steps
The isolated indirect hernia sac is pushed back towards the preperitoneal space. The preperitoneal fat is kindly isolated and detached from the transversalis fascia and pushed to expose the lateral border of the rectus muscle.

An incision of the transversalis fascia is performed medially and cranially under the internal oblique muscle
Treatment of the internal ring (indirect hernia)

The cord elements are brought to the medial angle of the incision and are then transposed medially and cranially under the internal oblique muscle.

The original internal ring, surrounded by weak tissue, is closed with a running suture.

Treatment of the internal ring (indirect hernia)

Keeping the previous running suture the cremaster is overlapped to reinforce and completely close the old internal ring.
Treatment of the inguinal triangle (direct hernia)

An incision of the transversalis fascia is performed from the internal ring toward the pubic tubercle. The preperitoneal fat is kindly pushed and detached from the lateral border of the rectus muscle and isolated from the transversalis fascia.

Treatment of the inguinal triangle (direct hernia)

It is possible to place a fenestrated mesh over the preperitoneal fat before starting the running suture of the transversalis fascia.
Treatment of the inguinal triangle (direct hernia)

The running suture joins the lateral flap of the transversalis fascia with the lateral border of the rectus muscle fascia.

The running suture starts at the level of the pubic tubercle to reach the epigastric vessels.

The internal ring for now remains untreated.
Treatment of the inguinal triangle (direct hernia)

On the way back, the running suture joins the medial flap of transversalis fascia over the lateral one. We do not take the inguinal ligament in the suture. The transversalis fascia is now double breasted.
Now it is possible to treat the internal ring as previously described.

Treatment of the superficial layer

Internal Oblique muscle
Medial flap of external oblique aponeurosis detached
Point where the internal oblique muscle inserts on the rectus muscle fascia. This point is rather high in hernia patients
Lateral flap of external oblique aponeurosis
Pubic tubercle
Rectus muscle fascia
Treatment of the superficial layer

A running suture joins the lateral flap of the external oblique aponeurosis with the rectus muscle fascia. The suture starts from the point of inferior insertion of the internal oblique muscle toward the pubis.

The remaining lateral flap is sutured over the spermatic cord.

The spermatic cord exits from here, a new external ring is performed.

Medical flap of external oblique aponeurosis well detached and isolated from the rectus muscle.
Treatment of the internal ring (indirect hernia)

The internal ring is now calibrated, reinforced and placed in a stronger area of the transversalis fascia under the internal oblique muscle.

Treatment of the inguinal triangle (direct hernia)

Internal oblique muscle retracted and isolated by the transversalis fascia.

Epigastric vessels

Medial border of the transversalis fascia

Lateral border of rectus muscle cleaned by the preperitoneal fat

Lateral border of the transversalis fascia

Medial External oblique aponeurosis detached by the rectus muscle.
Treatment of the superficial layer

If necessary a relaxing incision on the rectus muscle fascia can be performed to lateralize the rectus muscle and to reduce the size of the inguinal triangle.

Ante funicular double breasted suture of the external oblique aponeurosis

External inguinal ring

Retro funicular double breasted suture of the external oblique aponeurosis

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Treatment of the superficial layer: The new variant

After performing the relaxing incision on the rectus muscle fascia. The fascia can be overturned and used as a biological prosthesis.
Treatment of the superficial layer

The medial flap of the external oblique aponeurosis is sutured over the lateral one leaving space for the exit of the spermatic cord.

Ante funicular double breasted suture of the external oblique aponeurosis

External inguinal ring

Retro funicular double breasted suture of the external oblique aponeurosis

Treatment of the superficial layer: The new variant

In the new variant the rectus muscle fascia is placed between the two external oblique layers, acting as a biological prostheses and expanding the rectus muscle laterally.
The new variant
This is a section of the Guarnieri’s classic technique

Overlapped
External Oblique
aponeurosis

Inguinal
ligament

Double breast suture of the
transversalis fascia

Rectus muscle

Guarnieri’s classic technique

The new variant
The relaxing incision of the rectus muscle fascia expands the rectus muscle towards
the inguinal ligament reducing suture tension and reducing the passive area (the
area without musculature of the inguinal triangle).

External Oblique
aponeurosis

Relaxing incision over
the rectus muscle

Inguinal
ligament

Double breast suture of the
transversalis fascia

Rectus muscle

Guarnieri’s classic technique: section of the deep floor treatment
The new variant: reinforcement of the inguinal triangle

Lateral flap of external oblique aponeurosis

Overturned rectus muscle fascia

Medial flap of external oblique aponeurosis detached from the rectus muscle

Rectus muscle fascia

Inguinal ligament

Overlapped transversalis fascia

Rectus muscle (red fibers)

The Guarnieri’s new technical variant: the incised rectus muscle fascia is overturned over the lateral external oblique aponeurosis

The new variant: reinforcement of the inguinal triangle

Lateral flap of external oblique aponeurosis

Overturned rectus muscle fascia

Medial flap of external oblique aponeurosis detached from the rectus muscle

Rectus muscle fascia

Inguinal ligament

Overlapped transversalis fascia

Rectus muscle (red fibers)

The Guarnieri’s new technical variant expands the rectus muscle, reinforce the inguinal triangle, reduce suture tension, reduce the extension of the inguinal triangle