Post Operative Management & Rehabilitation

Based on our current knowledge of tendon healing, the post-surgical period can be divided into 4 successive phases. The success of the percutaneous technique depends on these 4-phases being respected.

**D 21 to D 21**

**Primary Callus Formation Phase**
- Sprint immobilization: in a supine position in a proneless environment, with no weight-bearing.
- Gentle mobilization, less than 90°.
- Painless.
- Start rehabilitation.
- Proprioceptive rehabilitation of the lower limb: recovery of joint movement range.
- Recovery of the tendon's physical properties.
- Continued recovery of the Achilles tendon.
- Gradual resumption of sports activities (D90) and competitive activities (D120).
- Continued recovery of the triceps.
- Limitation of the Achilles tendon to 90°.
- Painless.
- Activity for plantar flexion.
- Careful disinfection, outpatient procedure.
- Sport permitted: running.

**D 21 to D 45**

**Connective Healing Phase**
- Phase promoted by weight-bearing and mobilization.
- Mobilization in proneless environment risk.
- Start assisted weight bearing.
- Removal of the TENOLIG on D45: by sectioning through the threads under the buttons, "in situ".
- Total weight bearing in shoes, without plantar orthosis.
- No jumping on one foot.
- Gradual resumption of sports activities.
- Painless.
- Activity for ventral flexion.
- Recovery of joint movement range.
- Painless.
- Successful palpation of the scar at 1 year of follow-up.
- Recovery of joint movement range.
- Active for dorsal flexion.
- Careful disinfection, outpatient procedure.
- Sport permitted: running.

**D 45 +/- 7 days**

**Removal**
- Removal of the TENOLIG as D45: by sectioning through the threads under the buttons, "in situ".
- Careful disinfection.
- Local anesthetic on the proximal lesions to allow the hamstrings to be pulled out painlessly (optional).

**D 45 to D 90**

**Callus Maturation Phase**
- Recovery of the tendon's physical properties.
- Total weight-bearing in shoes.
- Partial weight-bearing with raised protective equipment, gradually increasing the height.
- Gradual increase in the weight-bearing.
- Gradually build up the triceps muscle.
- Gradually increase physical activities. swimming, cycling, etc.
- No less than one foot.
- No cramping one foot.
- Warning: high risk period for recurrent rupture!

**D 90 to D 120**

**Definitive Healing Phase**
- Total weight-bearing in shoes, without plantar orthosis.
- Continued recovery of the triceps.
- Gradual resumption of sports activities (D90) and competitive activities (D120).
- Sport permitted: running.
- Prevention of tendon-to-tendon complications by anti-infectious until a resumption of total weight-bearing.

**References**

ACHILLES TENDON RUPTURES

Surgical repair of Achilles tendon ruptures by the percutaneous route. Its principle is to conduct the procedure without any incisions following rupture.

**INDICATION**
Surgical repair of Achilles tendon ruptures by the percutaneous route. It is preferable to conduct this procedure within 5 weeks after rupture.

**EQUIPMENT USED**
- TENOLIG S consists of:
  - a thread with a diameter of 0.85 mm and a length of 36 cm, cramped at its proximal end, onto which is mounted a 7 mm-wide harpoon, and cramped at its distal end, by a triangular-tipped needle, 15 cm long, slightly curved at delivery and which can be adjusted during surgery according to a curve suitable for the type of rupture treated;
  - a perforated polyethylene disc, with a convex surface offering support during insertion of the TENOLIG and to be moved to the instep when tightening them.

**PRINCIPLES**
1. To join together the two ruptured ends of the Achilles tendon without using a surgical approach, with this technique being maintained for more than 5 weeks, at the same time permitting the immediate mobilisation of the tendon as a unit during follow-up / extension movements of the foot.

**DRAWING ON THE MARKS**
- Using a permanent marker, mark the following on the skin:
  - the positions of the ruptured tendon ends which can always be felt very easily
  - the proximal entry points, approximately 6 cm above the rupture zone on the postero-lateral surfaces of the tendon;
  - the exit points on the postero-lateral surfaces of the tendon, opposite the retromalleolar spaces (4) or the proximal rupture;

**INSERTION OF THE 1 TENOLIG**
- One can decide to start with either TENOLIG – medial or lateral:

**INDICATION**
General, less regional or even local anaesthetic, depending on habits and context.

**INSTALLATION**
- In an asymptomatic position:
  - Preventive haemostasis by means of a tampon at the level of the thigh is not essential.
  - It is convenient to have a moulded pad with a sterile case to be placed on the front of the ankle during insertion of the TENOLIG and to be moved to the instep when tightening them.

**DRAWING ON THE MARKS**
- Using a permanent marker, mark the following on the skin:
  - The positions of the ruptured tendon ends which can always be felt very easily
  - The proximal entry points, approximately 6 cm above the rupture zone on the postero-lateral surfaces of the tendon;

**INSERTION OF THE 2 TENOLIG**
This is conducted exactly in the same conditions.

**END OF SURGERY**
- The distal ends of the straps are cut 2 to 3 cm from the weights.
- The proximal ends are left and the small cutaneous incisions are closed by a stitch or, for example, steristrips.
- A shaped compress is slipped under each plastic button to protect the skin. A simple dressing is then applied to cover the whole thing.
- A woolen band is left on the distal end of the eversion in order to make sure that the physiological position of the foot is indeed retained.

**CONCLUSION**
- In all cases, a certain degree of restriction of tendon tensions.

**TIGHTENING**
- The tourniquet is moved to the anterior surface of the instep to position the foot in a maximum equinus position.
- The two straps are pulled tight simultaneously (Fig. 6). One must make sure that the hamstrings are properly anchored. To make sure of this, their lengths from their distal points must be the same.

**INDICATION**
- Preventive haemostasis by means of a tampon at the level of the thigh is not essential.
- It is convenient to have a moulded pad with a sterile case to be placed on the front of the ankle during insertion of the TENOLIG and to be moved to the instep when tightening them.

**DRAWING ON THE MARKS**
- Using a permanent marker, mark the following on the skin:
  - The positions of the ruptured tendon ends which can always be felt very easily
  - The proximal entry points, approximately 6 cm above the rupture zone on the postero-lateral surfaces of the tendon;

**INSERTION OF THE 1 TENOLIG**
- One can decide to start with either TENOLIG – medial or lateral:

**INDICATION**
General, less regional or even local anaesthetic, depending on habits and context.

**INSTALLATION**
- In an asymptomatic position:
  - Preventive haemostasis by means of a tampon at the level of the thigh is not essential.
  - It is convenient to have a moulded pad with a sterile case to be placed on the front of the ankle during insertion of the TENOLIG and to be moved to the instep when tightening them.

**DRAWING ON THE MARKS**
- Using a permanent marker, mark the following on the skin:
  - The positions of the ruptured tendon ends which can always be felt very easily
  - The proximal entry points, approximately 6 cm above the rupture zone on the postero-lateral surfaces of the tendon;

**INSERTION OF THE 2 TENOLIG**
This is conducted exactly in the same conditions.

**END OF SURGERY**
- The distal ends of the straps are cut 2 to 3 cm from the weights.
- The proximal ends are left and the small cutaneous incisions are closed by a stitch or, for example, steristrips.
- A shaped compress is slipped under each plastic button to protect the skin. A simple dressing is then applied to cover the whole thing.
- A woolen band is left on the distal end of the eversion in order to make sure that the physiological position of the foot is indeed retained.

**CONCLUSION**
- In all cases, a certain degree of restriction of tendon tensions.