



The Preperitoneal Inguinal Hernia Prosthetic Repair: Indications and Technical Notes

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Abstract

The preperitoneal repair of an inguinal hernia (IH), performed by a classical anterior transinguinal approach is a simple and safe procedure, particularly indicated in case of evident weakness of the transversalis fascia (TF).

Introduction

In the recent years, the use of a prosthesis in the treatment of an IH has gained a widespread acceptance; different techniques are employed, placing the prosthetic mesh anteriorly, or behind the conjoined tendon in the preperitoneal space(1).

Generally the basic principles and indications of the preperitoneal procedure are not adequately considered in the training of young surgeons. The aim of this paper is to recall attention to this subject.

Methods

Our experience of preperitoneal inguinal prosthetic repair includes 50 cases, operated in the years 1995-2008 out of a total number of 150 operations for inguinal repair. There were 15 cases of indirect hernia, 21 direct, and 14 with these two types combined. All the operations have been performed monolaterally as a day-surgery and under local anaesthesia. The follow-up was continued up to 3-5 years.

Our operative technique has been directly derived from that of Horton and Florence (2), whose principal characteristics can be summarized as follows.

-Classical inguinal incision between the antero-superior iliac spine and the pubic tubercle, dividing the external oblique fascia and the external ring and mobilizing the cord. The ilioinguinal nerve is gently isolated from the posterior inguinal wall. The external oblique fascia is largely cleaved from the conjoined tendon.

-In case of indirect hernia, the sac, carefully separated from the cord well beyond the internal ring, is reduced in the peritoneal cavity. In case of firm adhesion with the tunica vaginalis, it can be transacted in its middle part, leaving open the distal.

-When present a direct hernia, its sac is trimmed off the TF.

-At this moment, the decision for a preperitoneal repair is based on the conditions of the posterior inguinal wall: enlargement of the internal orifice, presence of a double IH, direct and indirect, global weakness of the TF (Illustration 1).

-In this case, the TF is opened from the internal orifice to the pubic tubercle, respecting the epigastric vessels.

- The subsequent dissection of the preperitoneum is extended laterally beyond the internal orifice, inferiorly to the Cooper's ligament, and medially to the external border of the rectus sheath.

-A synthetic mesh, usually of polypropylene, rectangular in shape and of about 15 x 7cm in size, is prepared to cover all the dissected preperitoneal area, including the Bogros's space and the Fruchaud's myopectineal orifice (3). An adequate slit is made in its superior border, to create a new internal ring and allow free passage of the cord (Illustration 2).

-The mesh, placed underneath the conjoined tendon, is anchored medially to the rectus abdominis sheath, inferiorly to the Cooper's, and laterally to the inguinal ligament. In this way care is taken not to damage the iliohypogastric nerve in its possible intramuscular course. The two tails of the new created internal orifice in the prosthesis are crossed behind the cord and laterally sutured to the internal oblique muscle (Illustration 2).

-When possible, a new posterior musculo-aponeurotic inguinal wall is constructed approximating the edge of the conjoined tendon to the inguinal ligament. It helps to cover and isolate the mesh, and to prevent adhesions with the spermatic cord.

-The external oblique fascia is sutured to close the inguinal canal.

In our experience we have not observed any recurrence; in only 2 cases a transient inguinal pain was well controlled by a pharmacological treatment.

Discussion

The main characteristics of this technique are: adequate exposure of the preperitoneal space; hermetic closure, from inside the musculo-aponeurotic wall, of all the possible sites of recurrence, inguinal, femoral and obturator; anchorage of the mesh

to musculo-aponeurotic structures, preventing in this way its dislodgement or folding (4,5,6,7). We think that the construction of a new internal orifice avoids the long dissection of the cord, necessary in case of its parietalisation with subsequent risk of damage and entrapment of its nervous structures.

The preperitoneal dissection is usually easy to accomplish, except in case of local scarring, as after iliac lymphadenectomy, or vascular approach to the external iliac artery. These two conditions are a contraindication to this technique.

Clearly, the above described procedure combines the advantages of the preperitoneal placement of the prosthesis with the easy open anterior inguinal approach.

Comparing this technique with others more commonly used and based on the anterior placement of the prosthesis, characteristically that of Lichtenstein (8,9), some differences are evident:

- minor possibility of recurrence, inguinal and especially femoral;

- the deep preperitoneal lodgement of the mesh protects against infections from the superficial planes of the wound;

- the abdominal pressure helps the mesh to adhere to the musculo-aponeurotic structures of the whole inguinal region, that constitute a strong barrier against its anterior bulging or displacement;

- the preperitoneal location of the prosthesis resumes the position and the function of the TF (10), also before its colonization by the new-produced connective tissue;

- the TF, clearly weak, is completely replaced, rather than only reinforced, as in the anterior disposition of the prosthesis.

The anterior placement of the mesh, typically the Lichtenstein's operation, is applied more largely than the preperitoneal repair: in our experience with a ratio of 2:1. It requires a more limited dissection, also permitting a good reinforcement of the posterior inguinal wall through a simpler anterior approach, and finds its principal indication when the TF can be still recognized as a preserved anatomical plane.

Conclusion(s)

The surgical correction of an IH requests a good anatomical dissection and an accurate evaluation of the conditions of the whole inguino-femoral region, in order to choose the best technique of reconstruction. The use of a prosthetic mesh, which certainly facilitates the surgeon, has not to be considered an universal "panacea". On the contrary, a careful choice

between the two different procedures, today more diffused, the anterior "tension free" hernioplasty and the posterior preperitoneal repair, is always advisable.

At this regard, the young surgeons must be skilled in both these techniques, while their senior colleagues must not remain crystallized on a single procedure.

Considering these aspects, the above mentioned technique of Horton and Florence, must be taken into good consideration.

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Illustrations

Illustration 1

The inguinal canal has been opened; the sac of an indirect hernia (not drawn) has been dissected and reduced in the peritoneal cavity through an enlarged internal orifice. An associated direct hernia is bulging from a weak TF : typical indication to a preperitoneal mesh repair. (The drawing of the cord is interrupted in its middle part).



Illustration 2

Anterior view of the inguinal canal. The prosthesis, positioned in the preperitoneal space, is anchored to the conjoined tendon, to Cooper's and inguinal ligaments by separated stitches. A longitudinal slit permits to construct a new internal orifice. Possibly the mesh will be covered by the conjoined tendon sutured to the inguinal ligament. (The drawing of the cord is interrupted in its middle part).

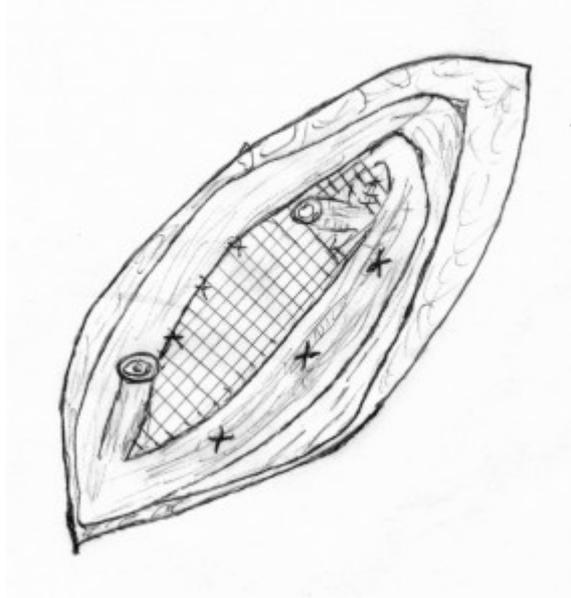
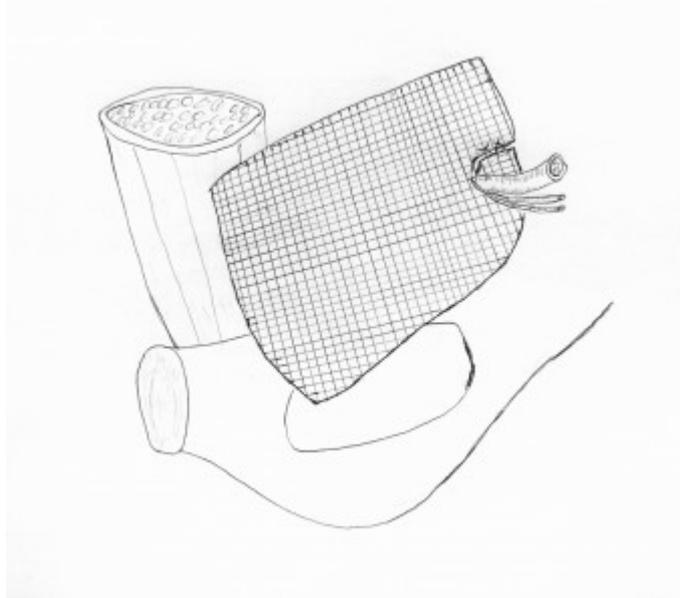


Illustration 3

Posterior view of the inguinal canal. The prosthetic mesh, placed in the preperitoneal space, adheres to the musculo-fascial structures of the inguinal canal.



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