



# Trans abdominal patch plasty for bilateral groin hernia : is it a cost-effectiveness procedure?

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I really appreciated the Editor's kind invitation to write a comment about the papers of Ielpo and colleagues. Laparoscopic surgery is nowadays widespread all over the world and we have witnessed a frenetic race for the introduction of new instruments and devices that are able to help surgeons to perform laparoscopic operations. Consequently, this race has increased the costs of a single operation in a geometrical progression pushed by industries.

The real benefit we theorized in advanced laparoscopic surgery, such as colorectal or gastric, was confirmed by the rapid recovery of the patient as demonstrated by the widespread adoption of ERAS (enhanced recovery after surgery) protocol. On the contrary, the development of laparoscopic groin hernia repair was not as quick as expected for 2 basic reasons: (I) difficulties in the technique due to the anatomy of the region; (II) costs.

As all of us know well, groin hernia repair is the most common surgical procedure in general and visceral surgery and accounts for more than 1.5 million procedures per year and the open techniques are in the skills armamentarium of all surgeons around the world. The advantages of the endoscopic technique over open procedures are substantially characterized in the time to return at work, wound infection and absence of nerve injury as stated in a meta-analysis of 2005 (1); so in western countries laparoscopic hernia repair is an increasingly demanding procedure. Current European Hernia Society recommendations related to endoscopic approaches in repairing groin hernia suggest their use (TransAbdominal Patch Plasty /Totally Extraperitoneal Plasty according to the surgeon's expertise) in patients with

bilateral defect or in recurring ones after open repair (2). It consequently means that only a skilled laparoscopic surgeon would operate these patients. Indeed surgeons challenged with using TAPP procedure must know that it has a long learning curve, estimated at almost 50 cases, with a higher morbidity rate and basically caused by a different anatomic view and by difficulties in mesh positioning. Lovisetto also states that surgical skill is the crucial aspect governing the outcome of the TAPP procedure, and knowledge of the standardized methodology must be attained by long-term specialized training and well-structured experience; in any case, if a minimum of 50 TAPP procedures is considered the cut-off in the learning curve, in order to reach an acceptable complication rate, 75 TAPPs are necessary to complete a series of high-performance results (3). In my opinion, this long learning curve requires that most of these operations be conducted in patients with a single simple defect.

Reimbursement for hernia repair is worldwide limited like a day-service procedure and normally executed in loco-regional or local anaesthesia. Performing an endoscopic procedure results in increased costs due to the general anaesthesia and equipment: in particular we have to consider the cost of fixation devices (tacks, glue) and eventually the disposable trocars. First of all, it must be clearly understood which kind of fixation device is better indicated with regard to capacity to fix the mesh, side-effects and costs. In 2012 a paper from Bern (CH) compared the hypoesthesia in patients submitted to TAPP treated with glue-fixed mesh, and tacks (4). They showed that hypoesthesia was most common and severe after the use of tacks *vs.* fibrin-glue

mesh fixation. They registered the symptom as permanent and concluded the paper in favour of glue fixation over the use of tacks. Another interesting randomized study from Denmark of 2013 comparing fixation of the mesh with tacks and glue reports that the use of fibrin glue is able to reduce pain and discomfort without increased risk of recurrence (5). Therefore the evidence from literature is clearly in favour of fibrin-glue fixation in TAPP procedure even if it is more expensive than tacks.

Some years ago, we proposed the use of self-gripping meshes to avoid the use of fixation devices in order to reduce the final cost of the operation. We clearly demonstrated feasibility of the procedure and an effective reduction of costs if compared to fixation device use, even if this mesh is clearly more expensive than a normal polypropylene mesh (6).

Cost evaluation of hernia surgery in western countries must take patient recovery and time to return to work into account. Indeed the TAPP procedure, while requiring general anaesthesia, is highly requested by working people because of less disability in the post-operative period. The minimal muscle incisions and lack of suture on the abdominal wall are responsible for quick recovery and, moreover, the use of TAPP in bilateral hernia by avoiding 2 herniotomy, is highly recommended because of the evident reduction of pain and discomfort in the patients. From this viewpoint, when we have to calculate the real cost differences between laparoscopic and open hernia repair, we also have to evaluate the indirect and societal costs associated with patient suffering, loss of productivity, and caregiver expense, although they are difficult to quantify. An accurate randomized trial able to quantify the total cost of the single procedure will be useful to guide surgeons in choosing the best approach

In the paper of Ielpo and colleagues, they show a complete, well conducted and accurate cost-effectiveness analysis of the treatment of bilateral groin hernia with the laparoscopic approach versus the open one. There are very few articles in literature regarding costs and benefits of the TAPP procedure versus the open approach in bilateral hernia. The study focuses on some aspects that become extremely important when we must consider which approach is better for the patient and for the administration.

Pain is one of the most important parameters that is crucial for the length of hospitalization: in this study despite TAPP being conducted in general anaesthesia, length of stay is quite short because the VAS score is significantly lower in the TAPP group. Another clinical aspect is

morbidity after surgery and 2 herniotomies of 5 cm present more complications (hematoma, seroma, etc.) than 3 trocar incisions. Chronic pain is another issue with a significant incidence after open procedure that Authors report as being about 11%.

Overall TAPP hernia repair approach cost is significantly higher than for the OL approach

(1,683.93 vs. 1,192.83 s; P=0.018). This cost is justified by the higher surgical costs of the disposable laparoscopic instruments.

In the end they realize that the cost-utility analysis also shows that TAPP is more cost-effective than the open procedure. In my opinion TAPP and TEP procedures must be taught to residents in general surgery as well as the open procedure and, I think that the training must be completed on monolateral simple cases. This training must be conducted in dedicated center in which costs for a monolateral TAPP must be reduced through a partnership with industries.

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