

# 10 Reasons to Do TAPP

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## Abstract

Hernia repair is the most common surgical procedure worldwide. The mesh repair is the gold standard technique for groin hernia in adults; anatomic, non-mesh repair is still indicated in contaminated wounds. The recommended techniques by the actual guidelines are: Lichtenstein and Shouldice technique for open access and TAPP (TransAbdominal PrePeritoneal) and TEP (Total ExtraPeritoneal) hernia repair for endoscopic repair. We present herein several aspects of TAPP hernia repair with highlighting its advantages. The present paper is a brief argument to do TAPP routinely in benefice of patients, residents and surgeons.

**Keywords:** Hernia repair; Laparoscopy; TAPP; Laparoscopic training; Surgery warm-up

## Editorial

The hernia repair is the most common surgical procedure with over 2,000,000 procedures performed every year [1]. The mesh repair is the gold standard technique for groin hernia repair in adults. The exception is the risk of mesh infection in case of contaminated wounds and, the "anatomical" repair without mesh is recommended for these cases [2,3].

The actual guidelines recommend 4 techniques for groin hernia [2-4]:

- for open approach, mesh repair using Lichtenstein technique and, for contaminated wounds, Shouldice technique, and
- for endoscopic hernia repair, TAPP (TransAbdominal PrePeritoneal) and TEP (Total ExtraPeritoneal)

The recent papers and guidelines didn't reveal any advantage between TAPP and TEP from point of view of postoperative morbidity and recurrence rate and only the surgeon's experience (and preference) remains the only valuable argument [2-4].

The "absolute" contraindications for TAPP are in fact the contraindications of general anesthesia and generally of laparoscopic approach: severe comorbidities (e.g. severe cardiac or respiratory dysfunction). It is also contraindicated in children (as all the mesh repair techniques). All the rest are "relative" contraindication, which depends of surgeon experience and local conditions: large inguino-scrotal hernia, history of radical prostatectomy or planned radical prostatectomy, peritoneal adhesions [2-4].

We presented below 10 reasons to do TAPP as usual technique for groin hernia:

- 1) TAPP is an outstanding hernia repair procedure because allows a good reinforcement of abdominal wall and the reinforcement of all the groin area with a low of recurrence. To have a low rate of recurrence is it mandatory to respect several technical tricks: wide dissection to allow a good mesh deployment and parietalization and avoid the mesh enrollment and the use of large mesh (ideally 12x15cm) to cover all the weak groin areas [1-8].
- 2) TAPP is associated with low risk of morbidity: less mesh infection, hematoma and recurrence [2-4]. However, TAPP is associated with a higher risk of postoperative seroma; however several technical tricks as fascia transversalis eversion and fixation in large

direct hernia and Retzius space drainage allow the decrease of postoperative seroma [2-4,7,8].

- 3) The laparoscopic exploration during TAPP allows a rapid check-up of contralateral site with diagnosis and then treatment during the same procedure of occult contralateral hernias. We perform the bilateral repair sequentially, firstly the most important hernia and then the contralateral, and we use two separated meshes fixed together on the mid-line with absorbable tacks/staples [7,8].
- 4) The preperitoneal dissection during TAPP allows the diagnosis of occult obturator hernias (type I), source of chronic inguinal or pelvic pain. Using the open approach this hernias are overlooked; in this way it is important to note the high incidence of obturator hernia in women in necropsy: 60% [9]. In our experience the overall incidence of obturator hernia was 18% (32% in women and 15.5% in men respectively) [10]. The wide preperitoneal dissection also allows the diagnosis of small, incipient, femoral hernias. In this way, TAPP is highly recommended in women, especially in "skinny old ladies" with high risk of obturator, femoral or other occult hernia [4,11-14].
- 5) TAPP, contrary to TEP, can be performed in strangulated hernias [2-4]. In our opinion the laparoscopic exploration represents a great advantage in strangulated hernia and allows to explore the entire small bowel and to treat the small bowel ischemic lesions [2-4]. Afterwards, hernia repair can be performed using either semi absorbable mesh or anatomic (open/laparoscopic) non mesh repair according to the wound contamination.
- 6) TAPP, contrary to TEP, is easy to be learned with a learning curve of about 30 procedures. The anatomical landmarks are easy to be recognized. Usually a step-by-step approach with landmarks recognition is advisable: superficial landmarks (urachus, umbilical

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folds, epigastric vessels, spermatic vessels, vas deferens or uterine round ligament) and then, deep landmarks (Cooper, Gimbernat ligaments, corona mortis and external iliac vein) [7,8].

- 7) TAPP allows the diagnosis and treatment of concomitant ventral hernias. In this way we are the advocates of laparoscopic mesh repair which allows a better exploration and reinforcement of abdominal wall with large prosthesis which overlaps with a minimum 5 cm in all directions the parietal defect(s), to avoid postoperative mesh shrinkage and recurrence [15,16].
- 8) TAPP has a low risk of postoperative pain if we respect several simple rules: use of light weight mesh, use of absorbable tacks, use of less of 10 tacks, glue fixation or adhesive mesh [1-4,7,8].
- 9) TAPP allows a rapid recovery with a short time to return to normal activity and work. In this way it is suitable for ambulatory or one day surgery [2-4].
- 10) One of the most important issues is the value of TAPP as a tool for laparoscopic training. As mentioned above, TAPP is a relatively easy to be learned especially due to the easy recognition of anatomic landmarks. Then, TAPP is an excellent exercise to learn and practice laparoscopy:
  - **It allows a gain in exploration, 3D accommodation and camera manipulation:** to navigate and explore the entire abdomen, to recognize the superficial and then the deep anatomic landmarks; furthermore, in our opinion a 30 degree camera is mandatory to better perform the procedure, and TAPP is an excellent exercise for the training of 30 degree camera manipulation for the surgeon and his assistant, targeting the different superficial and especially deep anatomic landmarks.
  - **Dexterity and ambidexterity:** TAPP requires good skills of dissection and tissue exposure so is an excellent training tool for dissection and navigation in narrow spaces, dissection of “fragile” structures (e.g. testicular vessels, vas deferens). It is also a valuable exercise to deploy and manipulate a mesh.
  - **Knot tying:** The peritoneal closure after TAPP is very important; the actual guidelines recommend “waterproof” closure of the peritoneum using different methods: staples, glue, suture [2-4,7,8]. We usually close the peritoneum by a running suture with extracorporeal or intracorporeal knot tying or barbed sutures [7,8]. This is a very good exercise for laparoscopic sutures and knot tying and we highly recommend it as training tool before start any other more complex procedure which implies sutures (gastro-esophageal junction surgery, colic surgery, bariatric surgery).
  - **Warm-up:** Warm-up concept in general surgery is relative recent. However it's value was demonstrated in different studies [17,18]. In our opinion, TAPP is useful as “warm-up” procedure before to start other more complex techniques (e.g. laparoscopic colectomy, gastric bypass) due to its complex role to train all the gestures used in minimally-invasive surgery, from 3D accommodation and camera navigation until dissection and suturing.

In conclusion, we consider TAPP an excellent procedure and in our opinion, it has to be generalized as common routine hernia repair procedure for the benefice of patients, residents and surgeons.

#### Conflict of interests

Authors have no conflict of interests to disclose.

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