

# Consent: Laparoscopic Inguinal Hernia Repair

## Overview of Procedure

There are several types of commonly encountered hernia, the most common being inguinal, femoral, and umbilical. Repairs can be performed both by open or laparoscopic techniques, with the latter ideal for inguinal hernia. The mesh used during the repair is secure in place using tacks or more commonly an inert glue.

Laparoscopic procedures have been shown to reduce post-operative pain and allow for faster recovery, a reduced infection risk and return to work. For inguinal cases, laparoscopic repair may also be favoured in patients with bilateral or recurrent inguinal hernia. Laparoscopic surgery must be performed under general anaesthetic.

The current guidelines from the British and European hernia societies (<https://europeanherniasociety.eu/category/guidelines/>) is that all female patients should be offered a laparoscopic repair as there was a small but real possibility of missing a femoral hernia in this group. Femoral hernias occur more common in women and 50% will present as an emergency.

The two commonly employed techniques for laparoscopic inguinal hernia repair are TEP (Totally ExtraPeritoneal) and TAPP (TransAbdominal PrePeritoneal), depending on the layers involved and opened during the repair.

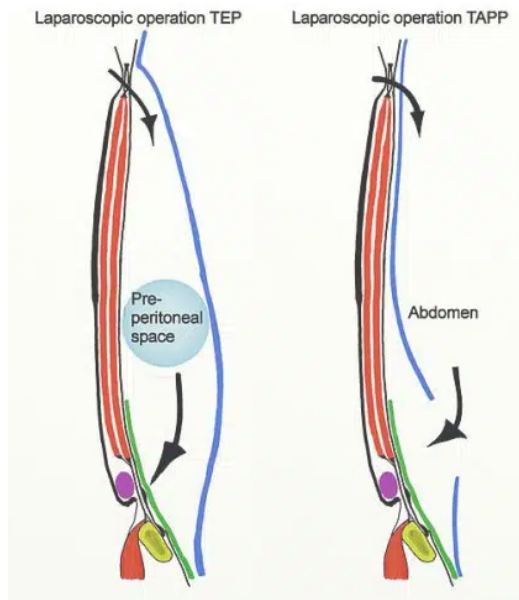


Figure 1 – Layers involved during a TEP and TAPP inguinal hernia repair

TEP: the hernia is approached by dissecting above the peritoneal cavity.

TAPP: the hernia is approached by entering the abdominal cavity and incising the peritoneum to gain access to the hernia and its contents.

# Possible Complications

## Intraoperative

Intraoperative	Description of Complication	Potential Ways to Reduce Risk
Haemorrhage	Injury can occur to the inferior epigastric vessels at the time of dissection. The raw area from the reduction of a hernia can also bleed giving rise to bruising in a significant proportion of patients. This will settle without any further intervention but can take several weeks.	Stopping of anticoagulation in a controlled manner, is advisable and a meticulous surgical technique is needed. Bleeding is comparatively rare and occasionally a drain, will have to be left in the pre-peritoneal space overnight.
Injury to surrounding structures, including bowel, bladder, blood supply to the testes and spermatic cord	It is not uncommon for the hernia sac to contain the intestines. Occasionally in larger hernias, the hernia can be stuck to the vas deferens/spermatic cord	Careful dissection, reduces the risk of this possible complication. Inspection of the bowel at the end of the operation is obligatory. The incidence of intestinal injury is between zero and 0.3% and for spermatic cord injury less than 0.5%
Conversion to open operation	In a small percentage of cases, it is not possible to safely perform a laparoscopic hernia repair. This can be a consequence of the size of the hernia, the existence of excessive scarring/adhesions and an inability to safely enter the pre-peritoneal layer.  If a hernia is extremely large containing the intestine/: than a combination technique is often advisable of both open and laparoscopic techniques.	The most common reason in men for not being able to complete an operation is due to previous prostate surgery which uses the same tissue plane.  A previous laparoscopic operation also makes it difficult to enter the preperitoneal safety. If a hernia has been performed by keyhole surgery before an open operation may be advisable.
Anaesthetic risks	This includes damage to the teeth, throat and larynx. They can also be adverse reactions to medications, including nausea and vomiting. Very rarely there can be problems with the heart and respiratory systems.	A pre-operative meeting will identify the vast majority of issues which can be dealt with before elective surgery. If you have any concerns, these do need to be addressed and discussed with the preoperative team and the consultant anaesthetist.

Early	Description of Complication	Potential Ways to Reduce Risk
Seroma/swelling/ collection	It is not uncommon, after a laparoscopic hernia repair, to develop a fluid collection known as a seroma in the space that was occupied by the hernia itself. In a laparoscopic hernia repair, the defect is reinforced from the back, and this leaves a potential space for fluid to accumulate.	The use of tight fitting underwear may be of benefit in the circumstance. If you do develop a swelling it will invariably reduce itself. However, there is always concern that it is a recurrent hernia. You should come back to clinic where this can be dealt with accordingly. Sometimes a small needle needs to be passed into the collection and it drained by the bedside. This is almost painless though the fluid can re-accumulate.
Testicular, atrophy, or pain	As part of the dissection of the hernia sac away from the testicular vessels and the spermatic cord, it is possible for these structures to be damaged. This result in a lack of blood supply to the testicle which can become painful and/or reduce in size.	This rare complication occurs in 0.2-1.1% of all inguinal hernia repairs. It is most commonly seen in recurrent hernias and large hernias. In a very small percentage of cases, it is necessary to disconnect the blood supply to the testicle in order to prevent the hernia coming back. This is seen in patients with recurrent herniation. This will be discussed at the time of your consent. It has no bearing on the production of testosterone or other characteristics.
Venous blood clots	After surgery, it is possible to get clots in the deep veins in your leg. This present as pain, redness and swelling.	All patients are assessed for their risk at the time of surgery. All patients will be advised to wear special stockings and in a percentage of cases Flowtron type compression boots are used.
Wound complications	It is not uncommon to have some bruising around the wounds and very occasionally wound infection is seen in up to 1.5% of patients. Topical or oral antibiotics are useful in this circumstance.	Current guidelines do not support the use of prophylactic antibiotics at the time of surgery. In rare cases of immunocompromised (e.g. diabetes or medications) antibiotics can be considered. All patients receive a antiseptic skin sterilisation at the time of surgery. It is not advisable to shave your own skin before an operation. If possible, it is worth cleaning your umbilicus before the surgery.

Early	Description of Complication	Potential Ways to Reduce Risk
Nerve pain	Chronic pain after hernia surgery is reported in a percentage of cases. Specifically in laparoscopic hernia pain can radiate to the testicles. However, the incidence of chronic pain is 1/20 of that open hernia surgery.	Avoiding the use of tacks and careful dissection is helpful. Avoidance of collections and bleeding will improve outcomes.
Infection leading to re operation and mesh removal	Mesh infection is a rare but serious complication of any hernia repair at any site. In laparoscopic hernia repair it can present acutely or many years after the index operation. Presentation is variable and may lead to malaise, sepsis and potentially a discharge of pus. If the infection is well localised then drainage and antibiotics may be adequate but, invariably mesh removal is needed.	Infection normally arises from the patient's own skin and is more frequent in diabetics, those with an elevated BMI, smokers, emergency operations and patient age.  Guidelines from the European hernia society do not show any benefit from antibiotics over many trials - though those in a high risk group may benefit.

Late	Description of Complication	Potential Ways to Reduce Risk
Adhesions	Part of the essential step in repairing hernias is to reduce the peritoneal sac. This is a very thin layer of tissue which can be breeched and, even if closed can lead to the intestine becoming adherent. Whilst in the majority this will be unnoticed there is a small chance of developing intestinal obstruction.	Closure of the hernia sac (if identified)
Recurrence	The total 5- year recurrence rate after TEP hernia repair was 2.4%. This compares well against non mesh repairs (Bassini and Shouldice at 3.4% and 4.7% respectively).	The use of a heavier mesh is associated with less recurrence (3.8% lightweight vs 1.1% heavyweight) <a href="#">Annals of Surgery 268(2):p 241-246, August 2018.</a> A careful return to normality avoiding heavy lifting for the first few weeks is advised. An active recovery (walking/cross trainer/ cycling) is recommended.

Late	Description of Complication	Potential Ways to Reduce Risk
Persistent pain	This occurs in a small percentage of patients may be due to nerve entrapment however, it is a fraction (1/20) of the risk of having open surgery according to multiple studies.	Careful, dissection and avoidance of haematoma or retention tacks can be of benefit. A small percentage of patients will need local anaesthetic and steroid injections and this pain large reduces any further pain. Persistent pain is uncommon, but may occur in approximately 1% of patients despite a successful operation and without any radiological evidence of recurrence or complications
New hernia formation	<p>As with any hernia surgery, your surgery is associated with a risk of recurrence. In public studies, the rate varies between one and 5% lifetime risk.</p> <p>When one side of the groin is repaired, it does increase the stress on the other. The chance of developing another hernia on this site is up to 40% according to multiple studies.</p>	<p>Meticulous technique, and a good overlap of mesh will help reduce recurrence. Factors that influence recovery include obesity, diabetes, previous chemotherapy, and other underlying metabolic disorders.</p> <p>Optimising your physical condition before an operation will be of benefit after the operation, an active recovery period of walking every day, or using a cross trainer in the first two weeks can be of benefit, however weight lifting is not recommended for the first 3 to 4 weeks</p>

More information can be found at the European Hernia Society website where an extensive section on guidelines is accessible.

<https://europeanherniasociety.eu/category/guidelines/>

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