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Comparative Study of Laproscopic Inguinal Hernia Repair Versus Open Inguinal Hernia Repair In Females To Address Occult Femoral Hernias

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I. INTRODUCTION:

Hernia repairs, both inguinal and ventral/incisional, are some of the most common surgeries performed in the world. Over the last 5 years, the field of hernia surgery has had a significant transformation thanks to many new and innovative surgical techniques as well as an exponential growth in mesh and mesh technology. Increased focus on hernia surgery has led to improved research and outcomes data and has provided strategies to treat both simple and complex hernias. Secondary to the increased complexity of patients and new techniques and mesh products available, there has been a renewed interest in hernia surgery amongst the general and plastic surgery community

Inguinal hernia was repaired laparoscopically soon after the establishment of laparoscopic cholecystectomy as gold standard for cholelithiasis. However, unlike laparoscopic cholecystectomy, which was very quickly accepted by the surgical community, laparoscopic hernia repair has remained a contentious issue since its inception. The early laparoscopic techniques of plugging the internal ring with mesh or simply closing the ring with staples were surgically unsound and were quickly abandoned when early trends showed a high recurrence rate.

The later technique of reinforcing the inguinal floor with a mesh placed pre- peritoneally was based on the open procedure introduced by Stoppa. It was in 1984 that Lichtenstein et al coined the term "Tension-Free Hernioplasty" and broke the convention by advocating routine use of mesh for hernia repair, thereby making tissue repair a thing of the past.

The most scientific way to come to conclusion over superiority of one method over other is evidence-based medicine. Laparoscopic mesh repair cannot be compared with open tissue repair. So, the comparison should be between laparoscopic mesh repair and open mesh repairs. Few of the initial trials (Liem [1], Stoker [2], and Grant [3]) compared laparoscopic mesh repair with open tissue repair and came to conclusions, which are not valid.Here we compare Lichtenstein tension free open hernioplasty with TAPP to prove that laproscopic technique can identify and correct concurrent occult femoral hernias which are common in females.

AIM OF STUDY

- To compare laproscopic inguinal hernia repair versus open inguinal hernia to identify and correct the occult femoral hernias in females.

II. Methodology

Method of collection of clinical sample and data

- All cases of uncomplicated primary unilateral inguinal hernia seen attending the OPD in Madurai medical college were considered for the study.
- All cases are thoroughly evaluated and taken up for surgery intra operatively findings were noted in both techniques and compared.

CRITERIA FOR PATIENT SELECTION :
INCLUSION CRITERIA:
All cases of primary uncomplicated unilateral direct or indirect inguinal hernia without any severe co-morbidities (uncontrolled HTN&DM, Advanced malignancies, renal, liver & cardiac dysfunctions) within the age group more than 18 till 70 years of age attending general surgery OPD in GRH,Madurai.

EXCLUSION CRITERIA:
- Patients who had an irreducible, obstructed or strangulatedhernia.
- Patients with bilateral hernia, slidinghernia, recurrent hernias.
- Patients no within the inclusion age group, severe co-morbidities,not willing for the study.

TECHNIQUES IN HERNIA REPAIR
LICHTENSTEIN TENSION FREE HERNIOPLASTY

The Lichtenstein technique avoids the hazard of suture line tension by placing mesh between the transversalis fascia and the external oblique aponeurosis, where it reinforces the entire inguinal floor. While increased intra-abdominal pressure (such as that associated with straining) results in increased tension on the suture line of a tissue-based repair, this is not the case with the Lichtenstein hernioplasty. As pressure increases and the external oblique muscle contracts, the external oblique aponeurosis applies counter pressure on the mesh, allowing for excellent durability even under high intra-abdominal pressures [25].

Accordingly, the Lichtenstein tension-free hernioplasty both addresses the present herniation and protects the inguinal floor against future mechanical stresses.

Operative Technique Positioning and Preparation
The operation is performed with the patient in the supine position. Skin preparation with an antiseptic solution is performed, extending from superior to the umbilicus to the scrotum inferiorly. The scrotum should be included in the operative field if a large inguinoscrotal hernia is present.

Anaesthesia and Sedation
Lichtenstein hernia repair can be safely and comfortably performed under regional anaesthesia.

Operative Steps

After skin preparation, the planned line of incision is marked. The skin incision starts from the pubic tubercle and extends 5–6 cm laterally, following the Langer line. This position and orientation provides exposure from the pubic tubercle to the internal ring.

The skin is then incised and the subcutaneous tissues are divided. The external oblique aponeurosis is divided over the course of the entire inguinal floor, starting from the external ring to and proceeding superiorly. The upper leaf of the aponeurosis is separated from the internal oblique muscle, and the lower leaf is separated from the spermatic cord structures.

These steps provide exposure of the entire inguinal floor and the field into which the mesh prosthesis will be placed. The internal oblique aponeurosis should be exposed at least 3 cm superior to the upper margin of the inguinal floor to ensure adequate overlap with the mesh. Now the ilioinguinal and iliohypogastric nerves are exposed and should be identified so that subsequent injury or entrapment can be avoided. The ilioinguinal nerve will originate medial to the anterior superior iliac spine and then typically courses over the cord structures to exit the external ring. The iliohypogastric pierces the internal oblique medially and will then proceed caudally and medially to exit the canal at the conjoined tendon. There is considerable neuroanatomic variation of these nerves and identification is key to determine preservation versus pragmatic division.

The spermatic cord is next separated from the inguinal floor and pubic tubercle, continuing approximately 2 cm inferiorly past the tubercle. This is performed atraumatically with a gauze peanut dissector, lifting the structures off the floor and tubercle from the inguinal ligament, preventing trauma to the cremasteric bundle and its contents.

A Penrose drain may be passed around the cord and used to retract it away from the inguinal floor if necessary at any time during dissection and mesh placement. Now, the genital branch of the genitofemoral nerve is identified coursing alongside the more easily visible external spermatic vein, which appears as a blue streak lateral and posterior within the cord.

All three major nerves should be preserved during dissection. If a nerve is noted to be injured or transected during the operation, it is our practice to ligate the nerve ending and to bury it in the muscle belly to avoid neuroma formation and minimize development of neuropathic pain (known as a “pragmatic neurectomy”).

The cremaster muscles which for the outer covering of the spermatic cord are divided longitudinally near the deep inguinal ring, and the cord is explored to determine whether an indirect hernia sac is present. Complete removal or transection of the cremasteric fibres is not recommended as it results in increased risk of exposure of cord structures to mesh, increasing risk of nerve injury and chronic pain. If present, the indirect hernia sac is dissected away from cord structures until the neck of the sac is freed. The sac is then inverted into the pre- peritoneal space.

Ligation of the sac is not necessary, does not affect recurrence rate, and increases risk of postoperative pain. In the case of a large non-sliding hernia extending into the scrotum, the sac is transected at a midpoint in the canal and the distal section is left in place. The anterior wall of the distal sac should be incised to prevent hydrocele formation, but does not need to be dissected free and removed, as this increases the risk of injury to testicular vessels and testicular atrophy or loss.

If a direct hernia is observed and a large sac is present, it may be inverted to allow for adequate positioning and contact of the mesh. This closure should not be performed under tension and approximates only the transversalis fascia. A narrow-necked direct hernia may be imbricated and closed with an absorbable purse string suture. A broad-based direct hernia can be imbricated with a running suture along the floor approximating the transversalis fascia along the length of the defect.

A small opening in the inguinal floor through the transversalis fascia or an opening in the hernia sac is used to interrogate the femoral canal. (The presence of a coexisting femoral hernia may be addressed by extending the subsequent mesh fixation to Cooper's ligament.)

A 7.5 × 15 cm mesh sheet is tailored to the shape of the myopectineal orifice as described above. The mesh is first affixed at its apex to the pubic tubercle using a nonabsorbable, monofilament suture. Suturing through the periosteum of the bone increases postoperative pain and should be avoided. The mesh should overlap the tubercle inferiorly by 1–2 cm. Failure to adequately cover and overlap the pubic bone with the mesh may result in recurrence of the hernia as the mesh contracts. Once the initial stitch has been placed at the pubic tubercle, the same running stitch. The suture is continued up to a point lateral to the deep inguinal ring, as going any further risks injury to the lateral femoral cutaneous nerve.

A slit is cut along the long dimension of the mesh starting from the lateral end. This creates two tails; the superior tail should be approximately twice as wide as the inferior tail. The wider tail is passed medially and superiorly under the spermatic cord using forceps. The spermatic cord is now positioned between the two tails of the mesh. The two mesh tails are then crossed with the wider, superior tail on top, and are held in place with a clamp.

The spermatic cord is then retracted downward while the upper leaf of the external oblique aponeurosis is retracted upward, exposing the lateral edge of the rectus sheath and the internal oblique aponeurosis. When possible, the course of the iliohypogastric nerve should be identified as medial fixation places it at risk.

The superior border of the mesh is sutured to the aponeurotic portion the internal oblique adjacent to the conjoined tendon using absorbable suture in an interrupted fashion to minimize injury to the iliohypogastric nerve. These sutures should proceed superiorly to a point just medial to the internal inguinal ring. Care should again be taken in identification and avoidance of the iliohypogastric nerve which may run a sub-aponeurotic course at this level, and the mesh should not be entrapment of the intramuscular portion of the iliohypogastric nerve.

Avoidance of overtightening stitches may also reduce the likelihood of nerve injury. Finally, a single stitch of nonabsorbable monofilament suture is used to affix both the inferior edges of both mesh tails to the inguinal ligament just lateral to where the lower running suture ends. The tails should be pulled sufficiently tight to recreate the mesh internal ring while allowing for passage of the spermatic cord. A general rule is that the recreated ring should allow for passage of the tip of a haemostat, but should not be so loose as to allow passage of a finger.

The lateral mesh tails should extend at least 5 cm beyond the recreated internal ring, but any excess mesh beyond this distance may be trimmed and the corners of the tails rounded. The tails are then tucked underneath the external oblique aponeurosis, and the external oblique is closed over the cord and mesh with an absorbable suture. Care should be taken not to constrict the cord vessels at the new external inguinal ring created by this closure.

Scarpa's fascia and subcutaneous tissues are closed using absorbable suture in an interrupted fashion. Skin closure is achieved with an absorbable subcuticular suture or staples.

In 2014, the European Hernia Society (EHS) published updated consensus guidelines on the treatment of inguinal hernia in adults[21]. Based on data from the latest randomized controlled trials (RCTs), the use of the Lichtenstein tension-free hernioplasty for repair of primary, unilateral, symptomatic inguinal hernias is supported by the highest level of evidence (1A) and the highest grade of recommendation (A). This technique is considered superior to the Bassini and Shouldice methods of tissue repair.

The Lichtenstein tension-free hernioplasty has evolved over the past 20 years to produce optimal patient outcomes. The technique has the benefits of being low cost and rapidly learned, and can be performed under local anaesthesia. It compares equivalently or favourably to other repair technique methods in terms of recurrence, postoperative pain, chronic pain, and other complications. The Lichtenstein repair remains the operation of choice for repair of initial, unilateral inguinal hernias and in patients wishing to avoid the risks of general anaesthesia.

TAPP (TRANS ABDOMINAL PRE PERITONEAL REPAIR)

The origin of the TAPP repair dates back to the early 1990s and was born out of the developing interest in preperitoneal approaches to the repair of inguinal hernias. In Europe, Rives and Stoppa developed the concept of preperitoneum reinforcement of the myopectineal orifice using prosthetic mesh [22]. Over the next decade as laparoscopic approaches to general surgical problems began to take off, some early laparoscopic enthusiasts began to take interest in the laparoscopic repair of inguinal hernias. Arregui and colleagues published their early experience of a laparoscopic transabdominal approach to inguinal hernias with good results [27].

In Canada and Europe, early adopters of the TAPP approach also began publishing their results with excellent outcomes in the early to mid-1990s [28– 31]. Leibl and colleagues compared the TAPP approach (n = 48) to the Shouldice repair (n = 43) and found a decrease in postoperative pain and earlier return to normal activities in the TAPP group. At 16 months of follow-up there were no recurrences noted in either group. At 6 years follow-up, the rates of recurrence were 2 % in the TAPP group (1/48) and 5 % in the Shouldice group (2/43) [31]. While TAPP is now a widely accepted repair technique, laparoscopy is utilized in a minority of inguinal hernia repairs worldwide.

Trevisonno and colleagues found that laparoscopy was used in only 8 % of all laparoscopic inguinal hernia repairs and only 28 % of bilateral inguinal hernia repairs where its indication is more widely accepted [32].

The underutilization of laparoscopic inguinal hernia repair is multifactorial. Seventy percent of surveyed surgeons who don't perform laparoscopic inguinal hernia repair state that they consider the benefits of laparoscopy to be minimal and 59 % feel that they lack the requisite training to perform the procedure [33].

Preoperative

All patients are seen and evaluated in clinic prior to surgical intervention. An in- depth history and physical exam is performed paying significant attention to any previous groin surgeries or prostatic interventions. Both groins are inspected for the presence of hernias with manual examination. In patients with a history suspicious for inguinal hernia but no physical exam findings, an ultrasound is obtained to assess for occult hernias. Those with symptomatic hernias are offered repair and counselled extensively about the perioperative and long-term risks of repair including bleeding, infection, recurrence, and inguinodynia.

Operative technique

The patient is laid supine on the operating room table with both arms tucked. In cases of unilateral inguinal hernias, the contralateral arm may be tucked with the ipsilateral arm left at 90°. However, if an occult hernia is found on the contralateral side intraoperatively it will make the repair of the contralateral side more difficult, thus we prefer to routinely tuck both sides. All patients must void prior to moving to the operating room and thus we do not routinely place Foley catheters. Patients with a history of urinary retention or benign prostatic hypertrophy will undergo placement of a Foley catheter for bladder decompression once they have been placed under generalanaesthesia.

Sequential compression devices are placed on both lower extremities for prophylaxis against deep venous thrombosis but due to the relatively short length of case time subcutaneous heparin is not administered. Hair on the abdomen is clipped for a relatively small area surrounding the umbilicus, but the groins are not routinely clipped of hair. The abdomen is then prepped and draped.

Pneumoperitoneum is obtained using a Hasson open technique via a 1.2 cm infraumbilical incision. A 12 mm Hasson port is placed and secured to the anterior fascia using an 0 vicryl suture which will be used for fascial closure at the completion of the case. If there is a concomitant umbilical hernia present then the defect is utilized for port placement and a formal repair is performed utilizing 0 PDS suture at the completion of the case. Larger umbilical defects (greater than 2 cm) will also be reinforced with mesh during the repair. The abdomen is insufflated to a pressure of 15 mmHg and the patient is then placed in steep Trendelenburg to improve visualization of the groin. Both groins are then inspected for the presence or absence of hernias. Two additional 5 mm ports are then placed at the level of the umbilicus in the right and left midclavicular lines. A 30° 5 mm laparoscope is then moved to the 5mm port on the ipsilateral side of the hernia so that the operating surgeon can improve their ergonomics by utilizing the contralateral 5 mm port and the umbilical port for the procedure.

A generous peritoneal incision is then made from the medial umbilical fold out laterally cephalad to the myopectineal orifice. As the incision is carried laterally it can be arced posteriorly towards the psoas muscle. The dissection then begins laterally on the inferior peritoneal flap. Ample working space is created by mobilizing the peritoneum off the preperitoneal fat. The peritoneum is grasped through the instrument in the lateral port and retracted towards the contralateral side. The instrument in the umbilical port is used to push the preperitoneal fat laterally off the underlying peritoneum.

In male patients, the gonadal vessels will be the first structures of importance that are identified and these are pushed laterally off the peritoneum utilizing the umbilical port. As the dissection is carried towards the internal ring the vas deferens will be identified medial to the gonadal vessels. The vas is also mobilized off the peritoneum and hernia sac and pushed laterally. Once both the vas deferens and the gonadal vessels are mobilized off the peritoneum we transiently stop our dissection of the indirect space and move to the medial dissection. In female patients, the round ligament of the uterus is generally quite adherent to the peritoneum and attempts to mobilize the round ligament off the peritoneum will generally result in a tear of the peritoneum. Thus, we prefer to clip and divide the round ligament in nearly all patients.

We then move to the direct space to mobilize the bladder in the space of Retzius. The inferior peritoneal flap is grasped with the lateral instrument medial to the inferior epigastric vessels. The flap is retracted posteriorly and the medial instrument is used to bluntly spread through the preperitoneal fat until the rectus abdominis muscle is identified. Both instruments are then placed through this area towards the bony pelvis. The lateral instrument is used to mobilize the bladder posteriorly and is held in place while the medial instrument sweeps the bladder off the bony pelvis towards the contralateral side. These two manoeuvres should allow for excellent bladder mobilization and visualization of Cooper's ligament on both the ipsilateral and contralateral side. At this point in the procedure all three potential hernia spaces of the myopectineal orifice are now ready for exploration. For indirect hernias, the sac is grasped with the lateral instrument and retracted medially.

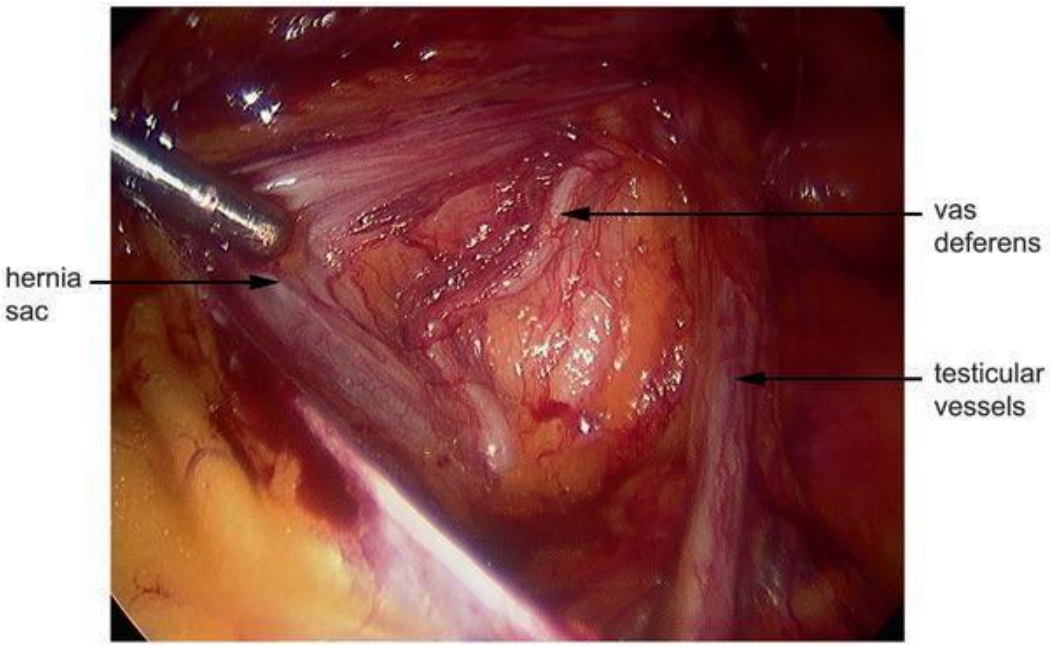
The instrument through the umbilical port is then used to push the vas deferens and gonadal vessels laterally off the hernia sac until the sac is completely reduced. In large inguinoscrotal hernias, the hernia sac can be divided leaving the distal portion open in the scrotum and the more proximal portion will be closed during reperitonealisation at the end of the procedure. The indirect space should always be assessed for the presence of cord lipomas as failure to reduce a cord lipoma is a common cause of recurrence following laparoscopic repair of inguinal hernias. For direct hernias, the transversalis fascia is identified as an inverted white structure medial to the epigastric vessels.

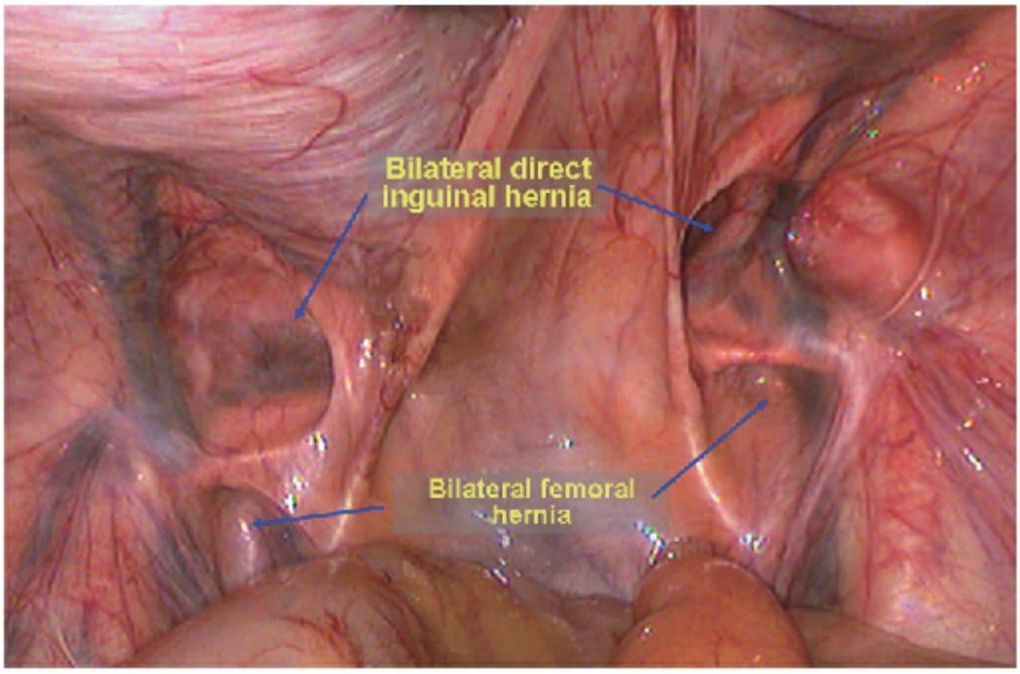
The transversalis is mobilized anteriorly off the underlying preperitoneal fat until Cooper's ligament and the epigastric vessels are easily identified. Lastly, the femoral space is explored between the iliopubic tract and Cooper's ligament medial to the iliacvessels.

Any preperitoneal fat herniating through this space is reduced. Once all the myopectineal orifice has been explored and all hernia contents and sacs have been reduced, a groove is created between the peritoneum and bladder medially and the psoas, gonadal vessels, vas deferens, iliac vessels, and bony pelvis laterally to ensure adequate inferior mesh coverage. Finally, the cephalad peritoneal flap is mobilized so that it hangs down off the abdominal wall to facilitate peritoneal closure following mesh placement. Mesh is then brought into the field through the umbilical port and positioned to cover the entire myopectineal orifice with wide overlap in all directions. There are a wide variety of mesh options available for use.

As the mesh will reside in the preperitoneal space barrier coated meshes are not necessary. There are also a variety of options for mesh fixation including self-gripping meshes, fibrin glue, permanent or absorbable tack fixation, or no fixation whatsoever. If tack fixation is planned care must be taken not to place any tacks into the major vascular structures within the field or the lateral femoral cutaneous and genitofemoral nerves which run through the field inferior to the iliopubic tract laterally. Care must also be taken not to tack within the area of the inguinal canal as the iliohypogastric, ilioinguinal, and genital branch of the genitofemoral nerve can all be injured anteriorly to transversalis fascia in this location. In general, safe areas for tack fixation include Cooper's ligament and the rectus abdominis muscle medially and the abdominal wall superior to the iliopubic tract laterally. Once the mesh is in position then the peritoneum should be closed to avoid exposure of the mesh to the viscera. There are a variety of methods available for peritoneal closure including suture, tacks, and clips.

We prefer a running continuous barbed suture closure, which is run from lateral to medial. After peritoneal closure the bed is returned to its normal position and the abdomen is desufflated under direct visualization. The fascia of the umbilical port is closed with interrupted 0-Vicryl sutures and skin sites are closed with 4-0 subcuticular Monocryl and covered with dry sterile dressings. If a Foley catheter was placed it is now removed, and the patient is then awoken from general anaesthesia and transferred to the recovery room.





COMPLICATIONS OF HERNIA SURGERY

To determine exactly the number of complications following these definitions, it is of primordial importance to describe what is the normal postoperative course of your patients and what will be considered sequelae.

Hernia-specific adverse events like postoperative seroma, hematoma and pain, need to be defined either as a sequela or a complication. This is highly relevant when we compare studies across the literature. Postoperative pain is inherent after surgery, but when it is much higher than expected it might be considered a complication. Recurence after hernia repair is a clear *"failure to cure"* and thus should be reported separately and is not considered a complication.

Seroma

As mentioned above some surgeons might consider a seroma an inevitable sequela after surgery and others as a complication.

Another classification for seroma is as clinical, minor and major complications.

Clinical seroma*:*
Those seromas detected during physical examination of patients which do not cause any problem, or just a minimum discomfort that allows normal activity.

Minor complication*:*
Important discomfort which does not allow normal activity to the patient, pain, superficial infection with cellulitis, aesthetic complaints of the patient due to seroma or seroma lasting more than 6 months.

Major complication*:*
Infection, recurrence, mesh rejection or need to be punctured.

Surgical Site Infections:
Wound infections after hernia repair is a very relevant complication that might induce significant morbidity and treatment costs and compromise the repair at longer term.

Surgical Site Infection (SSI) is classified categorically for severity by the Centre of Disease Control (CDC) as superficial SSI, deep SSI, or organ space SSI. There is a correlation to the degree of wound contamination during surgery, stratified as: clean/clean–contaminated / contaminated / dirty [56].

Surgical Site Occurrences
The Ventral Hernia Working Group introduced Surgical Site Occurrence (SSO) as a new combined complication variable after hernia repair [59]. This is a combination of SSI, seroma, hematoma, wound dehiscence, and entero- cutaneous fistula.
There are two important issues related to use of SSO as an outcome parameter. Inclusions in the definitions of Surgical Site Occurrence (SSO) according to different authors and publications
1.SSI
2.Seroma
3.Haemtoma
4.EC Fistula
5.Reoperation.

Visual Analogues Scale (VAS) for Pain:
The VAS score is often used routinely in hospitals for measuring postoperative pain and manage the pain medication. The VAS score is recorded by asking the patient to mark on a calibrated line of 10 cm long the amount of pain experienced. The left side of the line is mentioned to be "No pain" and the right side as "The worst imaginable pain." It is a good measurement in the immediate postoperative period, but less valuable to asses late chronic pain.

III. Observations And Results

The study was conducted at Madurai Medical College from june 2019 to june 2020 in the Department of General Surgery. The study involved 40 female patients who satisfied the inclusion criteria. 20 patients were subjected to Lichtenstein tension free open hernioplasty, 20 treated with TAPP.

1.Age distribution:
The age distribution of the subjects ranged from 18 to 70 years. The mean age of patients subjected to TAPP group were similar around 48 years.
However, the mean age for Lichtenstein repair was 49 years. Elderly patients were preferred for Lichtenstein tension free repair due to risks of subjecting to general anaesthesia.

		age	duration
N	Valid	40	40
	Missing	0	0
Mean		44.52	52.82
Std. Error of Mean		1.650	2.758

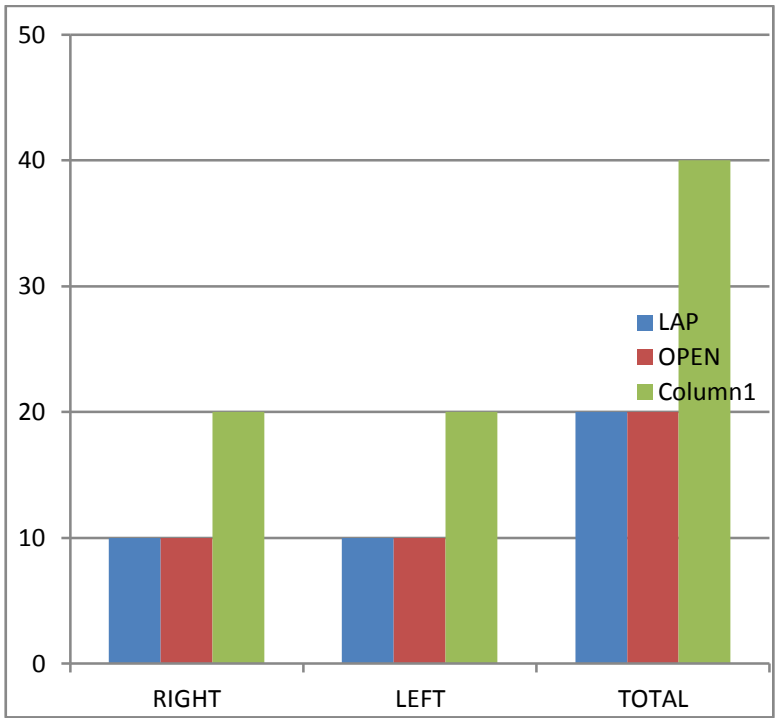
		age	duration
N	Valid	40	40
	Missing	0	0
Mean		44.52	52.82
Std. Error of Mean		1.650	2.758
Median		45.00	52.50
Mode		45[a]	70
Std. Deviation		10.434	17.441
Variance		108.871	304.199
Skewness		-.066	.144
Std. Error of Skewness		.374	.374
Kurtosis		-.468	-1.595
Std. Error of Kurtosis		.733	.733
Range		42	50
Minimum		23	30
Maximum		65	80
Sum		1781	2113

DIAGNOSIS

Each of the cases were clinically examined and diagnosed as per the European Hernia Society classification.

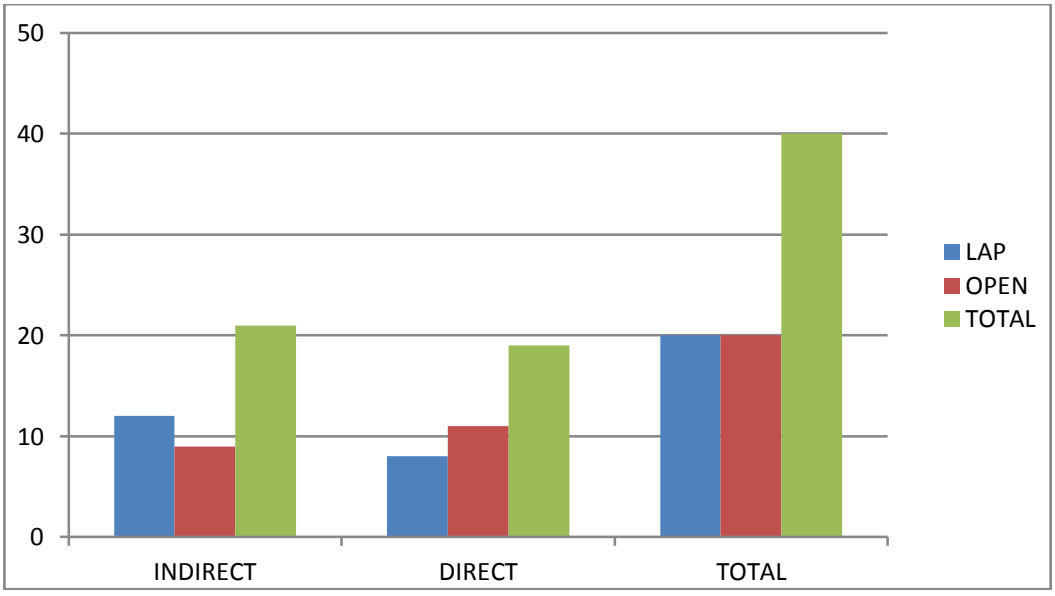
2.A. SIDE OF HERNIA

side	FREQUENCY	PERCENTAGE
RIGHT	20	50.0
LEFT	20	50.0
	40	100.0



2.B. TYPE OF HERNIA

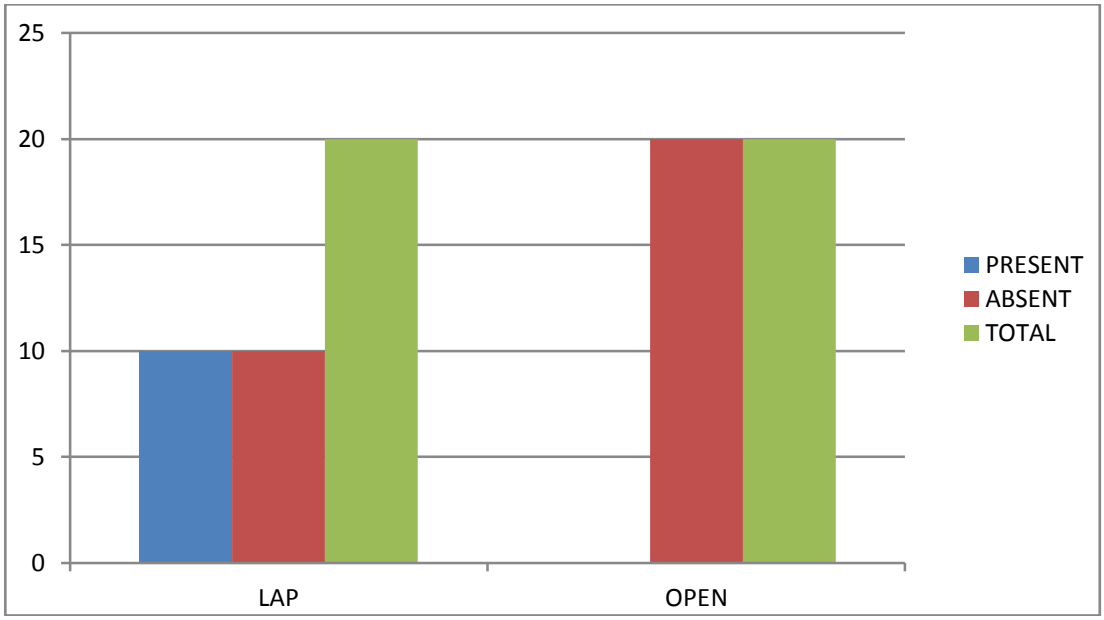
	FREQUENCY	%	VALID %	CUMULATIVE %
INDIRECT	21	52.5	52.5	52.5
DIRECT	19	47.5	47.5	47.5
TOTAL	40	100	100	100



Among the 40 cases studied 21 were lateral inguinal hernia, 19 were medial inguinal hernia . Although all hernias were preoperatively evaluated, most of the diagnosis on the type of the hernia was made intraoperatively.

CONCURRENT OCCULT FEMORAL HERNIA

CONCURRENT OCCULT FEMO-RAL HERNIA	FREQUENCY	PERCENTAGE
YES	10	25%
NO	30	75%
TOTAL	40	100%



All the above mentioned occult femoral hernias were identified intra operatively while performing laparoscopic hernia by Trans Abdominal Pre Peritoneal approach which addressed by hernioplasty in the same setting.

Procedure		Associated femoral hernia		Total	Test of significance
		yes	no		
	Lap	10	10	20	Fisher's Exact Test P value-0.000
	open	0	20	20	
Total		10	30	40	

COMORBIDITIES

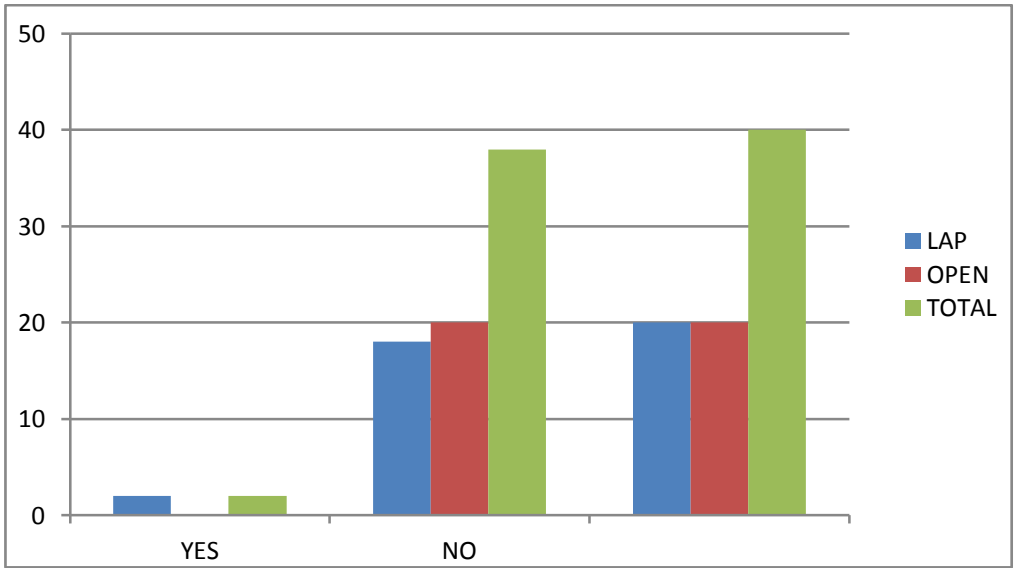
CO-MORBIDITIES	FREQUENCY	PERCENTAGE %
NIL	28	70
DM	9	22
HTN	3	8
TOTAL	40	100

Patients with uncontrolled dm, uncontrolled HTN, Advanced malignancies, renal, liver, cardiac dysfunctions were excluded from the study group.

Diabetes was the most common comorbidity in the present study group. Other comorbidities included in the present study are systemic hypertension, Chronic Obstructive Pulmonary Disease and Coronary Heart Disease. Patients with cardiopulmonary diseases were subjected to Lichtenstein tension free open hernioplasty.

1. POST-OPERATIVE PAIN:

POST OP NEURALGIA	FREQUENCY	PERCENTAGE
YES	2	5
NO	38	95
TOTAL	40	100



The post-operative pain was measured using Visual Analog Scale (VAS) 6 hours after the surgery. The patient was given a dose of Injection Tramadol 100mg in after the surgery.

The next dose of analgesic was given based on the VAS score. The pain scores were analysed with Chi square and the difference found to be statistically significant.

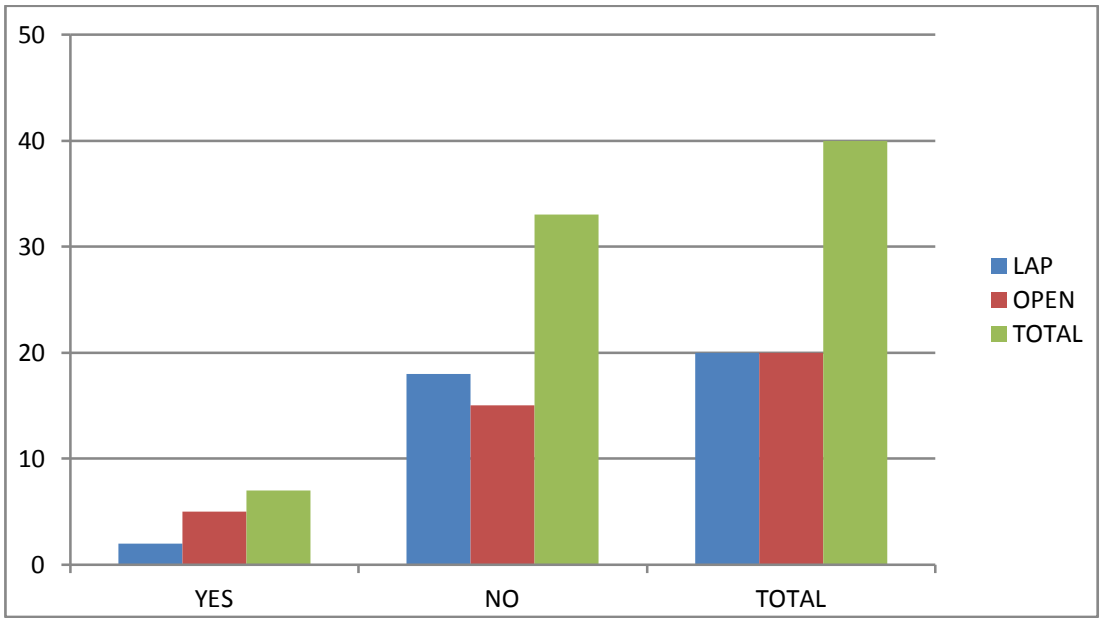
Lichtenstein tension free open hernioplasty was found to have increased post-operative pain when compared to laparoscopic repair. Among the laparoscopic repair TAPP was found to have increased post- operative pain.

2.**Seroma:**

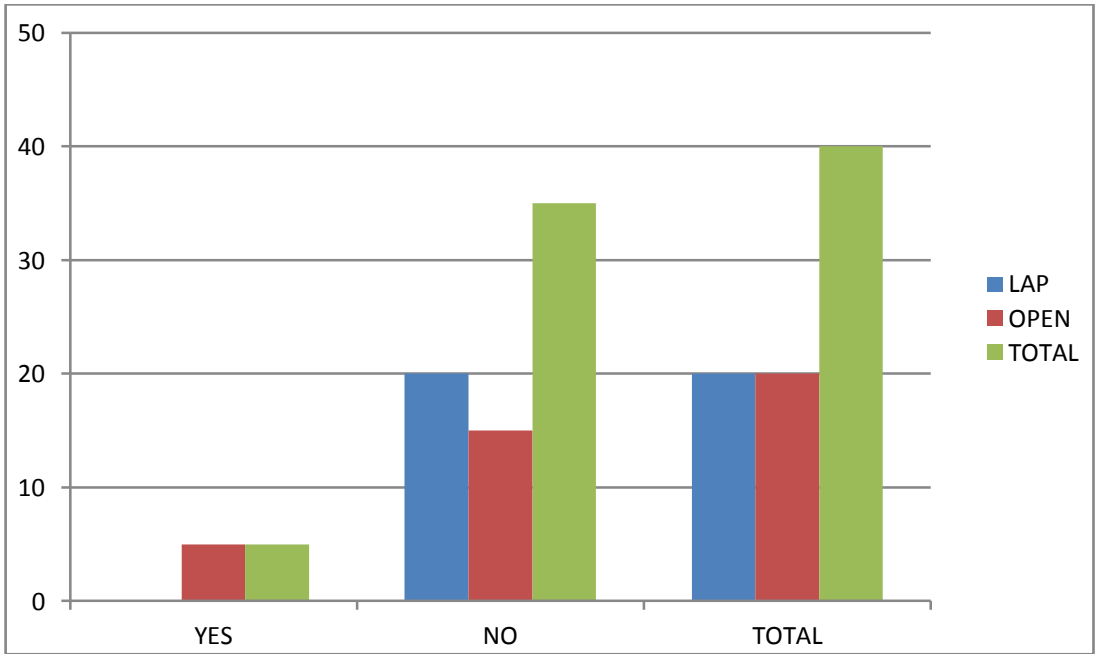
Post-operative seroma was observed only in Lichtenstein tension free open hernioplasty. 28 % of cases developed seroma which required drainage. This caused prolonged hospital stay and wound infections.

SEROMA	FREQUENCY	PERCENTAGE
YES	2	5
NO	38	95

TOTAL	40	100.0



Recurrence



Occult femoral hernias may be difficult to diagnose by physical examination and are sometimes identified unexpectedly by laparoscopy. The aim of this study was to examine the incidence of unsuspected femoral hernia discovered during laparoscopic inguinal hernia repair in two well-defined patient groups Furthermore women operated on for a recurrent inguinal hernia, presented with an unsuspected femoral hernia at surgery as opposed to men. Unsuspected femoral hernias are more prevalent in patients with recurrent hernia than in patients with primary hernia in the inguinal region. Femoral hernias may be unrecognized at the primary inguinal hernia operation, or the previous inguinal hernia operation may facilitate the formation of a femoral hernia. In women with a groin hernia, a femoral hernia should always be excluded by laparoscopy or by open exploration of the preperitoneal space.

IV. Discussion

An advantage of laparoscopic inguinal hernia repair is the opportunity for clear visualization of the diret, indirect, femoral, obturator and other groin spaces. The aim of this study was to examine /assess the potential of Trans Abdominal PrePeritoneal repair method in detecting unexpected additional hernias. The Laproscopic inguinal hernia repair approach allows viewing of the entire Myopectineal orifice, facilitating repair of any unexpected hernias and thereby reducing chance of recurrence.

According to my study out of 20 Laproscopic inguinal hernia repair 10 patients found with occult femora hernia which is 50% of llaproscopically operated patients and 25% of overall patients in my study. Out of 20 patients operated by open technique, occult femoral hernia could not be identified.

The open inguinal hernia patients were followed for 6 months out of 20 patients 5 of Them developed femoral hernia. Out of them 2 patients had symptomatic femoral Hernia.

Regarding complications of hernia, Seroma was observed in 2 patients out of 20 Patients operated by laparoscopic TAPP technique developed seroma and 5 out of 20 Patients operated in open technique developed seroma.

Regarding post op neuralgia, 1 patient in the laproscopic group and 1 patient from open hernia group developed post op neuralgia.

The aim of this study was to examine the incidence of unsuspected femoral hernia discovered during laparoscopic inguinal hernia repair in two well-defined patient groups. Patients undergoing laparoscopic transabdominal preperitoneal inguinal hernia repair from April 2000 until December 2009 (n = 561) were prospectively registered including data on previous hernia operations and identified type of hernia during surgery. We included patients whose preoperative diagnosis was either bilateral primary inguinal hernia (Primary Group) or recurrent inguinal. Unsuspected femoral hernias are more prevalent in patients with patients with primary hernia in the inguinal region. Femoral hernias may be unrecognized at the primary inguinal hernia operation, or the previous inguinal hernia operation may facilitate the formation of a femoral hernia. Unsuspected femoral hernias are especially frequent in women with primary inguinal hernia. In women with a groin hernia, a femoral hernia should always be excluded by laparoscopy or by open exploration of the preperitoneal space.

V. Conclusion

Surgical management of inguinal hernia by laparoscopic method is ideal to identify the occult femoral hernia and also correct in the same sitting. In laparoscopic method wound seroma and wound infection is less common. Though the duration of hospital stay is less in open hernia repair than that of laparoscopic inguinal hernia repair, the results are far better in identifying hidden femoral hernia which wouldn't be picked up by clinical and radiological investigations. All femoral hernias may be difficult to diagnose by physical examination and are sometimes identified unexpectedly by laparoscopy.

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