



Original Research Article

ROLE OF LICHTENSTEIN REPAIR (MESHPLASTY) VERSUS MODIFIED BASSINI'S REPAIR (HERNIORRAPHY) IN MANAGEMENT OF INGUINAL HERNIA – AN INSTITUTIONAL EXPERIENCE

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ABSTRACT

Background: The history of hernia in toto is as old as the history of surgery. Inguinal hernia, presenting as a bulge in the groin is an ancient malady, probably as old as man himself. For more than 5000 years, hernia represented an enigma to surgeons. Even to date, as stated by C. B. Mc Vay in 1954 – “In the entire history of surgery, no subject has been as controversial as the repair of groin hernia.”

Aim: To evaluate the results of lichtenstein repair (meshplasty) with modified bassini's repair (herniorraphy) of inguinal hernia with respect to pain, early and late post operative complication and recurrence

Method: A randomized prospective clinical study was conducted to evaluate the risk factors, clinical presentation, complications, management protocol and to compare the results of open non mesh repair in form of Modified Bassini's Herniorraphy with open mesh repair in form of Lichtenstein's Hernioplasty with short term outcomes over small follow up periods in patients with inguinal hernia.

Results: The age of the patients ranged between 18 years and 80 years. Swelling with pain / discomfort was the predominant mode of presentation in most of the patients, whereas 20% patients presented with only swelling. Right-sided hernias are the commonest followed by Left sided hernias. Most of the patients (97%) had some predisposing factors. Most of the patients presented and were operated after more than one year of the onset of the hernia. Post operative pain was almost the same following either surgery, but patients undergoing Lichtenstein's Mesh Hernioplasty had pain of less intensity. Occurrence of hernia is common among patients doing heavy work like agricultural labour, manual labour etc. accounting 42% of patients compared to other occupations like teacher, student, clerck, cook, conductor etc. doing moderate work. Occurrence of post operative haematoma, seroma, wound infection, cord oedema and urinary retention following Modified Bassini's Herniorraphy was slightly more than Lichtenstein's Hernioplasty. The average duration of hospital stay in patients who had undergone Modified Bassini's repair was slightly longer than following Lichtenstein's Mesh Hernioplasty. There were no recurrences in patients who had undergone Lichtenstein's Mesh Hernioplasty and 2% recurrences in patients who had undergone Modified Bassini's repair over the period of study. The present result indicates that this is not the case for early recurrence, thus emphasizing the importance of training and supervision, no matter which technique is employed. Early recurrence is likely to represent technical failure.

Conclusion: Though the present comparative study does not show any distinct advantages of one repair over the other, in the light of above results, it can be concluded that Lichtenstein's mesh hernioplasty gives superior results with no significant increase in post-operative complications and shorter hospital stay.

INTRODUCTION

The history of hernia in toto is as old as the history of surgery (Bendavid, 1989) Inguinal hernia, presenting as a bulge in the groin is an ancient malady, probably as old as man himself. For more than 5000 years, hernia represented an enigma to surgeons. Even to date, as stated by C. B. Mc Vay in 1954 – “In the entire history of surgery, no subject has been as controversial as the repair of groin hernia.” The classical definition of a hernia is “The protrusion of a viscus or a part of viscus from the walls of normal cavity containing it through a congenital or acquired aperture (Wantz, 1999).

The above definition is incomplete as the intermitancy of protrusion, peritoneal sac or not, viscus or fat, do not form hernia. Therefore, the above definition is discarded. The complete definition is – “An abdominal hernia is a defect in the normal musculo-aponeurotic and fascial continuity of the abdominal wall, respiratory or pelvic diaphragms, either congenital or acquired which permits the egress of any structures other than those which normally pass through the parietes” Of the study of the many operations available in a general surgeon's armamentarium, that of hernia repairs has been written about repeatedly (Rutkow, 1993). The rapid changes that have been witnessed in open approach surgeries, prosthetic materials and laparoscopic surgeries have made hernia surgery a most interesting field of endeavour that demands renewed discipline and dedication (Bendavid, 1998). Though a variety of procedures are performed none can be termed as an ideal procedure as each one is accompanied by varied early and late complications, the most significant being recurrence. Today any new technique must be based on a careful evaluation of its benefits and costs; benefits must be measured in clinical, social and economic terms. Similarly, benefits are accounted across the whole patient environment and across the whole healthcare system. It is no longer adequate to demonstrate that something ‘works’; it must be tested in proper trials to eliminate confounding variables.

Numerous studies have been done to decide on the most suitable technique. But, there is no general agreement regarding the same. Search for a near perfect modality of treatment of Inguinal hernia has not yet ended. Recent introduction being: Hernia System and Laparoscopic Repair of Inguinal Hernia. In spite of these, inguinal hernia still remains unconquered and poses a lot of challenge for all surgeons practicing hernia repairs. In 1891, William Bull, one of the most prominent surgeons, wrote of hernia repairs, “It is wise to estimate the value of given procedures by the relative proportion of relapses (Bull, 1891)”. Historically, the development of operation for hernia is one of the most interesting chapters in the field of medicine, since hernia have always been most common visible affliction of man amenable to surgical treatment. As common occurrence, the enigma of its etiologic background and the methods of its care through the ages, have made the hernia story an absorbing narrative which has few peers even in the field of fiction. The story in the past 100 years is a monument to the surgeon's ingenuity, but the multiplicity of modern operations for inguinal hernias is a record of basic misunderstanding of the anatomy involved. Of all the numerous procedures available for hernia repair, no single method answers all situations. Depending on the operative findings, the approach, type of repair, material used, etc have to be suitably

modified. “There is no perfect surgeon and no perfect surgical procedure in this respect - (Charles Mayo 1949)” “Until recently, the standard procedure has been open musculoaponeurotic repair using sutures ‘under tension’ to close the defect, but tension free repair using prosthetic mesh is becoming increasingly common”. The results of these repairs have varied not for different methods but also for the same methods in the hands of different surgeons. In our institution, inguinal hernia repair is one of the common surgeries performed daily. It has common occurrence at all ages. The various techniques and materials are used for repair to evaluate this. Various methods and materials for repair are described and their proponent claims the best result with his own method. The purpose of selecting the present study is to evaluate, assess clinically the results obtained by lichtensteins repair (meshplasty) with modified bassini repair (herniorraphy) of inguinal hernia in our hospital. The operations were carried out by senior surgeons, by an efficient surgeon and even by residents under supervision. These would provide good idea to study various types of treatment like lichtenstein meshpasty and modified bassini repair of inguinal hernia, and their results in terms of examination of surgery. So this study is being done to evaluate the risk factors, clinical presentations, complications, management protocol and comparison between open mesh and non-mesh repair short term outcomes in small follow up period and in relation to standard published material. To evaluate the results of lichtenstein repair (meshplasty) with modified bassini's repair (herniorraphy) of inguinal hernia with respect to pain, early and late post operative complication and recurrence

MATERIALS AND METHODS

A randomized prospective clinical study was conducted to evaluate the risk factors, clinical presentation, complications, management protocol and to compare the results of open non mesh repair in form of Modified Bassini's Herniorraphy with open mesh repair in form of Lichtenstein's Hernioplasty with short term outcomes over small follow up periods in patients with inguinal hernia. The patients included in this study were those who came to the tertiary care hospital in the surgical unit for treatment of inguinal hernia without bias on a serial basis. A total of 100 patients with inguinal hernia were admitted, investigated, operated and followed up in the study. The study was conducted over a period of three years from May 2008 to April 2011. The study was randomized using envelopes containing pieces of papers on which was written ‘Modified Bassini's Herniorraphy’ and ‘Lichtenstein's Hernioplasty’. There were equal numbers of each envelope. The envelope was selected just prior to the operating session by a person not involved in the study. All the patients in the study were blind to their treatment.

Criteria for selection of cases (Inclusion & Exclusion Criteria)

- Age more than 18 years.
- Male patient.
- All types of inguinal hernia.
- Uncomplicated cases.
- Non recurrent cases.
- Cases with good abdominal muscle tone
- Patient presenting with an emergency and who lost to follow up were excluded.

If the patients were found to have any complicating medical conditions like diabetes mellitus, hypertension, ischaemic heart disease, chronic obstructive pulmonary disease etc. were treated first for the condition and re assessed for fitness for surgery. Patients with straining factors like bladder outlet obstruction, chronic cough etc. were treated first and then were treated for inguinal hernia. The surgeons involved in the study were those normally working with the surgical firm. It involved one consultant and three residents. At the time of operation the individual surgeon had his name and grade recorded, alongside the duration of the operation - from the first incision to the placing of the last skin suture were also recorded. The ASA grade awarded to the patient by the anaesthetist was also recorded. The anatomical type of hernia was recorded as determined at the time of operation. All the hernia repairs were performed according to a standard method & all surgeons performed the same procedure. There was an equal spread of surgeons of all grades between the two treatment groups. The patients were examined personally and the results were noted according to the priorly fixed proforma. All patients were given pre-operative antibiotic prophylaxis with Inj. Cefotaxime 1gm iv. Only spinal anesthesia was administered to both the cohorts. For both the cohorts, classical incision was used i.e., 2.5 cms above and parallel to the medial three fifths of the inguinal ligament. Only sharp dissection was preferred. In case of indirect hernia, herniotomy was performed. The posterior wall repair was done by either modified bassini's herniorrhaphy or lichtenstein's mesh hernioplasty. The mesh was fixed. Postoperatively, Inj Diclofenac 50 mg iv bd was given as analgesia for 48 hours to both the cohorts. Post Operatively Inj. Cefotaxime 1gm iv 12 hourly was given for 3 days to both the cohorts.

Post operatively, patients were evaluated for the following complications

- **Pain** – Pain was evaluated by visual analogue scale / verbal response pain scale or by wong baker faces pain rating scale. Severe pain was treated by Inj. Tramadol were relevant.
- **Haematoma** - It was evaluated clinically and evacuated when required.
- **Seroma** - It was evaluated clinically and drained where relevant. Even oozing from the incision site was considered significantly.
- **Tissue Oedema & Cord Oedema** – It was evaluated clinically and were given cold compression and anti inflammatory medications..
- **Wound Infection** - It was confirmed by culture and sensitivity and treated by drainage and appropriate antibiotics.

Patients were discharged when considered fit to go about their normal routine. Sutures were removed on 7th post operative day. Patients were evaluated after first 24 hours then on 7th post operative day and was followed up after 3 months and looked for scar tenderness, induration or infection, recurrence or occurrence of hernia on opposite side or at any other site following operation. The results were compared and significance of the difference was inferred by applying and calculating according to "chi square test". Ethical clearance had been obtained from the institution for the present study.

RESULTS

A total of 100 patients with inguinal hernia were admitted, investigated, operated and followed up in the study. Out of 100 patients, 50 patients underwent modified bassini's herniorrhaphy and 50 patients underwent lichtenstein's hernioplasty. It was a randomized prospective clinical study conducted at a tertiary care hospital in navi mumbai. The result of the study was analysed by appropriate statistical tools. The result of the study are show in table 1 and table 2. The results of the study were evaluated by applying " Chi square " test, the p-value was found to be greater than 0.05 for all early and late post operative complications, duration of hospital stay and duration of surgery and hence there was no significant difference between the two procedure at any moment of time. ($p > 0.05$ - insignificant)

DISCUSSION

Even today in 2016, there are a lot of controversy about the best technique for inguinal hernia repair. There are many factors that influence the choice of the technique such as unilateral or bilateral hernia, type of hernia, complicated hernia, large inguino-scrotal hernia, recurrent hernia or previous surgery, preferred type of anaesthesia etc. Surgeon has to answer to few questions when he choices a type of hernia repair:

What are the specific indications for this repair? What are the specific complications of the repair technique? What are the results with the repair technique?. In the literature there are a lot of studies which give comparisons about the techniques of hernia repair, type and rate of complications, recurrence rate, costs and economic impact. There are various types of evidence: retrospective studies, prospective randomized trials, meta-analyses. This study is compared with some of the literature studies about mesh vs non-mesh open techniques. The objectives of this study were to study the complication rates and recurrence rates following Modified Bassini's Herniorrhaphy and Lichtenstein's Hernioplasty and to compare the above results and come to a conclusion regarding the best of the above two techniques.

Age at presentation

In a study by Bholla Singh Sidhu et al. (1996), Alan Robins and Ira M. Rutkow (1998), the following were their findings regarding the age at presentation of inguinal hernias. It is compared with the present study findings.

Mode of Presentation

In the present study without exception all patients presented with swelling in the inguinal region. In a study by Alan Hair 66% of patients presented with pain along with the swelling. (Alan Hair et al, 2001). In a study by Mike S. L. Liem, 83% of patients presented with discomfort / pain along with the swelling . (Mike S. L. Leim et al, 2003).^[10] This difference in the rate of presentation with pain between various studies may be due to the fact that pain is a subjective phenomenon and varies from person to person, each having a different pain threshold level as well as we have considered the criteria of discomfort along with pain.

Table 1. Clinical Analysis

Clinical Data	Modified Bassini's Herniorraphy (In %)	Lichtenstein Hernioplasty (In %)
Age	40 years and Below	52
	Above 40 years	34
Mode of presentation	Swelling only	48
	Swelling with pain / discomfort	18
Predisposing factors	Bladder Outlet Obstruction	22
	Chronic Cough	82
	Chronic Constipation	36
	Heavy Weight Lifting	44
	Obesity	22
	Smoking	38
	Previous H/o Appendectomy	10
	No Obvious Factor	36
Occupation	Heavy work	06
	Moderate work	46
	Light work	20
Location of hernia	Right	52
	Left	42
	Bilateral	04
Preoperative clinical diagnosis for type of hernia	Direct	32
	Indirect	68
	Pantaloon	00
Intraoperative diagnosis for type of hernia	Direct	26
	Indirect	72
	Pantaloon	02
Duration of hernia	Less than 6 months	20
	6 – 12 months	36
	More than 12 months	44
Duration of surgery	Less than 30 minutes	04
	31 – 60 minutes	12
	61 – 90 minutes	66
	91 – 120 minutes	14
	More than 120 minutes	04
Duration of hospital stay	1 – 3 days	14
	4 – 6 days	74
	7 and more days	12

Type of Hernia

Indirect hernia constituted 76% in a study by Palanivelu (C.Palanivelu et al, 2000),^[11] 63% in the study of Robb (Robb H Rutledge, 1988),^[12] 76% in the study of Bholla Singh Sidhu (Bholla Singh Sidhu et al, 1996),^[6] and 65% in the study of Ira M Rutkow.^[8] The results of the present study are comparable with the previous studies.

Location of Hernia

As can be expected the incidence of hernia is more common on the right side owing to the embryological fact the right testis descends later than the left and higher incidence of patent processus vaginalis on the right side. The following table compares the findings of the present study with previous studies. The above compilation shows that the present study is consistent with the previous studies.

Predisposing Factors

In 1804, Cooper stated that the cause of hernia is the mechanical disparity between the visceral pressure and the resistance of the abdominal musculature. He listed cough, prostatism, constipation, pregnancy, obesity and unusual exertion as the cause of increased intra-abdominal pressure and therefore causes hernia. In the study by Alan Hair et al, 18% patients of inguinal hernia had history of straining.

In a study by Mike S.L. Liem et al, the precipitating factors were COPD in 10%, BPH in 5%, constipation in 5% & strenuous activity in 24%. In this study 76% of patients had straining factors which included bladder outlet obstruction, chronic cough, chronic constipation, and heavy manual labor. This disparity may be due to the bias in hospital catchment population who belong to lower socio economic group having a history of heavy manual labor, irregular dietary habit and chronic smoking.

Occupational Distribution

The occupational distribution of our study is comparable with previous study conducted by M. Bay Nielson. In our study the patients doing heavy work constitute 42% are comparable with constantly / intermittently strenuous work group of M. Bay Nielson, who constitute 47%. Also the patients like teachers, conductors, students, clerks, cook, etc. doing moderate work who make up 33% in our study are comparable with the walking, no heavy lifting group of M. Bay Nielson which constitute 28%.

Pain

In a previous studies conducted by Callesen et al. (1999) & James E. Mc Gillicuddy showed that there was no significant difference in pain following Lichtenstein's mesh hernioplasty or modified Bassini's repair. The severity of pain was more for tissue repair i.e.,

Table 2. Postoperative Assessment

Postoperative Clinical Data			Modified Bassini's Herniorrhaphy (In %)	Lichtenstein Hernioplasty (In %)
Postoperative pain assessment	After 24 hours	No pain	24	20
		Mild pain	40	36
		Moderate pain	28	40
		Severe pain	08	04
	7 th Day	No pain	58	52
		Mild pain	26	28
		Moderate pain	16	20
		Severe pain	00	00
	90 th Day	No pain	96	96
		Mild pain	04	04
		Moderate pain	00	00
		Severe pain	00	00
Early postoperative complications	After 24 hours	Seroma	02	02
		Haematoma	06	04
		Cord oedema	10	08
		Tissue oedema	04	06
		Wound infection	00	00
		Urinary retention	04	02
	7 th Day	Seroma	10	08
		Haematoma	02	02
		Cord oedema	04	02
		Tissue oedema	02	02
		Wound infection	04	02
		Material rejection	02	02
Late postoperative complication	90 th Day	Scar Assessment	Pain	04
			Induration	02
			Wound infection	00
		Recurrence	02	00

Table 3. Comparison Of Age At Presentation

Age (in years)	Bholla Singh Sidhu et al Series	Age (in years)	Alan Robins Series	Age (in years)	Ira M. Rutkow Series
11 – 20	0%	16 – 25	4%	< 15	18%
21 – 30	12%	26 – 35	10%		
31 – 40	28%	36 – 45	17%	15 – 44	26%
41 – 50	20%	46 – 55	39%		
51 – 60	8%	56 – 65	23%	45 – 64	30%
61 – 70	24%	66 – 75	7%		
> 70	8%	> 75	1%	> 64	26%

Table 4. Comparison of Location Of Hernia

Location of Hernia	Bholla Singh Sidhu et al Series ^[6]	Ira M Rutkow Series ^[8]	Bahadir Kulah et al Series ^[13]	Present Study
Right	60%	55%	63%	60%
Left	36%	43%	37%	32%
Bilateral	4%	2%	0%	8%

Modified Bassini and less in the Lichtenstein's repairs. This can be probably explained by the extensive dissections involved in the tissue repair. Residual neuralgia following herniorrhaphy represents the most vexing complication in the inguinal region. In some cases the postoperative pain can be debilitating requiring re-exploration and division of the nerves.

Haematoma

Bleeding from either artery or vein during an inguinal hernia repair at all anatomic levels may result in haematoma formation. In a study by Bholla Singh Sidhu et al 4% of all patients developed haematoma (Bholla Singh Sidhu, 1999). In a study by Emmanouilidis, (1993) only 0.6% patient developed haematoma following Modified Bassini's repair while in a study conducted by Martin Kurzer, (1998) 2% of patients developed haematoma following Lichtenstein's hernioplasty.

Compared with the previous studies the present study has a slightly higher rate, but statistically it is insignificant. Haematoma can be a significant problem in the postoperative period if proper care is not taken intra-operatively. All control of bleeding must be done under direct vision. Careful postoperative observation must be instituted for early detection of vascular impairment and its subsequent complications of thrombosis, embolization and gangrene.

Seroma

Seroma represent exudates (e.g. solutes, water, plasma proteins including fibrin and neutrophils). Seroma results from the trauma of scalpel, scissors, cautery and foreign bodies. In a study by T. Faish et al (2000), 2% of patients developed seromas in patients who had undergone mesh plug hernioplasty.

This discrepancy in the percentage between the two studies may be attributed to the criteria used to define seroma. In our study all cases with ooze from the incision site were included. In the other study only those cases which required drainage were included.

Infection

Infection as a complication may be recognised as only a minimal discharge of pus from around a single cutaneous suture or it may be an extensive and invasive process requiring lengthy hospitalization, intravenous antibiotics and repeated operations. It is the prevention and timely treatment of significant wound infections at the time of hernia repairs that should be understood by all who perform these procedures (Mc Gillicuddy, 1998). Infection represents a dreaded complication for all types of surgeries and it is no different in inguinal hernia surgeries. Inguinal hernia surgeries complicated by infections have a higher rate of recurrence as the repairs are destroyed along with the tissues (Simchem et al., 1990; Oslon et al., 1984; Taylor, 1996).

In our study 4% of Modified Bassini and 2% of Lichtenstein's Hernioplasty developed post operative wound infection. Here the p-value was found to be insignificant. In a study conducted by Gilbert (Gilbert and Felton, 1993) found that there is no increase in wound infection with meshplasty compared to anatomical repair where mesh was not used. In a study by Emmanouilidis, (1993), it was 1% in Modified Bassini's Repair. In a study by Martin Kurzer, (1998) it was 1.3% in Lichtenstein's Hernioplasty. In a study by Bholla Singh Sidhu et al wound infection rate was 6% (Bholla Singh Sidhu, 1999). Furthermore it is important to recognize superficial from deep infections as deep infections are ominous (George, 1984). Our study is comparable with these studies.

Duration of Surgery

In the present study, it was found that average duration of surgery for patients undergoing modified bassini's herniorrhaphy was 80 minutes whereas for Lichtenstein's Hernioplasty it was about 70 minutes. The rate of infection is influenced by the duration of surgery as is seen in the study quoted by Robert Bendavid (1998).^[27] In operations which lasted 30 minutes or less, 2.7% of infection was reported and when it was 90 minutes, 9% of infection rate was recorded.

Material Rejection

In present study, it was found that there was material rejection in 2% of patients undergoing Lichtenstein's hernioplasty where as there was 0% material rejection in patients undergoing Modified Bassini's herniorrhaphy, but statistically it is insignificant.

Hospital stay

In the fast paced life of today, duration of hospital stay may be the determining factor when the rates of other complications are comparable including recurrence. In our present study the mean hospital study in case of modified Bassini's repair was 6 days and in case of Lichtenstein's mesh hernioplasty it was 5 days. From the study it can be derived that Modified Bassini's herniorrhaphy required little longer period of hospitalization as compared to Lichtenstein's hernioplasty but statistically it is

not significant. This can be attributed to the higher postoperative pain score recorded secondary to extensive tissue dissection required. Three studies quoted by Martin kuzer et al. (1998), shows that there is not much difference between the conventional tissue repair and Lichtenstein's mesh hernioplasty with regard to return to normal work and also in all the other short term complications. In the present study the mean time the patient took to return to full routine was not evaluated.

Recurrence

The ultimate test of any hernia repair is the recurrence rate. There are plenty of studies which have determined the recurrence rate for different techniques. Bendavid R (1998), after a survey of literature quoted the following recurrence and re-recurrence rate in different techniques. The above table amply demonstrates the superiority of mesh repairs over conventional tissue repairs, in both primary and recurrent inguinal hernias.

Table 5. Recurrence Following Conventional Tissue Repairs

Techniques	Recurrence	Re-recurrence
Modified Bassini	2.9% to 25.0%	6.5% to 13.4%
Shouldice	0.2% to 2.7%	2.9% to 6.36%
McVay	1.5% to 15.5%	7.4% to 5.5%
Nyhus	3.2% to 21.0%	9.5% to 27.0%

Table 6. Recurrence Following Repairs Using Mesh

Techniques	Recurrence	Re-recurrence
Rives	0% to 9.0%	1.7% to 3.2%
Stoppa	0% to 7.0%	0% to 8.0%
Lichtenstein	0% to 1.7%	0% to 3.4%
Mesh plug	0% to 1.6%	0.5% to 1.6%

In the present study there was 0 % recurrence in Lichtenstein's mesh hernioplasty group and 2% in modified Bassini's group. The study did not include recurrent hernias. A 10 year review conducted by Janu et al. (1997), to compare mesh versus non-mesh repairs reported 0.3% recurrence in mesh hernioplasty and 3.5% in non-mesh group. The p-value was insignificant ($p < 0.01$) ($n = 879$). In the study it was concluded that the results following mesh hernioplasty are superior to non-mesh repairs, with not much difference in the other early post operative complications. A four year study Csontos et al. (2005), of 714 cases had 16 recurrence (2.04%) following Lichtenstein's mesh repair. The good results indicate that Lichtenstein's mesh repair is better than the Modified Bassini's herniorrhaphy. Many studies have shown conventional tissue repair comparable with that of mesh hernioplasty. This may be due to the bias introduced by the skill of the surgeon. This is not so in mesh hernioplasty which gives consistent good result whether the surgeon is a beginner or an experienced. A study by Amid (2005), has shown that mesh repair is superior to pure tissue approximation repairs. A study by Nathan and Pappas (2004), concluded that Lichtenstein's mesh repair is the most frequently performed inguinal hernia operation with recurrence rate of less than 1%. Forte A, Gallinaro et al. (2002) stated that mesh repair of inguinal hernia is more effective than conventional Bassini's repair. Mesh repair allows optimal results both for the surgery point (easiness of the technique, repeatability, less invasivity, scanty incidence of recurrence, low frequency of postoperative complications) and in

economic terms, allowing an early mobilisation of the patients. In the present study although p-value is insignificant due to the small sample size, and the study period was too small, non-statistically Lichtenstein's mesh hernioplasty has shown superior results (0% recurrence) to that of modified Bassini's repair (2% recurrence). In the present study the maximum follow-up period was 24 months and minimum follow up period was 3 months with different patients being followed for different length of time. It is seen that follow up is inadequate as is highlighted by the following comment by F. Andrew Mosfesis et al. (1996), "In spite of the extensive use of mesh in the last 15 years, I still am not sure that we know what the effect of a piece of mesh implanted for periods of 30, 40, 50 years will be in substantial populations numbering in thousands regarding the recurrence rate of hernia repair. These figures are at best factitious. As such we are looking at long term recurrence of around 15% and it seems absurd to talk about figures of 1% and 2%."

"The truth of the matter is that apparently most patients who have recurrence go to another surgeon to have them repaired".

These results show success of hernia surgery depends primarily on the technique of repair and the experience of the surgeon. The combined recurrence rate may fall well below 0.1% with specialization and with proper selection of patients and technique tailor made for individual patients.

Conclusion

Though the present comparative study does not show any distinct advantages of one repair over the other, in the light of above results, it can be concluded that Lichtenstein's mesh hernioplasty gives superior results with no significant increase in post-operative complications and shorter hospital stay. However, the sample size and the follow up period in the current study being relatively short, a larger study sample and a longer follow up study may be needed before any further conclusions can be made. To summarise, there is no universal repair for groin hernia and no two surgeons will disagree to agree on that point. The availability of such an array of surgical techniques in the treatment of groin hernias, is bound to confuse the younger surgeons. All the techniques will have hard proponents as well as opponents. This is where the practice of evidence based medicine is very crucial and one should have close watch on the long term follow up results of any particular newer procedures. Till then one may practice a time honoured and a good surgical technique, which has the least recurrence rate, that is handed over to them by their seniors, taking into account the cost factor which is still important in the developing country like ours and with the noble thought that the patient is not a guinea pig. Recurrence following inguinal hernia repair have frustrated surgeons since the inception of modern surgery. In the quest for a perfect technique, various techniques were introduced but none guaranteed zero recurrence. But, the question as to which is the best of all available techniques suitable for all kinds of inguinal hernia still remains partly unanswered. Repair of inguinal herniation continues to be one of the most common operations in general surgery. A plethora of procedures have been proposed to achieve this repair, and numerous reports by individual surgeons and institutions have been published

describing impressive results. However, there is still no agreement about which operation is preferable in a given situation, and the reported cumulative recurrence rate varies widely from 1% in special centers to more than 30% cited in reviews. Quality assessment of hernia surgery is essential. It is necessary for education and for evaluation of new methods. For surgeons and surgical units, quality assessment is necessary for improving and defending achievements. We have a long way to go in order to make hernia repair a "once-in-a-lifetime experience" for our patients.

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