

TO EVALUATE CLINICALLY THE OUTCOME OF LICHTENSTEIN REPAIR FOR INGUINAL HERNIA IN A TERTIARY CARE CENTRE

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ABSTRACT

BACKGROUND

The first hernia repair was done by Bassini 100 years ago and all the next surgical methods and their modifications use a suture of the tissues under the tension. Lichtenstein technique challenged the concept of both the plication-darn technique and the Shouldice operation and he introduced a tension free method of hernia repair for inguinal hernia with polypropylene prosthetic mesh and it did not rely upon muscle tendon union.

MATERIALS AND METHODS

All 54 patients above 18 years belongs to both genders diagnosed to have inguinal hernia were included. All were underwent Lichtenstein's hernioplasty and different parameters were studied. Patients below 18 years and who came with recurrent inguinal hernia were excluded in this study.

RESULTS

All the 54 patients who had been operated and monitored were all from low socioeconomic status and only a few had co-morbidities and who had to be stabilised before surgery. The operation time and the intersurgeon variation time were noted and the average duration of surgery was calculated. Postoperatively, all the patients were monitored with visual analogue pain scale and checked. Follow up was done for 4 months and patients were enquired for complications and results were noted. In our study Lichtenstein's hernioplasty surgery that had been done for inguinal hernia, it is found that postoperative complications rate were very much lower except for the high incidence of seroma, which is due to the increased operating time of the surgeons. The limitations of this study was that the follow up time was short compared to other studies.

CONCLUSION

In our study, haematoma and seroma were the only two postoperative complications, which occurred following Lichtenstein repair for inguinal hernia. In that, incidence of seroma was found to be high.

KEYWORDS

Lichtenstein's Hernioplasty, Inguinal Hernias, Seroma, Haematoma.

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BACKGROUND

The current prevalence of inguinal hernias is found to be 27% in men and 3% in women. Inguinal hernia repair is one of the most commonly performed general surgical procedures worldwide. Although, many surgeries were done in previous years. Lichtenstein repair is found to be better one in open technique. This technique was superior to the previous tissue-based repairs, because the weakness of the transversalis fascia could be restored by bridging the defect with mesh rather than placing tension between tissues to close the defect, so that it would be a tension-free technique.¹

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AIMS AND OBJECTIVES

Aim

To evaluate clinically the outcome of Lichtenstein repair for inguinal hernias for the patients admitted in our hospital.

Objectives

1. To study the sociodemographic profile of the patients.
2. To measure the duration of surgery.
3. To assess the postoperative pain using visual analogue pain scale.
4. To measure the incidence of postoperative complications.

MATERIALS AND METHODS

The study involves only humans and not animals.

Type of Study

This is a descriptive and prospective clinical study of 18 months duration from November 1, 2011, to April 31, 2013.

Study Group

This study involves at least 50 patients diagnosed with inguinal hernia and admitted in general surgery.

Inclusion Criteria

Adults (above 18 years of age), both gender with inguinal hernia will be included in the study.

Exclusion Criteria

Age less than 18 years and recurrent inguinal hernia were excluded from the study.

Drugs Used

The patients will be requiring regular antibiotics, intravenous fluids, analgesics and anaesthesia drugs used in operation theatre during surgery.

Parameters Studied

The following details were collected and procedures were performed while during the study.

Demographic status-

Occupation and socioeconomic status.

Clinical Parameters-

Operation time and intersurgeon time variation.

Patient Comfort-

Pain scale, duration of hospital stay and resumption of normal activity.

Postoperative Complications-

Haematoma, seroma, wound infection, urinary infection, scrotal oedema, recurrence within 4 months.

Method of Statistical Analysis

All the collected data were entered in the Excel 2007, then data were analysed with descriptive statistics, percentages and data were expressed in diagrammatic form with help of SPSS software version 16.

Ethical Consideration

Informed consent obtained from the patients in their own language before starting protocol wise treatment and collecting data in proforma.

RESULTS

Age of the Patient (Years)	Number of Patients	Percent (%)
Below 30	12	22.2
31 to 50	18	33.3
Above 51	24	44.5
Total	54	100

Table 1. Age and Sex Distribution

A total of 63 patients were operated for inguinal hernia during the study period. Among the 63 patients, 7 patients were below the age of 18 years and 2 had recurrent inguinal hernia and they were excluded. A total of 54 patients were studied.

In this study, out of 54 patients studied, all the patients were male.

Occupation	Number of Patients	Percent (%)
Unemployed	17	31.5
Self employed	22	40.7
Employed	15	27.8
Total	54	100

Table 2. Occupation of Patients

In this study, the total number of unemployed patients were 17 (31.5%) among the 54 patients. The majority of patients were self-employed such as business men, shop owners, barber and students were 22 (40.7%) and the number of patients who were employed to other owners such as labourers, fisherman, driver and mason were 15 (27.8%).

Socioeconomic Status	Number of Patients	Percent (%)
Low	54	100
Total	54	100

Table 3. Socioeconomic Status of Patients

In this study, the total number of unemployed patients were 17 (31.5%) among the 54 patients. The majority of patients were self-employed such as business men, shop owners, barber and students were 22 (40.7%) and the number of patients who were employed to other owners such as labourers, fisherman, driver and mason were 15 (27.8%).

In this study, the socioeconomic status of all the 54 patients was low.

Swelling	Number of Patients	Percent (%)
Right side	33	61.1
Left side	19	35.2
Bilateral	2	3.7
Total	54	100

Table 4. Complaints of Patients

In this study, out of the 54 patients, the majority of about 34 of the patients had complaints of swelling in the right inguinal region (62.9%) and 18 (33.4%) of them had complaints of swelling in the left inguinal region, only 2 of the 54 patients had bilateral inguinal swelling.

Smoker	Number of Patients	Percent (%)
Yes	11	20.3
No	43	79.7
Total	54	100

Table 5. Smoking History

Alcoholic	Number of Patients	Percent (%)
Yes	9	16.7
No	45	83.3
Total	54	100

Table 6. Alcohol Consumption by Patients

In this study, about 11 patients were smokers among the 54 patients were alcohol consumers who constituted about 16.7%.

Inguinal Hernia	Number of Patients	Percent (%)
Right side	33	61.1
Left side	19	35.2
Bilateral	2	3.7
Total	54	100

Table 7. Clinical Findings in Patients

In this study, out of the 54 patients, the majority of about 34 of the patients had complaints of swelling in the right inguinal region (62.9%) and 18 (33.4%) of them had complaints of swelling in the left inguinal region, only 2 of the 54 patients had bilateral inguinal swelling.

Nyhus Classification	Number of Patients	Percent (%)
1	18	33.3
2	15	27.8
3A	17	31.5
3B	4	7.4
Total	54	100

Table 8. Nyhus Classification

In this study, 18 (33.3%) patients out of the 54 patients had Nyhus type I hernia in which there is indirect inguinal hernia with normal internal ring. About 15 (27.8%) of the 54 patients had Nyhus type II which is indirect inguinal hernia with dilated internal ring. 17 (31.5%) of the 54 patients had Nyhus type IIIA in which only direct inguinal hernia. About 4 (7.4%) of the 54 had Nyhus type IIIB in which indirect inguinal hernia with defect in the posterior wall. Nyhus type IIIC and type IV are not included in this study as they were femoral and recurrent hernias, which may need surgeries other than Lichtenstein repair.

Operating Time (Minutes)	Number of Patients	Percent (%)
Up to 80	10	18.5
81 to 100	38	70.4
More than 100	6	11.1
Total	54	100

Table 9. Duration of Surgery

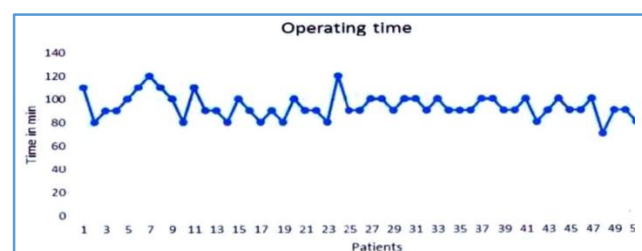


Figure 1. Operating Time Variation

In this study, the average time taken to complete the Lichtenstein repair was 92.5 mins. The minimum time taken by the surgeons to complete the surgery was 70 minutes and the maximum time taken was about 120 minutes. Majority of the Lichtenstein repair were finished between 81 to 100 minutes, which 38 (70.4%) of the 54 patients.

Postoperative Pain	8 th Hours	16 th Hours	24 th Hours
Mild	35 (64.8%)	17 (31.5%)	1 (1.9%)
Moderate	19 (35.2%)	2 (3.7%)	0
Severe	0	0	0
Nil	0	35 (64.8%)	53 (98.1%)
Total	54 (100%)	54 (100%)	54 (100%)

Table 10. Postoperative Pain

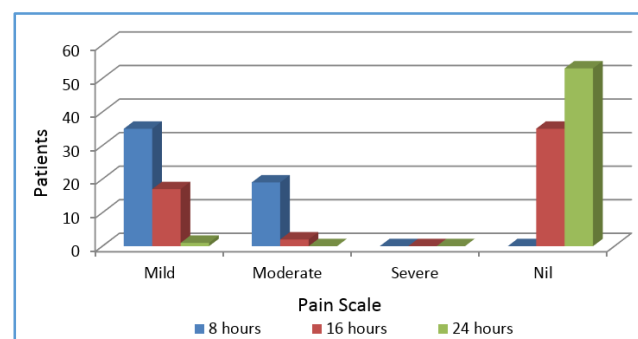


Figure 2. Postoperative Pain

In this study, postoperatively, the severity of pain at 8 hours after surgery were mild for 35 (64.8%) patients and moderate for 19 (35.2%) patients out of 54 patients and none had severe pain. At 16 hours after surgery, the severity was mild 17 (31.5%) and moderate for 2 (3.7%) of the 54 patients and 35 (64.8%) patients did not have pain. At 24 hours after surgery, only 1 (1.9%) of the 54 patients had mild pain.

Total Number of Days	Number of Patients	Percent (%)
1 to 5	8	14.8
6 to 10	34	63
11 to 15	11	20.4
16 to 20	1	1.9
Total	54	100

Table 11. Total Number of Days of Patients Stay in Hospital

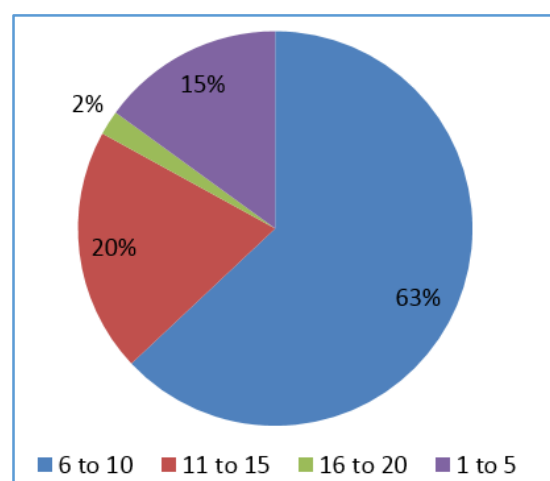


Figure 3. Duration of Hospital Stay by Patients

In this study, the average hospital stay days for all the 54 patients was 8.4 days. Most of the patients stayed for 6 to 10 days, which were 34 (63%). About 8 (14.8%) of the 54 patients stayed for only 1 to 5 days and were discharged. About 11 (20.4%) of patients stayed for 11 to 15 days. Only 1 (2.9%) of the 54 patients had to stay for 18 days.

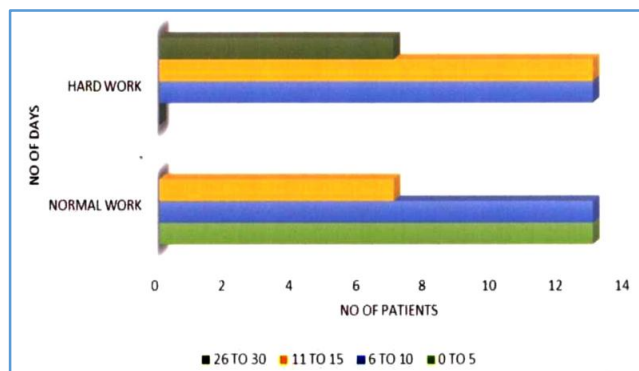


Figure 4. Resumption of Normal Activity

In this study, 13 patients of the 54 returned to normal work within 5 days. About 13 patients returned to normal work within 6 days to 10 days and about 7 returned within 11 to 15 days. Also, 13 of the 54 patients returned to hard work within 6 to 10 days. Another 13 patients returned to hard work between 11 to 15 days. 7 patients returned to hard work at 25 to 30 days. The average days for the patients to return to normal work was 7.29 days and average time for the patient to return to hard work was 15.73 days.

Complications	Number of Patients	Percent (%)
Haematoma	1	1.85
Seroma	5	9.25
Wound infection	0	0
Urinary retention	0	0
Neurological	0	0
Scrotal oedema	0	0
Recurrence	0	0
Nil	48	88.9
Total	54	100

Table 12. Postoperative Complications

In this study, out of the 54 patients, only 1 (1.85%) had haematoma formation and 5 (9.25%) had seroma formation. Other complication such as the wound infection, urinary retention, scrotal oedema and recurrence were not present in any of the patients.

DISCUSSION

Lafferty et al 1998 in his study stated that surgery for inguinal hernia is one of the most common elective surgeries done worldwide. He also stated that Lichtenstein's repair is the safest and successfully done daycare procedures. The same findings were said by Marcelo A. Beltran, Karia S. Cruces that Lichtenstein's repair is commonest procedure done for inguinal hernias.²⁻⁷

Cheek et al 1998 in his study stated that the results of inguinal hernia repair can be presented with the rate of recurrence, intra- and postoperative complications, pain and with quality of life of the patients.

In this study, there were totally 63 patients operated in the study period, 7 patients were below the age 18 years and 2 had recurrent inguinal hernia and they were excluded. Out of the 54 patients studied, all were from low socioeconomic status and everyone was male patients. Majority of the patients were self-employed who were businessmen, shopkeepers, etc. Others were employed under an ownership such as the labourers, drivers and fishermen. Unemployed patients were also there with complaints of inguinal swelling.

Most of the patients were above the age of 51 who constituted 24 of them. About 18 patients and 12 patients were between 31 to 50 years and below 30 years of age, respectively. All the patients were male and this statement is in relation with the fact that inguinal hernia is disease of the male sex.⁸⁻¹¹

In this study, the average time taken by the surgeons to complete the surgery was 92.5 minutes and the time for all surgeries ranged from 70 to 120 minutes. In a study done by Karatepe et al¹² stated that the operative time for patients getting operated for inguinal hernia ranged from 30-120 minutes and the average time was 44.56 minutes. In this study, the average time taken for performing the surgery was longer. The wide operating time range was due to the difference in the intersurgeon operating time variation.

In this current study, the postoperative pain was assessed by measuring the pain by visual analogue pain scale scoring. All the patients had mild pain within 8 hours after the surgery and majority of the patients did not have after 16 hours. Only one patient have mild pain after 24 hours.

Bay-Nielsen et al¹³ observed moderate-to-severe pain in 3.9% postoperatively and they required analgesics. Srivastava et al¹⁴ studied the postoperative pain for patients undergoing inguinal hernia repair under local and general anaesthesia and found that the percentage of patients undergoing surgery in spinal anaesthesia have an increased pain postoperatively and needed analgesics. Aroori et al¹⁵ studied that there is 9% incidence of severe chronic pain after inguinal hernia repair immediately in the post operation period. In this study, the postoperative period was comfortable for all the patients with only mild pain as the complaint for them. Proper analgesics were given for the patients when the severity of the pain increased.

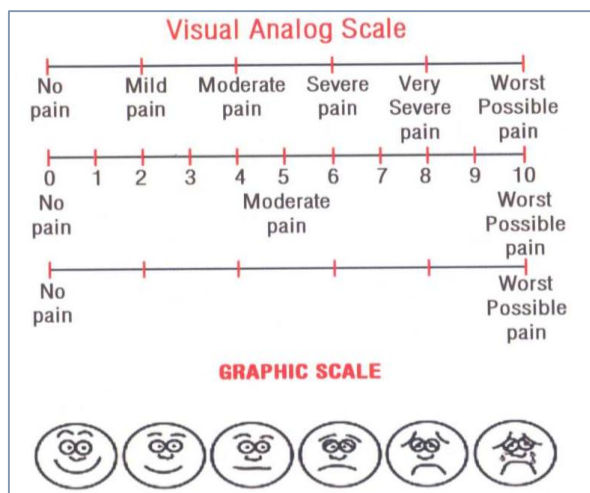


Figure 5. Visual Scale

In this study, the mean hospital stay for the patients was 8.4 days and the number of days in the hospital stay ranged from 4 to 18 days. Karatepe et al¹² in his study stated that the mean hospital stay was more 1.6 days (1-3 days). In this study, the duration of hospital stay was more and this was because the patients were discharged only after suture removal. Few patients had complications, which were rectified and discharged, which was the reason for a longer number of days stay in the hospital.

Liem et al¹⁶ studied the average resumption of activities of the patients after the surgery and found the average time for the patients to return to normal work were 10 days and to return to hard work were 32 days. In this study, the average return to normal work was 7.23 days and the average return to hard work was 15.73 days. Here, the return work of the patients who underwent surgery for inguinal hernia repair is less. In the follow up time when the patients were asked about the quick return to work, majority of them had answered that the postoperative pain was less, which prompted them to go for normal work earlier. About half of the patients were unemployed and they did not return to work.

In this study, the total morbidity of the patients constituted 11.1% among, which haematoma was 1.85% and seroma was 9.25%. Other complications such as the wound infection, urinary retention and scrotal oedema were not present for the patients.

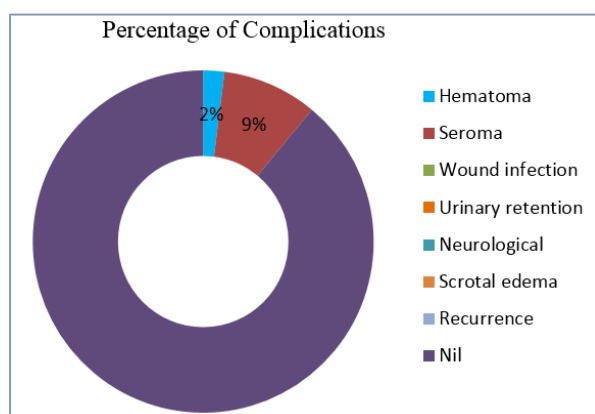


Figure 6. Incidences of Complications

Shrestha SK, Sharma VK¹⁷ studied the postoperative outcome patients undergoing Lichtenstein's repair for 64 patients. In that study, the incidence of haematoma was 3.1%, seroma was 1.6%, scrotal swelling 3.1%, wound sepsis 1.6% and recurrence was 2%.

Bobby Dasari et al¹⁸ studied the postoperative complications of Lichtenstein's repair and his results were that the seroma formation was 1.1%, urinary retention was 3.3% and recurrence was 1.1%. In this study, the other complications such as the scrotal oedema, haematoma and wound infection were absent.

Arshad Malik et al¹⁹ in his study stated that the postoperative complications were that the haematoma was 4.3%, seroma was 2.3% and wound infection was 6.6%; urinary retention was 5.4%, neurological complication were 3.6% and recurrence was 2%.

Karatepe O et al studied the postoperative complications with the incidence of mesh infection 0%, haematoma 4.5%, seroma 5.5%, scrotal oedema 0%, urinary retention 9.09%, wound infection 22.7% and recurrence 2%.

In this study, the incidence of the postoperative complications such as that the haematoma was 1.85% and seroma was 9.25%. Other complication were absent for the patients who underwent Lichtenstein's repair. Totally, only 1 patient among the 54 patients had haematoma formation. This is in relation with the incidence of haematoma noted in various other studies. The incidence of seroma is more in this study compared to the other studies and this may be due to the reason that the operating time of the surgeons is more.

In the other studies that had been mentioned earlier, the operating time was an average of 44 minutes, but in this study, it was 90 minutes, which may be responsible for the formation of the seroma postoperatively.

CONCLUSION

In our study, haematoma and seroma were the only two postoperative complications, which occurred following Lichtenstein repair for inguinal hernia. In that, incidence of seroma was found to be high.

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