



Early Postoperative Complications of Emergency Lichtenstein Hernioplasty

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Abstract

Background: Lichtenstein hernioplasty is currently considered Gold Standard for inguinal hernia repair. As per recent studies the early complications of emergency Lichtenstein hernioplasty are wound seroma, ischemic orchitis, neuralgic pain, urinary infection, hematoma, local ecchymoses, testicular swelling, hydrocele, post operative fever and wound infection. The purpose of this study is to analyze the early postoperative complications of emergency Lichtenstein hernioplasty in a tertiary health center in North Kerala.

Aim of Study: To study the early postoperative complications of emergency Lichtenstein hernioplasty and the risk factors and comorbidities that predisposes to these complications.

Materials and Methods: A prospective study conducted in 100 patients admitted in the emergency Department of Surgery in Govt. Medical College, Kozhikode.

Results: Superficial Surgical Site Infections (SSI) are found to be most common post operative complications (9%) followed by urinary tract infection, hematoma, seroma, ipsilateral scrotal edema and significant inguinal pain. COPD and smoking are the comorbidity and risk factor associated with complication of emergency hernioplasty and no significant correlation found between other risk factors, comorbidities and complications.

Keywords: Lichtenstein repair, complications of hernioplasty, Emergency hernioplasty.

Introduction

Inguinal hernia is protrusion of abdominal cavity contents through the inguinal canal. There are two types of inguinal hernias – direct and indirect, which are defined by their relationship with the inferior epigastric vessels¹. Direct inguinal hernia occurs medial to the inferior epigastric vessels when abdominal contents herniate through a weak spot in the fascia of the posterior wall of the inguinal canal which is formed by transversalis

fascia. Indirect hernia occurs when abdominal contents protrude through deep inguinal ring lateral to inferior epigastric vessels. Nearly 5% of hernias presenting at outpatient clinics and 95% presenting as emergencies are complicated hernias either incarcerated or strangulated hernias³.

“The history of hernia is history of surgery”⁹. The earliest document of hernia appears in Egyptian Papyrus of Ebers of 1550 BC². Going through the history, the development of recent techniques of

repair of hernia has been an evolution over centuries by the effort of so many great eminent personalities. Lichtenstein and group described strengthening of posterior wall with mesh, is considered to be the gold standard now with very low recurrence rate, under local anesthesia^{4,5,6}. Although groin hernia repair is associated with excellent short and long-term outcomes, complications of the procedure exist and must be recognized. Early post operative complications are more seen in emergency hernioplasty compared to elective surgery.

Aim of Study

- 1) To study the early postoperative complications of emergency Lichtenstein hernioplasty.
- 2) To identify the risk factors and comorbidities that predisposes to these complications.

Materials and Methods

This is a prospective study conducted in Dept of Surgery in a tertiary care center Kerala over a period of 1 year starting from March 2016 with a sample size of 100. All patients are admitted in emergency department for emergency hernioplasty.

Inclusion criteria

- 1) Age group 13 years above
- 2) Cases presenting to the emergency department with the complications (Irreducible hernia, strangulated and obstructed hernia) who undergo emergency Lichtenstein hernioplasty.
- 3) All patients who are willing for follow up after surgery for at least 1 month.

Exclusion criteria

- 1) Recurrent hernia.
- 2) All patients with any active source of infection.
- 3) All patients who are not willing to give consent for study.

Samples are selected by the above mentioned criteria and sent for routine investigations and

preanesthetic consultation. They have undergone Lichtenstein hernioplasty under sub-arachnoid block. Post-operatively, patients are shifted to ward and started antibiotics and analgesics and other supportive care. Patients are followed up for the above mentioned complications till discharge and after that for a minimum period of 4 weeks in outpatient department.

Observation and Results

As per the criteria 100 patients admitted in surgery wards following emergency hernioplasty are studied until discharge from hospital and after that on outpatient basis. Results are analyzed with appropriate statistical methods by SPSS software. The associations of study variables are analyzed using chi-square test and a P-value of <0.05 was taken as significant. All patients included in this are males and the mean age group is found to be between 53-63 years. Among this, complicated hernias are distributed widely from 30-70 years with maximum incidence in age group of 51-70 years. As per the data, complications of inguinal hernia are commonly seen in an occupational group with light works (81%) compared to heavy works (19%). In our study 74% did not developed any complications and the rest had any one of the complications as mentioned. Superficial Surgical Site Infection (SSI) is the most common complication in this study (9%) which is diagnosed as per CDC criteria. None of them had deep seated infection that leads to mesh removal. Second most common complications in this study are Urinary Tract Infection, hematoma and ipsilateral scrotal edema (each 4%). All these patients belong to indirect type hernia and the reason may be due to excessive dissection of cord. Third most common complication studied is seroma in 3% patients. 2% patients had significant post operative pain till post operative day 4 and 5. These patients received high doses of analgesics. In our study we have correlated risk factors such as smoking, heavy work, chronic constipation and prostatic symptoms and comorbidities such as hypertension, DM, CAD, COPD and obesity, with

its complications studied. No significant correlation found between overall risk factors, comorbidities and complications studied. But on studying individual risk factors with individual complications, it is found that COPD have statistically significant association with SSI (p value 0.013). In accordance, 80% of COPD patients in the study group are having history smoking⁴⁵. Other risk factors and comorbidities were also studied with each individual complications but no significant association was found.

Table 1: Age group of patients studied

| Age group | Frequency | Percentage |
|--------------|-----------|------------|
| 13-30 | 1 | 1% |
| 31-40 | 10 | 10% |
| 41-50 | 28 | 28% |
| 51-60 | 36 | 36% |
| 61-70 | 21 | 21% |
| 71 and above | 4 | 4% |
| Total | 100 | 100% |

Table 2: Occupation distribution

| | Frequency | Percentage |
|------------|-----------|------------|
| Light work | 81 | 81% |
| Heavy work | 19 | 19% |

Table 3: Distribution of risk factors

| Risk factors | Frequency | Percentage |
|--------------------|-----------|------------|
| Heavy work | 19 | 19% |
| Smoking | 34 | 34% |
| COPD | 5 | 5% |
| Constipation | 9 | 9% |
| Prostatic symptoms | 26 | 26% |

Table 4: Distribution of comorbidities

| Comorbidities | Frequency |
|-------------------------|-----------|
| Hypertension | 19 |
| Diabetes | 29 |
| Coronary artery disease | 7 |
| Obesity | 9 |

Table 5: Distribution of complications

| | Frequency | Percentage |
|-----------------|-----------|------------|
| No complication | 74 | 74% |
| SSI | 9 | 9% |
| Hematoma | 4 | 4% |
| Uti | 4 | 4% |
| scrotal edema | 4 | 4% |
| Seroma | 3 | 3% |
| Pain | 2 | 2% |

Table 6: Distribution of complications

| Age group | frequency |
|--------------|-----------|
| 13-30 | 0 |
| 31-40 | 2 |
| 41-50 | 10 |
| 51-60 | 4 |
| 61-70 | 7 |
| 71 and above | 3 |
| Total | 26 |

Table 7: Correlation of comorbidities and complications

| Complications | Comorbidities | | Total |
|---------------|---------------|--------|-------|
| | Present | Absent | |
| Present | 18 | 8 | 26 |
| Absent | 52 | 22 | 74 |
| Total | 70 | 30 | 100 |

P value - 0.920

Table 8: Smoking and complications

| Complications | Smoking | | Total |
|---------------|---------|--------|-------|
| | Present | Absent | |
| Present | 7 | 27 | 34 |
| Absent | 19 | 47 | 66 |
| Total | 26 | 74 | 100 |

P value - 0.376

Table 9: correlation of COPD with complications

| Complications | COPD | | Total |
|---------------|---------|--------|-------|
| | Present | Absent | |
| Present | 3 | 2 | 5 |
| Absent | 23 | 72 | 95 |
| Total | 26 | 74 | 100 |

P value - 0.075

Table 10: correlation of COPD with SSI

| SSI | COPD | | Total |
|---------|---------|--------|-------|
| | Present | Absent | |
| Present | 2 | 3 | 5 |
| Absent | 7 | 88 | 95 |
| Total | 9 | 91 | 100 |

P value - 0.013

Discussion

The early postoperative complications of emergency Lichtenstein hernioplasty are compared with various study conducted from different centers. The most common complication in this study is Superficial Surgical Site Infection (9%) This is comparable with studies conducted by Nadir et al, Hadi et al, Saeed et al which had SSI rate 7.1%, 7.4% and 8.6 % respectively^{10,11,12}.

Second most common complications UTI, hematoma, and ipsilateral scrotal edema (each 4%). Incidence of UTI is comparable to the study by Hameed Khan et al which is 5.9%²⁸. Incidence of hematoma is slightly higher to studies conducted by Naeem M et al and Pajanen H Varjo R et al which are 1.8% and 3% respectively^{10, 14, 15}. Seroma (3%) and post operative pain (2%) in this study comparing to the previous studies were 3.97%, 3.6% respectively. In a study conducted by Hameed Khan et al 7.2% patients had post operative pain²⁹.

Conclusion

- 1) Superficial Surgical site Infection is found to be most common complication of emergency hernioplasty followed by UTI, hematoma, seroma, ipsilateral scrotal edema and significant inguinal pain
- 2) COPD and smoking are the comorbidity and risk factor associated with complication of emergency hernioplasty

Most of the patients did not develop any complications and most of the comorbidities and risk factors have no association with the complications. Early diagnosis and prompt management in complicated hernias done under emergencies yield good results in our health care set up and proper awareness in the community about this condition will give better encouraging results.

Acknowledgements: Nil

Source of Support in the form of grants: Nil

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