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A COMPARATIVE STUDY OF LAPROSCOPIC (TOTAL EXTRA PERITONEAL) AND OPEN LICHENSTEIN REPAIR OF INGUINAL HERNIA

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ABSTRACT

Hernia is a common surgical problem and regardless of their location and type the treatment is a surgical repair. Inguinal hernia repair using tension free mesh through an anterior open approach is time tested, well understood surgery with high success rate. With the advent of laproscope and increase in spectrum of minimal invasive surgery, laproscopic hernia repair now has gained acceptance as a method of inguinal hernia repair. In this study we have compared the effectiveness and safety of Laproscopic (Total extraperitoneal) and Open lichtenstein repair in the treatment of inguinal hernia. 25 cases each of laproscopic and open repair were included in the study.

Key Words: *Inguinal Hernia, Laproscopic, Open Lichtenstein Repair*

INTRODUCTION

Since the dawn of surgical history, hernias have been a subject of interest, and their treatment has evolved through several stages. The history of hernia is the history of surgery (Bendavid, 1989).

The history of hernia begins as early as the Greco- roman era, the earliest recorded reference appearing in the Egyptian Papyrus of Ebers (Crica 1552 B.C) (Lyons and Petrucelli, 1987). The ancient hindu surgeons treated hernia by severing the sac and cautery (Thorwald, 1957). Heliodorus was the surgeon who performed the first hernia operation. He separated the sac from the cord, twisted off the sac, and ligated the vessels without touching the testicles of reconstructing the posterior wall off the inguinal canal (Skandalakis *et al.*, 1989).

A sutureless version of the Lichtenstein technique, transversing the internal ring to replace a prosthetic graft between the peritoneum and the transversalis fascia was creatively described by Gilbert (1992). Robbins and Rutkow have extended the technique with their work on the open mesh plug hernioplasty (Robbins and Rutkow, 1993).

The inguinal canal is an oblique intermuscular slit about 4 cm long lying above the medial half of the inguinal ligament. It commences at the deep inguinal ring and ends at the superficial ring (Sinnatamby, 2000). It is directed downwards, forwards and medially. In infants, the superficial and deep inguinal rings are almost superimposed and obliquity of the canal is slight (Russell *et al.*, 2004).

Era of Minimal Access Surgery

In the last 2 decades there has been development in repair of inguinal hernias laparoscopically. Ger repaired an indirect inguinal hernia laparoscopically in 1982 (Ger, 1982). Arregui introduced TAPP (Trans- Abdominal Preperitoneal Repair) in 1991 (Arregui, 1991).

The inguinal ligament is the folded lower border of the aponeurosis of the external oblique presenting a grooved superior abdominal surface (the floor of the inguinal canal), and which stretches from the anterior superior iliac spine to the pubic tubercle. It has variously been called the crural arch, superficial crural arch, and poupart's ligament (Williams, 1995).

Anatomy of Hernia

Boundaries (Chaurasia, 1991)

Anterior wall is formed by the following

In its whole extent

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- a) Skin
- b) Superficial Fascia
- c) External Oblique Aponeurosis
- In its lateral 1/3 rd
- Fleshy fibres of the internal oblique muscle.
- Posterior wall
- In its whole extent
- a) Fascia Transversalis
- b) Extraperitoneal Tissue
- c) Parietal Peritoneum
- In its medial 2/3 rd
- Conjoint tendon
- Reflected Part of Inguinal Ligament (Medial End)
- In its lateral 1/3 rd Interfoveolar Ligament (when present)

Roof

Arched fibres of internal oblique and the transversalis abdominus muscles.

Floor

Grooved upper surface of inguinal ligament and the medial end by the lacunar ligament.

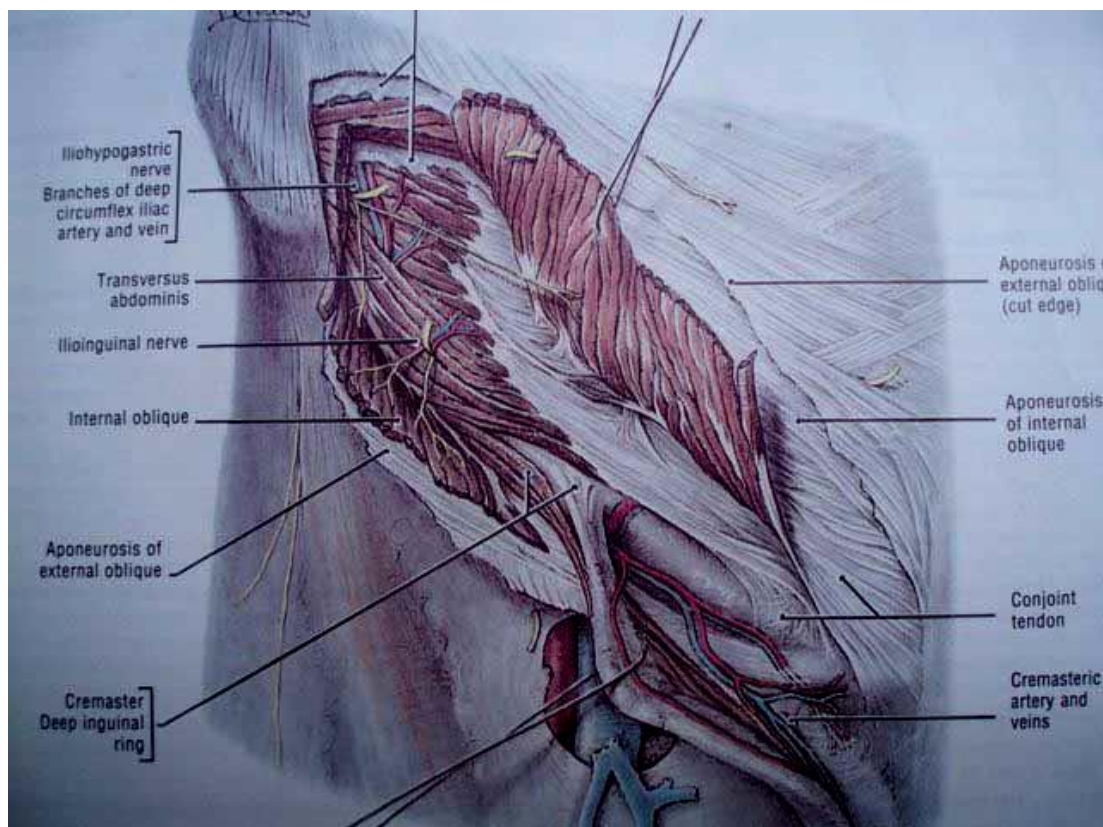


Figure 1: Boundaries of inguinal canal

The two commonly performed laparoscopic herniorrhaphies, the transabdominal preperitoneal (TAPP) and the totally extraperitoneal (TEP), are modeled after the open preperitoneal operation described above. The major difference is that the perioeritonaal space is entered through three trocar sites rather than a large open incision (Robert *et al.*, 2005).

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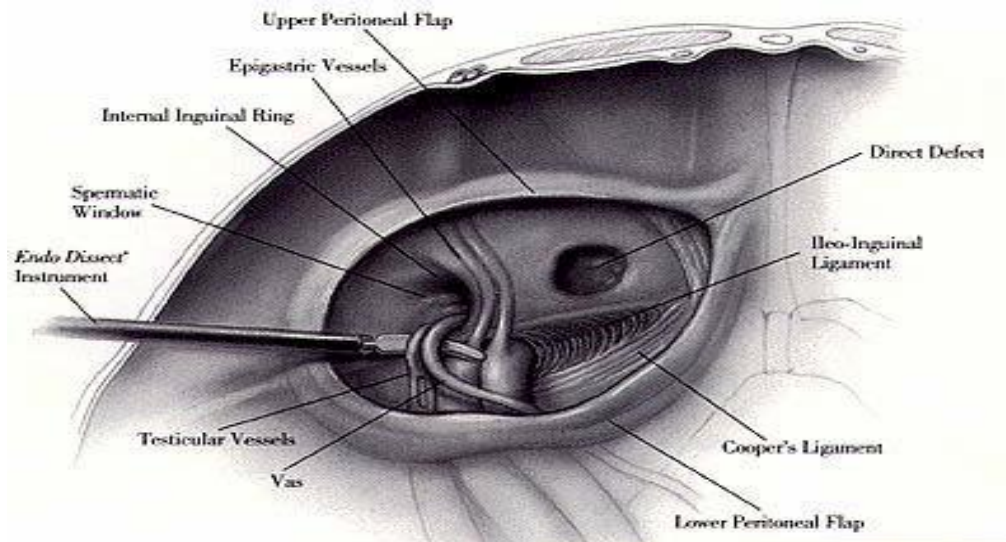


Figure 2: Laproscopic anatomy of inguinal canal

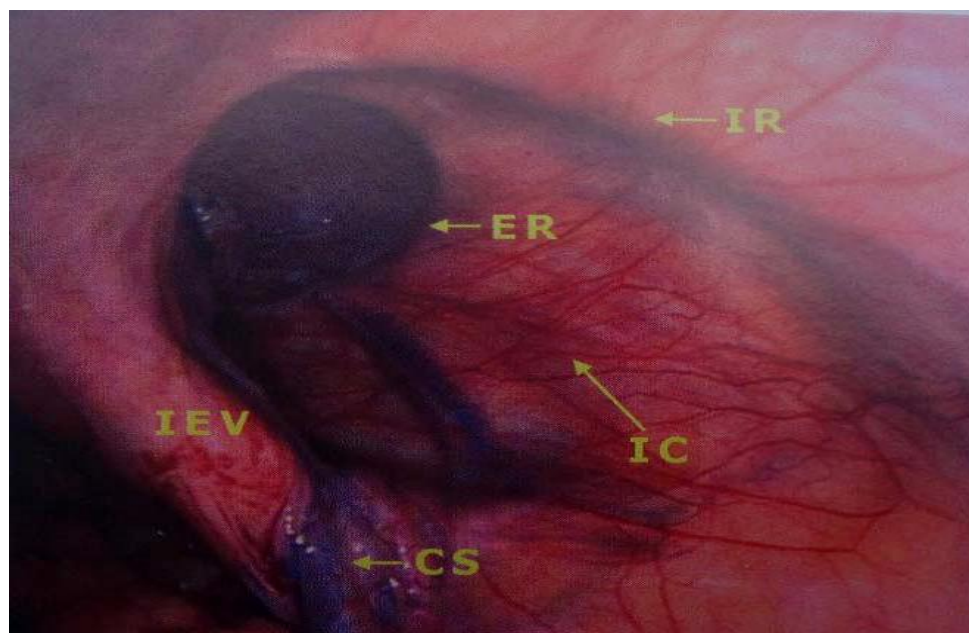


Figure 3: Laproscopic view of hernial sites

IR – Internal Ring E R – External Ring
 IC – Inguinal Canal C S – Cord Structure
 IEV – Inferior Epigastric Vessels

MATERIALS AND METHODS

Methodology

The present study is a prospective study of 50 cases of inguinal hernia admitted in Mahatma Gandhi Medical Collage Hospital, Jaipur during the study period of 1st July 2011 to June 2013. 50 cases for the purpose of the study were selected on the basis of the non probability (purposive) sampling method.

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The Inclusion Criteria

Patients with unilateral or bilateral inguinal hernia with reducible and non obstructive and either primary or recurrent hernias are included in the study.

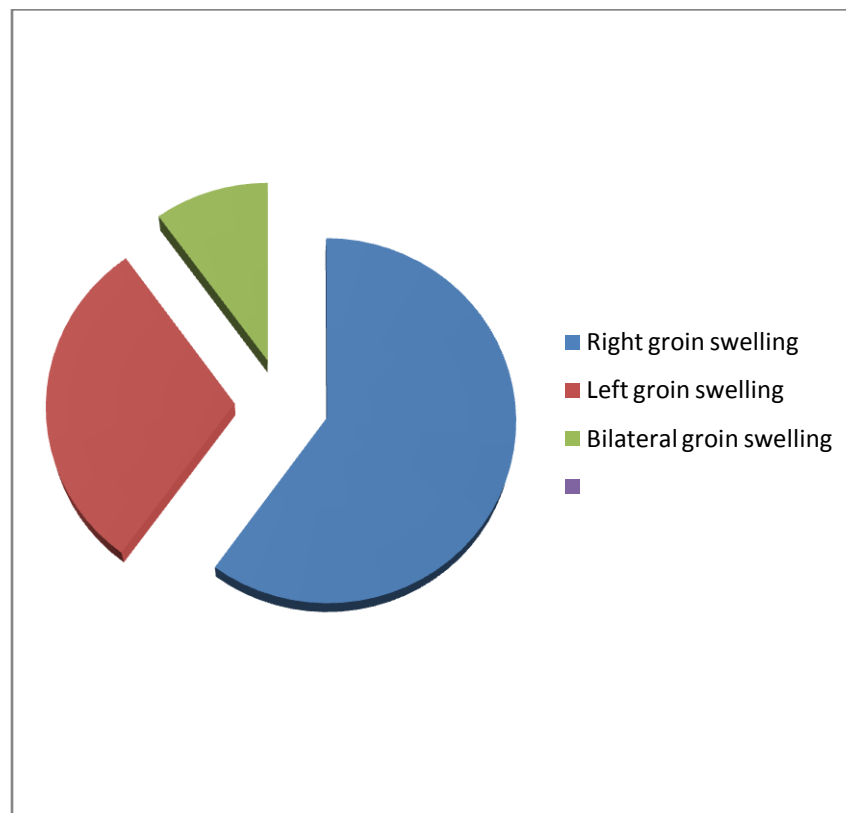
Occupational Diseases

Valid	Frequency	Percent
Business	8	15
Labourer	10	20
Farmer	24	49.2
Others	8	15
Total	50	100

The Exclusion Criteria Are

All patients who presented with complete hernia and with complications of inguinal hernia like obstruction or strangulation are excluded from the study. Also patients who had undergone lower abdominal surgery previously and ASA Gr>3 are also excluded from the study.

All the patients included in the study shall be evaluated to a thorough history and physical examination. In addition to routine blood and urine investigations. Other investigations are also done if required. Radiographic procedures like USG and ECHO are recommended if it is indicated for certain patients.



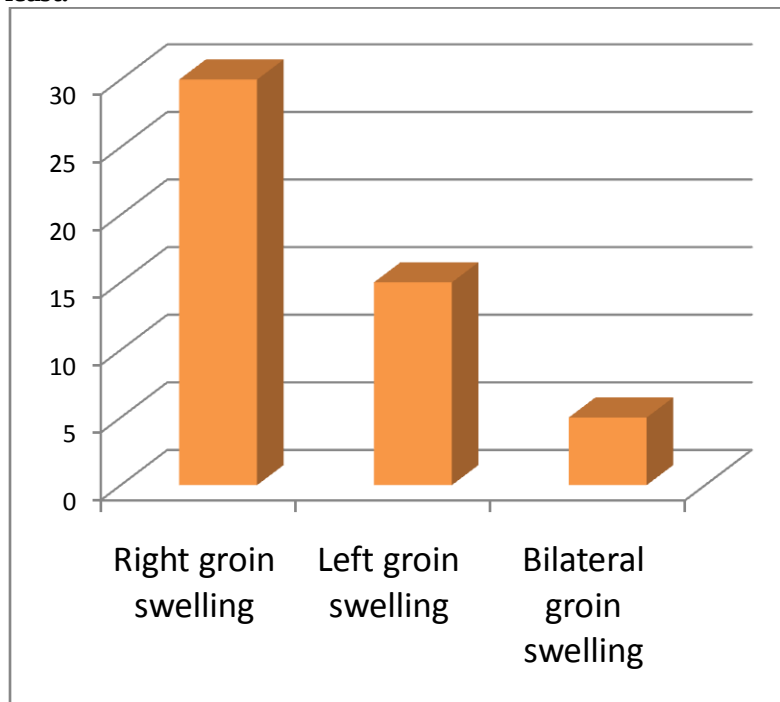
The incidence of hernia was common among the person with strenuous activity in comparison to other occupation like teacher or conductor

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Valid	Frequency
Right groin swelling	30
Left groin swelling	15
Bilateral groin swelling	5
Total	50

60% of the study group presented with right inguinal swelling.

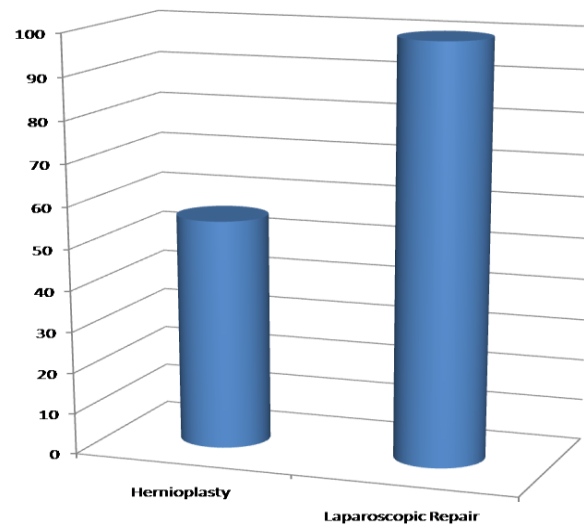
Right indirect hernia was seen in 21 cases being the most frequent type while combined direct and indirect being the least.



Duration of surgery

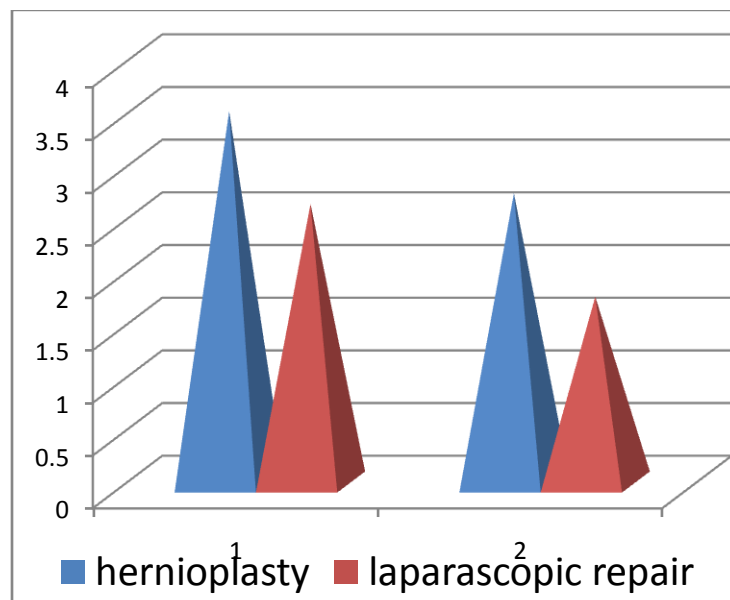
Type of surgery	N	Mean	P Value
Hernioplasty	25	57.6 +/- 10.6	p <0.00 1
Laparoscopic Repair	25	99.6 +/- 14.9	

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Post operative pain

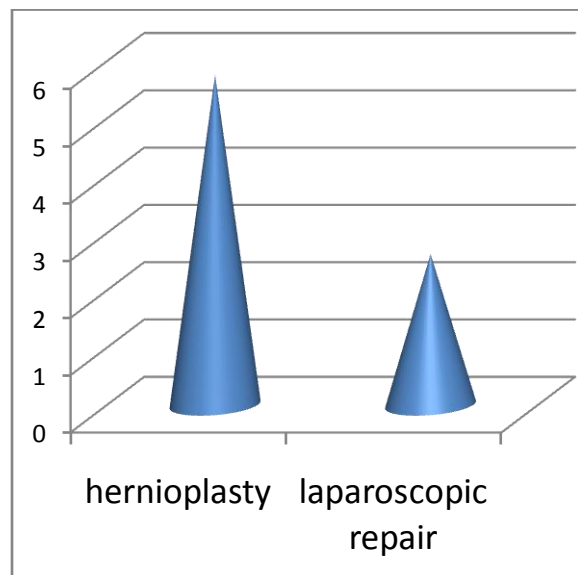
Type of surgery	At 12 Hours	At 24 Hours	P Value
Hernioplasty	3.52 +/- 1.7	2.74 +/- 1.5	<0.04
Laparoscopic Repair	2.64 +/- 1.4	1.76 +/- 1.4	<0.01



Post operative analgesics

Type of surgery	Mean analgesic dose	P value
Hernioplasty	5.76 +/- 3.5	<0.001
Laparoscopic repair	2.6 +/- 2.3	

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Intra and post operative complication

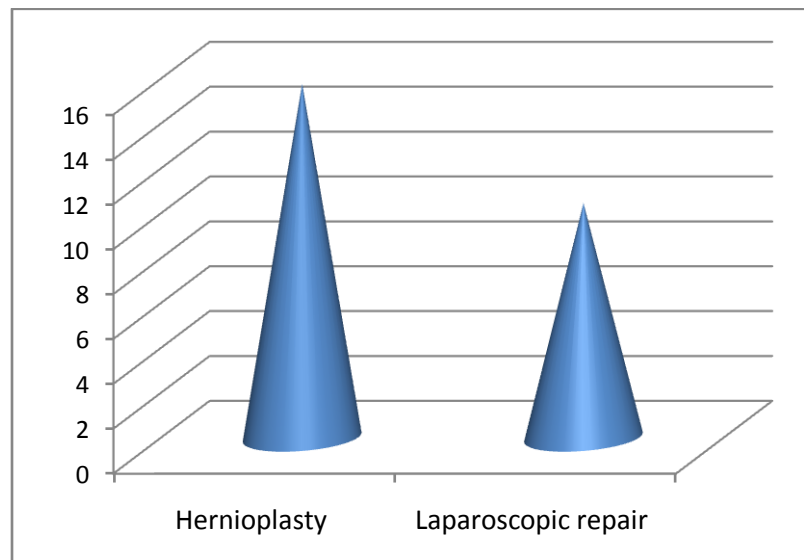
Complications	Hernioplasty	Laparoscopic repair	Total
No complications	23	24	47
Hematoma	0	0	0
Seroma	2	0	2
Wound infection	1	0	0
Recurrence at 6 months	0	0	0
Conversion to open		1	1
Total	25	25	50

Post operative complications were fewer in laparoscopic hernia repairs while compared to the open hernia repair group.

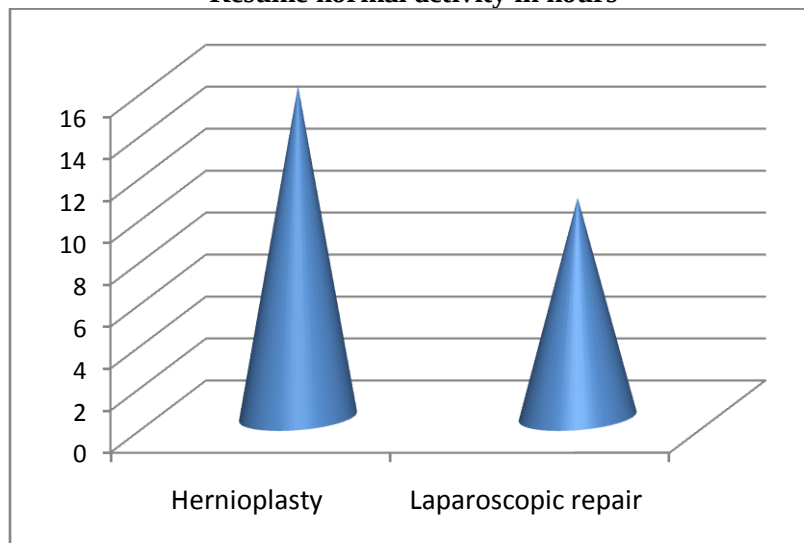
Table 1: Post operative recovery

Type of surgery	Resume normal activity in SD	Hours	Median
Hernioplasty	28.88	5.47	28
Laparoscopic repair	20.5	5.37	20
Type of surgery	Time until return to work in days	SD	Median
Hernioplasty	15.76	2.60	15
Laparoscopic repair	10.44	2.14	10

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Resume normal activity in hours



Time until return to work in days

Post Operative Care and Complications

- After surgery all patients were monitored carefully for pain, bleeding, wound infection and urinary retention.
- Pain was assessed using verbal graphic rating scale.
- A wound infection ranged from minimal discharge of pus from a single cutaneous suture to extensive and invasive process requiring lengthy hospitalization and intravenous antibiotics.
- Bleeding was defined as subcutaneous hematoma which can result from careless ties or cautery.
- Urinary retention was termed as inability to urinate requiring catheterization.

Conclusion

The laparoscopic hernia repair is safe and provides less pain and morbidity. In experienced hands and definitely has many advantages over open repair. For bi-lateral and recurrent inguinal hernias laparoscopic approach is recommended. Now a day for primary inguinal hernia is advocated. Final words

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on hernia will probably never be written and collecting, assimilating and distilling the wisdom of today we must provide the base from which further advances be made.

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