LOCAL ANESTHESIA VERSUS SPINAL ANAESTHESIA FOR INGUINAL HERNIA REPAIR: A COMPARISON

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ABSTRACT:

Background: Repair of an inguinal hernia is among the most common surgical procedures done today. Local anesthesia has surpassed spinal and general anesthesia as the method of choice for hernia operations performed on the same day. Advantages include less suffering after surgery, getting up and moving around sooner, spending less time in the hospital, and saving money.

Methods: This prospective study was carried out in Department of General Surgery, Malla Reddy Medical College for Women, Hyderabad, Telangana, India, from September 2021 to August 2022, and it included 26 cases of inguinal hernia. Following admission to the hospital, a full history was gathered, as well as a thorough clinical examination.

Results: The ages of the patients in the current study varied from 22 to 77 in group A, and from 18 to 76 in group B. Group A patients had a mean age of 46.216.64, whereas Group B patients had a mean age of 42.5616.71; both groups consisted primarily of males. Two groups, A and B, were created from the 26 patients. Participants' ages ranged from 19 to 70 in Group A, and from 43 to 77 in Group B. In Group A, there were 4 cases of direct inguinal hernia and 9 cases of indirect hernia, whereas in Group B, there were 3 cases of direct inguinal hernia and 10 cases of indirect hernia.

Conclusion: Although effective and inexpensive, the method has substantial economic

benefits because to the low morbidity, low recurrence rate, and speedy return to ordinary activities. The patient can be discharged sooner, and complications from the anesthesia are less likely to arise. If successful, it may one day replace open surgery as the go-to method for fixing groin hernias.

Keywords: Local, spinal anaesthesia, inguinal hernia repair, comparison

INTRODUCTION

Depending on a number of circumstances (including the surgeon's preference, the patient's acceptance, the procedure's safety and practicality, the cost, etc.), inguinal hernia repair can be performed under general anaesthesia, spinal/epidural anaesthesia, or local anaesthesia [1]. Recently, local anesthetic method has been widely used again in herniorrhaphy. In terms of therapeutic and financial benefits, local anesthesia has been demonstrated to be superior in multiple meta-analyses and randomized controlled trials [2, 3]. A patient's wishes and requirements, as well as the availability and expertise of medical professionals in the area, will naturally play a role in determining the type of anesthesia used. Local anaesthetic is frequently chosen for outpatient open hernia repair in private, specialist hernia facilities due to its ease of administration, low cost, and absence of the potentially deleterious cardiovascular consequences observed with regional or general anesthesia [4, 5].

Inguinal hernias affect people of all ages and sexes equally. In men, the risk of developing an inguinal hernia is 27% over a lifetime, whereas in women it is 3%. In the last century, a hernia was considered a surgical emergency due to the risk of strangling and obstruction. In recent years, the conventional wisdom regarding asymptomatic groin hernias has shifted in favor of elective repair as soon as possible rather than a wait-and-see strategy [6, 7].

The goal of hernia repair is to reestablish normal anatomic relationships by eliminating fascial anomalies that may serve as a focal point for imprisonment of abdominal contents. Pre-operative preparation for hermiorrhaphy depends on several aspects, such as the patient's current health, any preexisting conditions, the type of anesthesia that will be used, and the anticipated length of the operation[8].

The surgeon, anesthesiologist, and patient should all have input into the final decision on the type of anesthesia employed. An important consideration is the patient's and the surgeon's desire for a particular form of anesthesia[9].

Because local anesthesia has the least impact on other organ systems, it was chosen for this study because it makes patient selection and pre-operative evaluation easier. Study

objectives included assessing the efficacy and safety of inguinal hernia repair using ultrasound-guided local anesthesia. Examining the effects of ultrasound-guided local anesthesia versus spinal anesthesia for inguinal hernia repair in terms of discomfort, complications, and length of stay in the hospital.

MATERIALANDMETHODS

This prospective study was carried out inDepartment of General Surgery, Malla Reddy Medical College for Women, Hyderabad, Telangana, India, from September 2021 to August 2022, and it included 26 cases of inguinal hernia.Upon admission to the hospital, a thorough medical history and physical examination were conducted. Complete blood counts, differential leucocyte counts, total leucocyte counts, random blood sugar measurements, renal function tests, chest X-rays, and electrocardiograms were performed on all patients.
There was a written record of every understanding. Twenty-three people were split evenly between Group A and Group B. Inguinal hernia mesh repairs were performed with local anaesthetic in group A, and spinal anesthesia in group B.

InclusionCriteria:

1. First, everyone who hasn't had an immediate procedure
2. No appendectomy
3. Patients who do not have obesity

ExclusionCriteria:

1. Complex hernias like strangulated hernias, obstructed hernias, and irreducible hernias
2. Every patient who had urgent procedures
3. People who have bilateral herniorrhage
4. A prior appendectomy
5. A recurring hernia
6. Patients that are obese
7. A large hernia
8. Other than inguinal hernias, groin hernias
9. Patients who were anxious and refused to cooperate

Both sets of patients underwent a tension-free Lichtenstein hernioplasty. The prosthetic mesh utilized in the hernioplasty procedure was 15x7.5cm in size and made of Polypropylene. Following surgery, the following was noted about the patient's experience with local anesthesia: - The presence or absence of pain or discomfort. Incisional discomfort, urinary retention, hematomas, sepsis, headaches, and swollen or painful testicles are all common post-op complaints. Patients were checked on as outpatients on postoperative days 3 and 7.

Priortosurgery

A complete medical history was taken and a careful physical examination was performed. Simple probes were made. Patients were evaluated for their susceptibility to antibiotics and local anesthetics. Maintaining starvation over the night was done. Antibiotic prophylaxis was administered prior to the start of surgery. The modified conventional categorization was used for the surgical staging. Hernioplasty patients were tracked from the time they were admitted until they were released.

RESULTS

Within the scope of this investigation, there were a total of 26 cases with inguinal hernia. After the patient was admitted to the hospital, a comprehensive clinical examination and a full medical history were gathered.

Table1:Comparison of Ages

Age	**Group A**	**GroupB**
Minage	19	23
Maxage	70	77
Mean	44.5	50.00
SD	14.14	15.15
p value	Non Sig.	

The 26 patients were divided into two groups, A and B. The youngest patient in Group A was 19, the oldest was 70, and the two extremes in Group B's age range were 43 and 77.

Table2:Classifications of Hernias

TypeofHernia	Group A	GroupB
DirectInguinal Hernia	04	03
Indirect InguinalHernia	09	10
Total	13	13

Among the group A direct inguinal hernia of the group A patients was 04, and indirect inguinal hernia was 9 and group B direct inguinal hernia of the group A patients was 03, and indirect inguinal hernia was 10.

Table3: Assigning resources based on location

Side	Group A	Group B	Group A%	Group B%
Left	07	08	53.84	61.53
Right	06	05	46.15	38.46
Total	13	13	100	100

Among the group A left side was 53.84%, and right sidewas 46.15% and for group B left side was 61.53%, and for right side it was 38.46%.

Table4: Surgical Procedure Time

Time takenforsurgery inminutes	Group A	Group B
20 to 30	3	1
31 to 40	2	0
41 to 50	3	2
51 to 60	2	3
61 to 70	1	1
71 to 80	1	3
81 to 90	1	1
Total	13	13
SD	11.01	12.01
P	<1.000	Sig.

From all of the surgery max 3 patients taken the min time as 20-30 min in group A and for group B it was 51 to 60.

Table5: surgical pains

Pain felt duringsurgeryusing Painscale	**Group A**	**Group B**
Nopain	0	2
Mild	08	01
Moderate	01	03
Severe	02	07
Total	**13**	**13**

Among the group A pain observed in all patients and in group B 2 patients observed with no pain.Group A 08 patients observed with mild pain and 01 for group B. For moderate pain 01 patient observed in group 01 and 03 patients in group B. Severe pain in group A observed in 02 patients and in group B it was 07.

Table6: Adverse Events After Surgery

PostOP Complications	**Group A**	**Group B**
woundhematoma	1	1
woundsepsis	0	1
testicularpain	0	0
urinaryretention	1	4
headache	1	0
Respiratorycomplications	2	1
thromboembolism	1	2
recurrence	1	3

No severe post operation complications were observed in the both group as only 1 or 2 patients are suffering from the some adverse events but it’s all it primary level of complications.

Table7: Complications from Surgery

No. ofAnalgesicDoses PostOperatively	Group A	Group B
0	0	0
1	12	1
2	4	5
3	8	11
4	0	0
5	0	4
6	1	4
Total	13	13
SD	1.225	1.503
P	<0.1	Sig.

Mean dose was observed in the all patients as showed in the table number 7.

DISCUSSION

The ages of the patients in the current study varied from 22 to 77 in group A, and from 18 to 76 in group B. Group A patients had a mean age of 46.216.64, whereas Group B patients had a mean age of 42.5616.71; both groups consisted primarily of males. Two groups, A and B, were created from the 26 patients. Participants' ages ranged from 19 to 70 in Group A, and from 43 to 77 in Group B. In Group A, there were 4 cases of direct inguinal hernia and 9 cases of indirect hernia, whereas in Group B, there were 3 cases of direct inguinal hernia and 10 cases of indirect hernia. The left sides of participants in Group A were 53.84 percent and those in Group B were 61.53 percent, with the rights being 38.46 percent. Surgery for three patients in group A took between 20 and 30 minutes, but the same number in group B required 51 to 60 minutes. Among Group A patients, everyone who was experiencing pain also reported it, whereas only two patients in Group B did. Mild pain was tracked in eight participants in group A and one in group B. There was one patient in Group A with moderate pain, while in Group B there were three patients with moderate pain. Seven patients in group B, but only two in group A, complained severe discomfort. Minor postoperative discomfort was reported by a small percentage of patients in both groups, but no serious complications arose. In table 7 we can see the median dose for all patients.

Kark AE et alstudy .'s contained data from 3,175 patients (1998). All ages from 15 to 92 were represented among the surgical patients, of which men made up 97%. Twenty-six patients were included in Song et alstudy, .'s with a mean age of 42.18 years for those who received local anesthetic and 39.14 years for those who received spinal anesthesia. Out of our total number of patients, we saw 43 males and 7 females. The age and gender breakdown of our study's participants was consistent with that of the aforementioned studies. Twenty patients (80%) in group B and sixteen patients (64%), in group A, were diagnosed with indirect inguinal hernia. In group A, nine patients (36%) and in group B, five patients (20%) experienced a direct inguinal hernia. The results of our study were consistent with previous studies of this nature [10].

In the current study, 17 patients (68%) from Group A and 15 patients (60%) from Group B presented with right-sided inguinal hernias. In group A, eight patients (32% of the total) had a left-sided hernia, while ten patients (40%) were in group B. Results from this study were consistent with those from similar studies. Inguinal hernias are more common on the right side because the right testis descends last and because patent processus vaginalis is more common on the right side [11].The current study found that group A had an average operational time of 42 minutes, 8.8 seconds, while group B had an average of 64 minutes, 4.5 seconds. The. The results of our research agreed with those of previous studies [12] by Song et al. (2000), Job C et al. (1979), and Young DV (1987).

Pain is a major concern for those who are going to have surgery. In spite of its prevalence as a diagnostic tool for tissue damage, pain is not always indicative of an obvious injury. The perception of pain requires afferent brain pathways and sensory neurons (nociceptors). Seventeen patients (68%) in group A had mild discomfort, while five (22%) reported significant pain. On the other hand, 11 (44% of the sample) of Group B participants reported experiencing mild discomfort and 14 (56% of the sample) of participants experiencing significant pain. The gap between the two communities is noticeable. The results of our investigation agreed with those of other studies. Using local anesthetic, Earle AS (1960)124 repaired inguinal hernias in 46 patients, of whom 23 (50%) reported mild pain and the remaining 23 (50°/p) experienced no pain at all [13].

According to a study conducted by Baskerville PA et al. (1983) on 129 patients who underwent surgery with only local anesthesia, 93% of patients reported no pain during the procedure, whereas 7% reported moderate to severe discomfort. In cases of large hernia operated on under local anaesthesia, the patient may experience pain if dissection is difficult

due to adhesions of the sac, necessitating conversion to general anaesthesia. When administered by a skilled surgeon, local anesthetic is often well-received by patients. Pain during hernia dissection or repositioning is a common reason for switching from local to general anesthesia [14].

Inadequate analgesia, urine retention, wound infection, and traction on tissues, most notably the peritoneum, all contribute to postoperative discomfort. The ilio inguinal nerve, the ilio hypogastric nerve, and the genital branch of the genito nerve are all routed in this way, as is typical for the region. Excessive manipulation of nerves should be avoided to prevent this. A visual analog scale was used to record the amount of pain experienced by patients after surgery. Analgesic intake after surgery was used to evaluate postoperative pain [15].

The current study used a visual analog scale to record postoperative pain at 12, 24, and 48 hours. Group A had a mean of 3.32 1.14, 2.00 1.00, and 0.76 0.72 after 12 hours, 24 hours, and 48 hours, while group B had a mean of 4.32 1.18, 2.72 1.13, and 1.04 0.84. Compared to group B, group A has a considerably lower average pain visual analog score. (Table 3) Our findings were consistent with those of Song D et al. (2000), who found that patients who underwent inguinal hernia repair under local anesthetic had VAS scores of 151.4 compared to 343.2 in those who underwent spinal anaesthetic for the same procedure. Patients who had their surgeries done under local anesthesia reported significantly less pain afterward [7, 9].

Twenty-four (96%) of group A patients and sixteen (64%) of group B patients received 1–3 doses of analgesics postoperatively. Only 1 patient (4%) in group A and 8 patients (32% in group B) received 5 or more doses. The average dose for group A was 2.121.22, while the average dose for group B was 3.481.53. There is a statistically significant disparity in the average analgesic dosages administered to participants in groups A and B. Young DV (1987)2 found that whereas only 8% of patients who had spinal anesthesia did not require any postoperative analgesics, 22% of those who had local anesthesia did. Sixty percent of the 3175 patients in a study by Kark et al. (l998)' required oral analgesics (two to three doses) for a median of six days. Our findings mirrored those of previous studies. Patients who undergo surgery with local anesthetic require lower doses of pain medication thereafter because of the analgesic's lasting effects [10-12].

15 patients in group A (60%) and 9 patients in group B (36%), were housebound for a day. While most Group B patients didn't return to work for longer than 7 days, 15 (60%) Group A patients did so in as little as that amount of time. In contrast to general and spinal anesthesia, the 103 study participants who had local anaesthetic recovered from their

procedures far faster than those who had received either of the other two types of anesthetic (I 982). It was found by Barkerville PA et al. (1983) that 38% of patients were back to regular activity by the third postoperative day, 78% at the end of a week, and 98% by the end of two weeks. Local anaesthetic led to a faster time to discharge (308 minutes) compared to general and spinal anesthesia, as found by Song D. et al. Patients' encouragement may have played a role in the shorter time between leaving and returning to work. The negative effects of general and spinal anesthetic, such as nausea, vomiting, drowsiness, and urine retention, directly contribute to a patient's prolonged stay in the hospital. One of the most important factors in reducing the risk of major complications after getting local anesthetic is the ability to walk around quickly afterward [14-16].

The current study demonstrated that Lichtenstein's hernioplasty under local anesthesia is safe, simple, effective, inexpensive, and associated with a low risk of death, a small number of postoperative sequelae, and long-lasting pain alleviation. Inguinal hernia repairs performed under local anesthesia result in much lower opioid dosages required postoperatively compared to those patients who received the identical treatment under spinal anesthesia.

CONCLUSION

The Lichtenstein tension-free hernioplasty, which may be done under local anesthetic, has ushered in a new era of hernia surgery that is complication-free. This treatment offers a safe and effective alternative to traditional day care for adults and the elderly who are managing the effects of a disabling illness.As a result of the minimal morbidity, low recurrence rate, and rapid return to regular activities, this technique has significant economic benefits despite being both successful and affordable. Short-term benefits include earlier release and fewer risk of anesthesia-related problems. It has the potential to become the standard treatment for groin hernias in the future.

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CONFLICT OF INTEREST:

None

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