



Experience of Inguinal Mesh Hernioplasty under Local Anesthesia: A 3-Year Experience in a Teaching Hospital

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Abstract

Background: The cost effective and less pain caused after the operation, local anesthesia has been considered as the appropriate option for repair of open hernia inguinal repairs as it helps in swift healing. However, less attention was given to explain the effectiveness and safety of LA in the context of elective inguinal hernia repair. The current study had aimed to scrutinize the effectiveness and safety in elective inguinal repair of LA.

Methods: In order to perform the analysis, by the usage of mesh a retrospective analysis was performed in the hospital which also served the teaching purpose and data used was of the last 3 years. The result measured remained ASA grade of patients, age group, postoperative (late and early) recurrence and complications.

Results: During the course of study, the number of hernia repair performed were 260 ASA grade for all patients ranged between I-IV. The mean age was 37 (20 to 65). Intraoperatively 9 patients (3.5%) had problems such as pain, hypotension or sweating. About 224 (86.3%) patients were dispensed home the sidereal day and 36 patients admitted for a night for less than 24 h. Hematoma was seen in 5 patients (1.92%), Urinary retention in 2 patients (0.7%), Wound infection seen in 24 patients (9.2%), Readmission in 10 patients (3.8%). Chronic groin pain was seen in 10 patients (3.9%) and no recurrence in 6 months follow up.

Conclusion: The results of the study indicated that this procedure is feasible under L/A and can be performed safely. It showed satisfactory acceptance by the operating surgeon and patient, without significant perioperative issues. It is reliable and shows a shorter hospital stay.

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Received Date: 05 Mar 2021

Accepted Date: 02 Apr 2021

Published Date: 08 Apr 2021

Citation:

Hashmi Z, Ahmed R, Zafar T, Ahmed M, Yousaf N, Chaudhary K, et al. Experience of Inguinal Mesh Hernioplasty under Local Anesthesia: A 3-Year Experience in a Teaching Hospital. *Clin Surg*. 2021; 6: 3131.

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Introduction

Globally, the commonly conducted general surgery probably is the Inguinal Hernia (IH) repair. Till now several techniques for repair have been identified.

Despite the selection or preference of anesthesia among surgeons have not been found to have any mutual ground. In the context of best clinical outcome, LA has been found to be the best choice which was identified through various retrospective and randomized control trials [1-5]. Despite having remarkable outcomes in IH using LA, it is not preferred by patients and surgeons globally. The study aimed to analyze the consequences of Inguinal mesh hernioplasty with emphasis on use of LA, day case rates, short and time taking complications and patient experience (Table 1).

Methods

We performed a retrospective review of all adult inguinal hernia repairs in a tertiary teaching hospital in the last three years.

The data were collected retrospectively from medical records and reviewing case notes after approval from the hospital Ethics Committee. The demographics, ASA grade, repair technique, early complications were noted. These patients were followed for 6 months to measure inguinodynia and recurrence. Patients with complex or irreducible hernia, recurrent hernia, obesity (BMI greater than 30 Kg/m²), patient refusal and patients of psychiatric problems were excluded from the study.

The suggestions for the surgery were due to indirect IH and direct symptomatic IH. In the situation where it was difficult to identify the direct or indirect hernia, surgery was offered to the patient.

The surgeon who was going to perform the operation explained to the patient about the procedure

of LA. In the supervision of pulse oximetry, patients of grade 1 and 2 of ASA went through the surgery. Under the circumstance where the patient was of grade 3 and 4, the presence of an anesthetist was required.

Surgical technique

At the time of induction all patients were given a single dose of I/V antibiotics. Our choice for field block was 50:50 mixture of 1% Lidocaine and 0.5% bupivacaine, with 1/200,000 epinephrine. 45 mL as an average of this solution was administered in the standard fashion as mentioned in Mastery of Surgery for a field block. The sequence was subdermal infiltration followed by intradermal injection, deep subcutaneous injection and lastly sub-aponeurotic injection. To buffer the lignocaine, 6 ml of sodium bicarbonate (8.4%) (Fresenius, UK) was mixed, indicating 7.0 on the pH scale. Option of intravenous benzodiazepine/opioid to help in procedure was also considered. For the first 1 to 2 postoperative periods strong analgesic was considered in conjunction with paracetamol. Mesh plug and patch repair, Lichtenstein repair [6] were the two surgical techniques used. The combinations of mesh plug and mesh as used when the defect was comparatively large in the patient, and had large internal ring. By the utilization of (6 by 11 cm) flat polypropylene mesh, the mesh plug was created; the form of the mesh plug was conserved by a 1 single nylon suture positioned by the mesh about 1 cm away from the mesh plug's apex. Through usage of 1 single nylon stitch, in plug was then positioned in the internal ring. Irrespective of the cases, the mesh was saturated in antiseptic before the repair of mesh. All patients were followed up in our clinic (Day 7, 30, 60, 90 and 180 postoperatively) to record early and late complications.

Statistical analysis

SMSS was used to perform the statistical analysis (SPSS, Chicago, IL, USA). To compare the rate of early, late and day case complications, Chi-square was used. Fischer's exact test was utilized to match discomfort and chronic groin pain.

Results

A total of 260 hernia repairs were performed in study duration time. The mean age was 37 years-of-age (20 to 65 years-of-age). The maximum number of patients were from the classification of ASA grade 1 and 2 (78%), followed by grade 3 and 4 (22%). Lichtenstein mesh hernioplasty was performed in all patients using PHS mesh (Prolene hernia system).

All the operations were done under LA as planned and none required conversion from LA to GA. Intraoperatively, 9 patients had problems, 5 experienced some painful sensation, 3 developed hypotension with sweating. They were managed accordingly by the anesthetist with analgesic and benzodiazepine.

Rates of the day case and complications are demonstrated in Table 2. About 224 out of 260 valetudinarians were discharged the same day and 36 stayed overnight for less than 24 h. The reason for overnight stay is summarized in Table 3. Readmission within 48 h was seen in 10 patients out of which 2 presented with hematoma, 7 with pain and one with urinary retention. Patients were followed up in the clinic post operatively, hematoma was seen in 3 patients, and wound infection was seen in 24 patients on the 7th postoperative day. 8 patients were admitted for IV antibiotics and no patient was found obligatory to remove mesh (Table 4).

Chronic groin pain was seen in 10 patients (3.9%) and no

Table 1: Usage of LA in various specialist centers for IH.

Centre	% of LA	No. of Cases	Day-Cases
British Hernia Centre	100.00%	>4000	100.00%
Lichtenstein Hernia Institute	100.00%	>5000	99.00%
Plymouth Hernia Centre	88.00%	1000	81.00%
Shouldice Hospital	97.00%	>25000	(0.0 % in-patients)
The Hernia Centre New Jersey	0.00%	>6000	NA

Table 2: Local anesthesia.

Age (Years)	37 (20-65)
Hernia	
Indirect	188
Direct	64
Both	8
ASA grade	
1	98
2	105
3	41
4	16
Hernia	
Primary	All
Recurrent	Nil
Surgical Technique	Lichtenstein

Table 3: Local anesthesia.

Day Cases	224
Postoperative Complications	
Hematoma	5
Urinary retention	2
Wound Infection (SSI)	24
Recurrence	0
Readmission (within 48 hours)	10

Table 4: Reasons for overnight stay.

Factor	No. of Patients
Living alone	11
Post-operative pain	13
Nausea and Vomiting	2
Hematoma	0
Chest Pain	1
Urinary retention	2

recurrence was seen at 6 months follow up. The main symptom of chronic groin pain was mild chronic groin pain/discomfort in 7 patients ranging from ache, numbness and burning. Only 3 patients reported moderate to severe chronic groin pain which required specialist pain team input. A questionnaire was given to all patients on their experience of groin hernia surgery under LA at their follow up appointment. 96% were satisfied with the procedure under local anesthesia and opted to undergo the procedure on the opposite side if required.

Discussion

In case of emergency or elective, for the repair of hernia, general

anesthesia proved to be the best choice. LA showed risk lower of complication than GA in elective operations [4,7].

Despite this evidence, inguinal hernia repair under LA has not been embraced widely. The perception of infiltration pain is the general problem identified in the usage of LA. Under this circumstance, it creates discomfort and lack of trust among patients which lead to the decline of further anesthetic surgical procedure. In our consideration, the rate of pain of IH can be reduced and help buffer LA solution by adding sodium bicarbonate in it, irrespective of the circumstances whether under administration or under the procedure itself. The level of satisfaction is high on the buffered LA solution [4].

The problem of toxicity particularly in obese patient is the crucial problem for LA in IH as they require large volume. The LA combination utilized in the current study permitted us to overcome this problem.

Other Problem Incarcerated hernia always has a complicated anatomy, pain and tension may result in an unsatisfactory muscular relaxation. Hence careful patient selection plays a vital role in a successful outcome.

The remarkable outcomes were obtained by the UK and US specialist shown in Table 1. The reason for achieving the 100% results in the rates of day case by these centres is the utilization of LA.

Majority of the cases in UK undergo surgery through GA with rate to 60% to 70%, on the other hand only 5% to 10% of IH undergo surgery through LA, and the remaining 10% to 20% undergo surgery through RA [8,9].

IH repair under LA resulted in a better satisfactory rate compared to general anesthesia as seen in previous studies and improves rates of day-case.

The occurrence of IH in elderly is greater over the age of 65. The reason behind that is the level medical complexity in this age group which creates the complication in the repair for day-case. Cardiovascular, pulmonary and urinary complications might happen preceding to inguinal hernioplasty, particularly when the process is conducted under general or spinal anesthesia [10]. On the contrary, surgery under LA generally don't have stern complication before and after the procedure [11]. Many randomized control trials and retrospective studies have indicated that L/A deliver the best aid to patients [1,2,4].

In our study, it was reasonably sized, careful patient selection (78% ASA1 & ASA2); this study demonstrates that results similar to hernia specialists' centers worldwide can be achieved in tertiary care centers in Pakistan where there is not only a lot of apprehension

among patients on having surgery under local anesthesia but also among the surgeons. Local anesthetics have a good track record of safety and efficacy [12].

Conclusion

The current study has illustrated the usage of LA serves the best outcomes with the increased rates in the day case along with that requirement of post-operative analgesic is low and less issues of micturition. The remarkable outcomes obtained by the specialist centers of hernia can be achieved in Pakistan's medical centers by increasing the usage of LA in IH repair. According to the results obtained, the usage of LA in repair of IH across Pakistan needed to be increased.

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