ORIGINAL ARTICLE

Outcome of Inguinal Hernia Repair under Local Anesthesia

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ABSTRACT

Aim: In the study the safety, feasibility, complications, reliability and economy of inguinal hernia repair under local anesthesia is evaluated. Local aneasthesia was used in patients with inguinal hernia who are either unfit or reluctant for the general or regional anesthesia.
Methods: This prospective study included patients having reducible direct or indirect inguinal hernia, non affording, reluctant/unfit to undergo general or regional anesthesia and desirous for day care surgery. Simple facial infusion of local anesthesia was used with I/V sedation.
Results: Of 98 patients 62% had indirect while 37.5% had direct inguinal hernia. The youngest patient was 17 year old and the oldest was 76 year of age and more than 50 % of the patient had age of 50 years. The main indication of local anesthesia were those patients who were unfit for regional or general anesthesia (62%).The average quantity of local anesthesia we used was 12 ml and duration of surgery were 50 minutes. The main co morbid factor in these patients was diabetes (37%). The main preoperative complication noted in these patients was arrhythmias (2.94%) age group of 60 to 69 years. The main postoperative complications were vomiting (2.9%) and wound infection (2.94%).
Conclusion: Inguinal hernia repair under local anesthesia is economical, safe, feasible and effective in patients who are either unfit /reluctant for general or local anesthesia. Postgraduate training programs should include this technique
Keywords: Inguinal hernia, local anaesthesia,

INTRODUCTION

Inguinal hernia is the most common type (78%) of all the hernias. It is more common in males (90%) than females (10%). Its incidence rises with increasing age. It is reported to be 11/ 10,000 between the age16-24years while 200/ 10,000 in people of 75 years and above[1,2].
The operative treatment of inguinal hernia gives a remarkable improvement in quality of life[3,4,5]. It also prevents life threatening complications such as intestinal obstruction and strangulation. The operation is usually done under general or spinal anesthesia while repair under local anaesthesia is preferred in patients who are not fit for general and spinal anesthesia[6,7,8,9]. Many patients who are otherwise fit but refuse general or spinal anesthesia can be treated under local anesthesia. In this study, we evaluate the safety, reliability, complications and feasibility of inguinal hernia repair under local anesthesia in different types of patients.

METHOD AND MATERIAL

This prospective study was conducted in the department of surgery, Akhtar Saeed Trust Teaching Hospital /Akhtar Saeed Medical And Dental College Lahore. This study was started in Oct 2012 and completed in Feb 2014. Patients declared unfit for general and spinal anesthesia, reluctant to undergo general and spinal anesthesia, desirous of day care surgery, non affording patients, with reducible direct and indirect inguinal hernia were included in the study.

Patient with recurrent inguinal hernia, bilateral hernia, large, complete hernia, hernia with hydrocele, moderate obesity BMI more than 30 and irreducible hernia were excluded from the study. Patients were assessed for anaesthesia fitness according to American society of anesthesiology scale (ASA I-IV). All patients were given prophylactic antibiotic (First generation cephalosporin). The operative field was shaved in the operation theater. Intra-venous line was maintained with 18 gauge intravenous cannula and ringer lactate solution was started. 1% lignocaine with adrenaline (1; 200000) was used for local anesthesia within safe dose of lignocaine with adrenaline (7mg/Kg body weight). Line of incision was marked about, 1.25 cm above and parallel to the medial $^2/_3$ of inguinal ligament. Using 26 gauge needle 3ml Lignocaine with adrenaline 1% was infiltrated in the line of skin incision. After exposing the external oblique aponeurosis 2 ml was infiltrated along the line of proposed incision. 2ml was infiltrated just above the pubic tubercle to anesthetise the illioinguinal nerve which leaves the canal through superficial ring to supply the inguinal region. The

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inguinal canal was opened by dividing external oblique aponeurosis. Illohypogastric nerve and ilioingunial nerve were identified. 1ml of local anaesthesia was infiltrated around each nerve. At deep inguinal ring 3ml was infiltrated to anesthetise the genital branch of genitofemoral nerve and hernial sac. The sac was isolated from the spermatic cord. After having dealt with the sac 2ml of 1% local anesthesia was infiltrated into conjoint tendon along the proposed area of repair before starting the posterior wall repair. Posterior wall was repaired either by onlay prolene mesh (Lichtenstein repair) or by darning with 3-0 prolene (facial repair). External oblique aponeurosis was closed with vicryl no. 2-0. Skin was closed with interrupted 3/0 prolene dressing done.

RESULTS

Ninety eight patients were included in this study. 61(62.2%) patients had indirect inguinal hernia while 37(37.5%) patients had direct inguinal hernia. The youngest patient was 17 years of age and the oldest was 76 years. More than 50% patients were above 50 years.

Table 1: Age

Age	n	%age
10 – 19	6	6.1
20 -29	10	10.2
30 – 39	13	13.2
40 – 49	18	18.3
50 – 59	23	23.4
60 – 69	24	24.4
70 – above	4	4.08

Table 2: 60(61.2%) patients were in ASA II-IV. 30(29.4%) patients were reluctant to general and spinal anesthesia and preferred local anesthesia.

Table 2: Indication for local anesthesia

Indications	n	%age
Patient unfit for regional or general Anesthesia	60	61.24
Patient reluctant to general / spinal anesthesia	30	29.4
Patient Wishes for Day Case Surgery	10	9.8

Average does of local anesthesia used was 12ml (7ml minimum and 15ml maximum).Sedation was required in 30 patients due to anxiety. The minimum time was 35 minutes and maximum was 70 minutes. The average time was 50 minutes. The minimum stay was 1 day and maximum was 3 days in 3 patients Table 3. Diabetes, hypertension and cardiovascular disease were the commonest co-morbid factors.

Table 3: Co- morbid factors

CO-Morbid Factors	n	%age
Diabetes	22	37
Hypertension	14	23
Cardio Vascular Diseases	10	17
Chronic Obstructive pulmonary disease	8	13
Benign prostate hypertrophy	6	10

Table 4: There was no significant complication during the procedure. None of procedures was abandoned due to the anesthesia technique or any other procedure related complications. Arrhythmias occurred in 3 patients who were 64, 67 and 68years old and managed by high flow oxygen therapy, IV fluids and analgesic. None of the patient required ionotropic support.

Table 4: Complication during procedure.

Complication	n	Age group	%age
Arrhythmias	3	60 – 69	2.94
Anaphylaxis	0	0	0
Hypotension	0	0	0
Nerve Injury	0	0	0
Vascular Injury	0	0	0
Bowel injury	0	0	0

Table 5: Vomiting was noted in 3 patients which persisted not more than 2 hours and managed by single does of antiemetic. Wound pain and groin pain were managed by the use of oral analgesic. Haematoma was noted in 2 patients, but only one patient required drainage. Seroma in the cord/scrotum was noted in 1 patient which resolved spontaneously.

Table 5: Post operative complications

Complication	n	Age Group	%age
Vomiting	3	40–49	2.94
Wound infection	3	70–76	2.94
Groin pain	3	30-39/40-49	2.94
Wound pain	2	30–39	1.96
Wound hematoma	2	60–69	1.96
Seroma	1	60–69	0.98
Epididmo orchitis	1	20–29	0.98
Urinary retention	0	0	0
Hydrocele	0	0	0
Testicular atrophy	0	0	0
Recurrence	0	0	0

DISCUSSION

Hernia repair is preferably performed under general and regional anesthesia because it provides proper anesthesia at operative site. It is presumed that this objective cannot be achieved under local anesthesia. This is mainly due to faulty technique of local anesthesia as surgeons are not properly trained in

this technique. Various local anesthesia techniques have been described to anesthetize this region[1,2,3,4,5]. In these techniques local anesthesia is injected blindly therefore there is likelihood of missing the nerves. More over these techniques need large quantity of local anesthesia. Whereas the technique we used was simple, under vision and needed less quantity of local anesthesia. The blind techniques are also associated with chances of vascular / bowl injury[10,11]. This danger is almost eliminated in open technique.

Another modification is the use of 26 gauge needle which causes minimum discomfort to the patient as compared to use of 22 gauge needle which causes more pain particularly in over sensitive patient. The patient is conscious therefore pain can further be reduced by 26g needle instead of 22g needle. All the patients remained pain free during the operation by our technique of local anesthesia[10,11].

Inguinal hernia is common in middle and old age. Many patients in this age group suffer from cardiac, pulmonary and urinary tract diseases[12]. These patients are also more prone to develop cardiac, pulmonary and urinary complications if repair is performed under general and spinal anesthesia. This risk can be minimized under local anesthesia[13].

Anaphylaxis is known complication of local anesthesia. Study done by Davis Let al in 2003 reported anaphylaxis rate of about 1% to local anaesthesia[14]. In our study no patient suffered from this complication. Local anesthesia reduces post operative pain because of the gradual on set of pain[15]. These patients need lesser doses of post operative analgesics[16]. The chances of post operative nausea and vomiting are also reduced[17,18] which is often associated with general / spinal Anesthesia. The patient can be mobilized early therefore they can resume normal activity very early[19]. It is economical because of low cost of local anesthetic medication which is not more than Rs. 150/- per patient in this study[20,21].

CONCLUSION

Inguinal hernia repair under local anesthesia is economical, safe, feasible, and effective in patients who are either unfit for general and spinal anesthesia or reluctant to be operated. The post graduate training program should include this technique. We recommended that workshop and training courses should be organized to train future young surgeons.

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