Hernia Repair under Local Anesthesia

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ABSTRACT

Objective: To describe hernia repair under local anesthesia with regard to the technique, morbidity and hospital admissions after the procedure.

Methods: Two-hundred hernia repairs were performed under local anesthesia for 178 patients at King Hussein Medical Center and at Prince Hashem Hospital between January 2005 and January 2007. All patients were assessed preoperatively by a senior surgeon and written consent was obtained. The anesthesia protocol used included 0.5% lignocaine and 0.25% bupivacaine as local anesthesia supplemented with intravenous sedation by the anesthesiologist as necessary. Patients were monitored intraoperatively for heart rate, blood pressure and pulse oximetry.

Results: The procedure was successfully performed for 197 hernias under local anesthesia. Only three patients required general anesthesia. The first 50 patients were admitted overnight for observation, the rest were all planned as day case surgeries and were followed up over a three month period. Four patients developed wound hematoma, two patients developed wound infection, one patient developed post operative urine retention, and two patients showed evidence of recurrence when reviewed after one year.

Conclusion: Our study confirmed the safety and convenience of using local anesthesia for hernia repair. Less post operative discomfort and low morbidity rate was obtained. Hernia repair under local anesthesia can be learnt easily and quickly, therefore it is the recommended procedure to be used in our practice for the repair of inguinal hernia.

Key words: Inguinal hernias, Local anesthesia, Repair

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Introduction

Hernia repair continues to be one of the commonest operations in general surgery with 10% of the male population having a hernia in their life time. Inguinal hernias are the most common type of hernia and once a hernia occurs it usually enlarges with time, at the very best it stays the same but will never cure itself. A growing interest in the use of local anesthesia for inguinal hernia repair with increasing popularity of day case surgery, it certainly seems to be an acceptable alternative for the elderly and to patients with co-morbidities.[1]

This study was conducted to describe hernia repair under local anesthesia with regard to technique, morbidity, and hospital admissions after the procedure.

Methods

This is a retrospective analysis of 178 male patients who underwent hernia repair under local anesthesia, performed at King Hussein medical Center and at Prince Hashem Hospital between January 2005 and January 2007. A total of 200 inguinal hernia repairs were done for 178 male patients, 22 of which had bilateral hernias, 104 had right a sided hernia and 52 had a left sided hernia.
One hundred forty-five patients had an indirect hernia, 51 patients had a direct hernia, four patients

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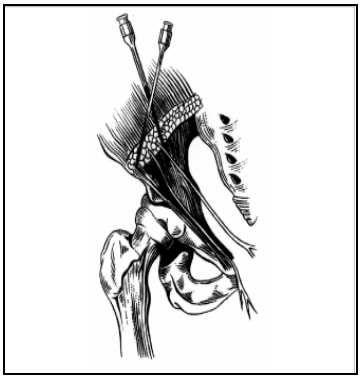

Fig. 1. Local anesthetic given to the ileoinguinal nerve region

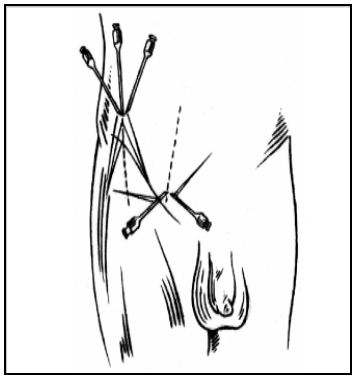

Fig. 2 Local infiltration along the incision

Table I. Number of hernias according to site and type

No. of hernias according to site		No. of hernias according to type	
Right sided	104	Direct	51
Left sided	52	Indirect	145
Bilateral	22	Pantaloon	4
Total	**200**	**Total**	**200**

had a pantaloon hernia, and 12 patients had an operation for recurrent hernia (Table I). In order to assess for the possibility of day case surgery, they were diagnosed and assessed initially by a senior surgeon in the outpatient department, and were listed for surgery. On the week prior to their surgery, they were reassessed, clinically examined, and a written consent was obtained from all patients. Preoperative investigations were only performed whenever indicated. Patients with bilateral inguinal hernia were operated initially only on the more symptomatic side while the other side was repaired within 4-6 months from the first surgery.

All patients were operated upon under local anesthesia supplemented with intravenous sedation by the anesthesiologist whenever necessary. The sedation used included Dormicum 0.05-0.1 mg/kg and Ketamin 1-1.5 mg/kg with short acting opioids.[2,3] A second generation Cephalosporin was given before starting the operation.[4,5] The local anesthesia mixture used was 0.5% lignocaine (2-3 mg/kg if plain or 5mg/kg with adrenaline if it was felt that the patient would need extra amount), 5 mls of 0.25% bupivacaine to prolong the action of the anesthesia, and 2-3 ml of sodium bicarbonate 7.5% to reduce the burning sensation and to reduce onset time.[6]

Before the scrubbing and putting gowns to give extra time for the block to develop the local anesthesia was introduced by 22 gauge needle as a field block, 10 ml were given one inch medial to the anterior superior iliac spine in the neurovascular plane in a fan - like manner, 15 ml were infiltrated in the subdermic and deep subcutaneous area along the line of incision, 15 ml were infiltrated at the deep inguinal ring and the needle was advanced along the inguinal canal, 5-10 ml were infiltrated over the pubic tubercle in a fan-like manner as shown in figures 1 and 2.[7]

Patients were monitored intraoperatively for heart rate, blood pressure and pulse oximetry and an anesthetist was present to intervene if required. Once we became confident with the procedure, monitoring was limited to pulse oximetry with verbal contact between the surgeon and the patient and the anesthetist was available upon request but not in the theatre.

The procedure was completed successfully in all but three patients where it was converted to general anesthesia. In two cases it was due to high anxiety and in one case the level of anesthesia was felt to be unsatisfactory to carry on with the procedure.

In the indirect inguinal hernias the sac was transfixed at the internal ring, while with direct hernias the sac was dissected and reduced. Shouldice repair was performed for all patients using non absorbable prolene stitches. The first 50 patients they were admitted overnight for observation, but the rest were all planed day case surgeries. Patients were discharged from the day case unit at the end of the working day by the operating surgeon. They were given a prescription

of diclofenac sodium or paracetamol and a physician's contact number to report anything abnormal or for any queries that may arise.

Patients were seen at three weeks, three months, and one year after surgery unless otherwise indicated. Simple descriptive statistics were used to analyze the findings.

Results

Fifty-three patients (29.8%) were discharged the day after surgery and 125 (70.2%) patients were discharged on the same day and their mean hospital stay was 4.2 hours (range 3 -5 hours). The total mean hospital stay for all the patients after surgery was 9.6 hours (range 3-24 hours). In three patients (1.7%) the procedure was converted to general anesthesia. The first 50 patients (28.1%) were admitted overnight for observation and the rest had their procedure as a day case.

Follow-up over a three month period revealed no perioperative deaths, however four patients (2.2%) developed wound hematoma, two patients (1.1%) developed wound infection, one patient (0.56%) developed post operative urine retention which proved to be due to benign prostatic enlargement that required transurethral prostatectomy at a later stage. In no instance was postoperative neuralgia or chronic pain reported. Two patients (1.1%) showed evidence of recurrence when reviewed after one year.

Discussion

Elective surgical repair of an inguinal hernia is a common surgical procedure. The treatment, however, presents several challenges regarding type of anesthesia used for the procedure, post operative analgesia, as well as, planning of the procedure. Local, general, and regional anesthesia are all used for the repair, but to different degrees, primarily depending on traditions, experience and whether the institution has specific interest in hernia surgery.[9] Thus, the use of local anesthesia varies from a few percent in Sweden, to 6% in France, 60% in Denmark, 83% in USA and up to almost 100% in specialized institutions dedicated to hernia surgery.

The feasibility of local anesthesia is high, as judged by the low rate of conversion to general anesthesia (1%).[8] The generally low rate of serious complications do not allow firm conclusions, but the rate of less serious complications is lower in local anesthesia, compared to the other anesthetic techniques. Of special interest is that the rate of urinary retention can be eliminated by the use of local anesthesia. In comparative studies, local anesthesia gained a higher degree of patient's acceptance and satisfaction than other anesthetic techniques.[10] Local anesthesia also allows faster mobilization and earlier discharge from post anesthetic care units than other anesthetic techniques.

Pain after hernia repair is more pronounced at mobilization or coughing than during rest and younger patients seem to have more pain than older patients. The pain ceases over time, and it is most pronounced the day after surgery, where two thirds have moderate or sever pain during activity, while one third still have moderate or sever pain after one week, and approximately 10% after four weeks. Postoperative pain is best treated with a combination of local analgesia and peripherally acting agents (paracetamole, NSAID or their combination),[11] while opioids should be avoided due to side affects, primarily nausea and sedation.

Moderate or severe pain one year postoperatively is seen in 5-12% of patients. The following factors have been related to a higher rate of chronic pain: previous or subsequent hernia surgery on the same side, young age, and pain before surgery, high pain scores in the immediate postoperative period, postoperative complications and prolonged convalescence. Patients should be informed about the risk of chronic pain, particularly if the hernia is asymptomatic.[12]

Patients should be informed that they can immediately resume all activity if the pain permits, but also to expect that pain may limit activities of daily living during the first postoperative week.[13,14] Hernia surgery, including treatment of recurrent hernias, can and ought to be performed as day case surgery, irrespective of the chosen anesthetic technique, as there are no medical or surgical contraindications to this. Social causes may indicate that overnight stay may be advised or desirable, preferably in a patient hotel facility. A day case hernia surgery service should be organized with standardized patient records, including descriptions of surgery performed, type of anesthesia used and post discharge medication given.

As large numbers of patients undergo hernia surgery each year, the surgical technique should be a simple one. The results obtained by general surgeons using various open, tension-free techniques, irrespective of the anesthetic used, are excellent and appear to approach those of

specialists. Surgical residents should be taught repairs under local anesthesia, since with an aging population we may soon be faced with an increasing number of patients who are not fit for general anesthesia.[15] Finally, when consulting a patient with an inguinal hernia, primary or recurrent, the surgeon should pose the question "which combination of anesthesia and hernia repair is the safest and best for my patient?" Local anesthesia with appropriate analgesia and sedation is the safest of all techniques and is suitable for most if not all open repairs. Attention to surgical technique is paramount, and given the number of hernias repaired annually, it is pertinent to recall the words of Wakely, who said "A surgeon can do more for the community by operating on hernia cases and seeing that his recurrence rate is lower, than he can by operating on cases of malignant disease". [16]

Conclusion

Our study has confirmed the safety, and convenience of using local anesthesia for inguinal hernia repairs. Both post operative discomfort and morbidity rates are low. The procedure can be learnt easily and quickly therefore it is the recommended procedure to be used in our practice for the repair of inguinal hernia.

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