



Inguinal Hernia Repair Under Local Anaesthesia

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ABSTRACT

Inguinal hernia repair is a common surgery performed under general, regional or local anaesthesia. Local anaesthesia (LA) has advantages over other types of anaesthesia. It is safe, economical with less postoperative complications. In spite of the advantages, it is not widely used probably because of the fear of intraoperative patient discomfort. The aim of this retrospective study was to evaluate the efficacy of LA for inguinal hernia surgery. We studied 80 cases of inguinal hernia repair performed under LA. Monitored anaesthesia care was given and intraoperative pain and postoperative complications were recorded. Ninety percent of patients had no intraoperative pain. Post operative pain was mild in 78 (97.5%) patients. None of the patient had nausea, vomiting, urinary retention or any other anesthesia related complications. LA is thus a safe option for hernia repair with minimal complications.

KEYWORDS

Inguinal hernia repair, local anaesthesia.

Introduction

Inguinal hernia repair is the most common surgery performed worldwide and is more common in elderly patients¹. All types of anaesthesia have been used for the hernia repair. It is commonly done under regional anaesthesia. General anaesthesia (GA) is used mainly for laparoscopic hernia repair. LA was first introduced at the very beginning of the last century and was successfully used in Lichtenstein hernia institute and Shouldice Hospital^{2,3,4}. Since then it has gained popularity and is used worldwide. It is the most suitable anesthesia for elderly patients with co-morbidities.

It is economical, can be performed as a day care surgery with less post operative pain. LA is used in special hernia clinics but it is still not common in teaching hospitals. Very few surgeons prefer doing hernia under local anaesthesia, probably because of the fear of intraoperative pain and the availability of comfortable operating conditions for the surgeon.

Our literature search did not reveal many studies for hernia under LA in India.

This study was carried out to find out the efficacy of hernia repair under LA in a rural hospital.

Method

This retrospective study was done at B. K. L. Walawalkar rural medical college and hospital between September 2013 and August 2015. The study included 80 cases of inguinal hernia repair performed under LA. The inclusion criteria were unilateral uncomplicated inguinal hernia, psychologically stable and cooperative patients.

Exclusion criteria were complex, recurrent, irreducible hernias and obesity (BMI >30kg/m²).

Routine investigations were done as per the hospital protocol and informed consent was obtained.

The procedure was explained to the patients by the anaesthesiologist and the surgeon. An intravenous line was secured. Monitored anaesthesia care was given throughout the procedure. Intraoperative monitoring was done with ECG, pulse oxymeter and non-invasive blood pressure monitor. Intraoperative sedation was given with midazolam and fentanyl. The

hernia was repaired either by the Shouldice or Bassini technique, or mesh repair as per the patients need.

For postoperative pain, tablet paracetamol 1 gm and tablet diclofenac sodium (50mg), three times a day was given. Patients were discharged on the next day. Postoperative follow up for infection, hematoma and pain was done.

Technique of LA:

Drugs - Anaesthetic solution consisted of a 50:50 mixture of 2% lignocaine with adrenaline and 0.5% bupivacaine.

Nerve block - Ilioinguinal and iliohypogastric nerves were blocked at a point 2cm medial and superior to anterior superior iliac spine. 10-15 ml of the prepared solution was deposited in the plane between the external oblique and internal oblique and internal oblique and transversus abdominis by loss of resistance technique.

Local infiltration

Skin incision was marked with a pen. About 5 ml of the mixture was infiltrated subdermally and 3 ml injected intradermally all along the incision. Subcutaneous infiltration was done vertically at a distance of 2 cm points all along the incision. 8-10 ml of solution was infiltrated below the external oblique aponeurosis. Once the external oblique was opened, additional infiltration was done around the obvious nerves, near the pubic tubercle and at the root of the hernial sac at the internal ring.

Result

The operation was successfully completed in all 80 patients.

None of the patients had any anaesthesia technique or procedure related complication.

The mean age was 64 years. All the patients were males. Thirty six (45%) patients had hernia on the right side while 44 (55%) patients had hernia on the left side. Fifty two (65%) patients had indirect hernia while 28 (35%) patients had direct hernia.

All the patients were ASA grade I-III. Grade II and III patients had one or more co-morbidities. Hypertension was seen in 22 (27.5%) patients, diabetes mellitus in 16 (20%) patients and

coronary artery disease (CAD) in 8 (10%) patients. Ninety percent of patients had no intraoperative pain while 10% had mild to moderate pain and discomfort which resolved with further local anaesthetic infiltration. Two patients required deep sedation with propofol.

Intraoperative bradycardia and hypotension was seen in one patient.

Operative time was calculated from administration of LA to the end of the procedure. Operative time ranged from 50 minutes to 80 minutes with an average of 65 minutes.

Post operative pain was mild in 78 (97%) patients and only 2 patient required injectable diclofenac. All the patients were satisfied with the surgery and pain relief.

None of the patient had any complications due to the anaesthetic technique.

All the patients were discharged within 24 hrs postoperatively.

Eight (10%) patients had subcutaneous wound infection. Few stitches were opened and the wound healed by second intention. Wound hematoma was seen in 10 (12%) patients. None of the patients had urinary retention or postoperative nausea vomiting.

Table 1: Comorbidity

Co-morbidity	No. of patients
Hypertension	22 (27.5%)
Diabetes mellitus	16 (20%)
CAD	8 (10%)

Table 2: Post-operative complications

Complications	No of patients
Wound infection	8 (10%)
Wound hematoma	10 (12%)
Urine retention	0
Nausea, vomiting	0

Discussion

The type of anaesthesia for inguinal hernia repair has changed over the years.

Today most of the adult hernia repairs are done on an outpatient basis under regional or local anaesthesia with sedation. Patients with co-morbidities is no longer a contraindication for hernia repair and elaborate preoperative laboratory investigations are not required.

In our hospital all young ASA I patients had haemogram and serology done while ASA II and above with co-morbidities required additional investigations.

The use of LA for hernia repair varies in different countries. In Denmark it is around 18% and it is almost 100% in specialized, dedicated institutions like the Shouldice clinic and the Toronto clinic⁵.

It is important to inject the local anaesthetic solution in the accurate planes for successful blockade. Combined ilioinguinal blockade and local infiltration is recommended for inguinal hernia repair to reduce intraoperative pain. Anderson et al observed a significant reduction in intra operative pain score when the infiltration was combined with the block⁶. In our study we combined the block with infiltration for better results.

Fear of pain is an important factor for refusal of surgery under LA. In our study 90% of patients had no intraoperative pain and only two patients required deep sedation with propofol. Our results are comparable to Baskerville et al. They studied 129 patients operated under LA and demonstrated that 93%

patients felt no pain during operation and 7% said operation was painful¹.

Pain during operation is felt in case of large hernia operated under LA, if dissection is difficult due to adhesions of the sac, and this may lead to conversion of local anaesthesia to general anaesthesia⁷. In our study two patients required deep sedation with intravenous propofol.

Bradycardia during hernia sac dissection may occur due to stretching of the peritoneum⁸.

One patient in our study had bradycardia. Releasing the tension on the sac and additional infiltration at the inguinal ring resolved the problem.

About 97% of our patients had good postoperative pain relief with oral analgesics while only 2 patients required injectable analgesics.

Less analgesic doses required in patients operated under local anaesthesia is due to the long postoperative analgesic effect of local anaesthesia⁹. LA infiltration before incision probably inhibits the production of local nociceptive molecules and provides prolonged postoperative analgesia¹⁰.

Although unmonitored LA for inguinal hernia repair is reported, the most suitable facility for the hernia surgery with LA is still a monitored care in an institution where patients can receive GA, if needed or requested¹¹.

Young in his study comparing the local, regional and general anaesthesia, concluded that the local anaesthesia had the least complications and is suitable for day care surgery¹².

Our institution being in a remote hilly area, we did not encourage day care surgery, but admitted the patients and discharged them on next day morning, as it is not easy for the patients to approach the hospital in case of any immediate post operative complications like wound bleeding.

In a prospective study, Kulacoğlu et al showed that younger age, large hernias, omental mass in the sac, and duration of operation are the factors affecting the dose of local anaesthesia⁸.

None of our patients had urinary retention. The incidence of retention is lowest with LA than in general or spinal anaesthesia¹³.

LA also requires a delicate surgical manipulation. The surgeon has to be gentle while dissecting and the assistant will have to retract the wound edges cautiously.

LA offers several advantages over regional and general anaesthesia. It is cost effective, patient has to spend less time in the operation theater, less postoperative pain, lesser analgesic requirement, shorter stay in the hospital, avoids postoperative nausea and vomiting. The urinary retention seen under regional anaesthesia is avoided. There is no motor blockade and early mobilization is possible.

Another advantage of LA is that patient can cough to increase intra abdominal pressure. This will allow the surgeon to evaluate the defect intra-operatively and also check the strength of the repair, thus reducing the failure rate.

In conclusion, LA for inguinal hernia repair is cost effective and offers several advantages over other types of anaesthesia and should be used and taught more often.

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