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Is Open Mesh Hernioplasty under Local Anesthesia A Better Option in Peripheral Health Center: A Study from a Peripheral Health Care Centre in Trans Himalayan Region

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ABSTRACT

Open mesh Hernioplasty is a very common operation done worldwide.[1] Many alternatives of anesthesia for the operation such as general anesthesia, regional anesthesia (spinal, epidural) and local anesthesia has been introduced till now. This descriptive observational study was done in a Civil Hospital of District Kangra Himachal Pradesh for a period of 10 months from June 2019 through April 2020. This study included 57 cases of males with single sided reducible incomplete uncomplicated inguinal hernia. The Mean age of the patients was 39 years (SD 11.4 years) within the range of 32-69 years. All the patients tolerated the procedure very well and were uneventful and no Intra operative complications were documented. We also observed for post operative complications such as Hematoma, urinary retention, nausea, vomiting, wound sepsis, testicular swelling and recurrent of hernia. No such post operative complications were found. Mesh hernioplasty under local anesthesia may be considered as a better option in peripheral health care centre.

Key Words: Hernioplasty, Peripheral Health Settings, North India

INTRODUCTION

Open mesh Hernioplasty is a very common operation done worldwide.[1] Many alternatives of anesthesia for the operation such as general anesthesia, regional anesthesia (spinal, epidural) and local anesthesia has been introduced till now. In the developing countries like India there is scarcity of anesthetists and adequate infrastructure for surgery at the peripheral health center. This increases the unmet need of surgical care and burden of surgical conditions at secondary and tertiary level health care centres. We preferred the operation for reducible adult inguinal hernia under local anesthesia as it is safe, technically convenient, cost effective, short hospital stay, low cardiovascular complications and moreover can be done at health centre with inadequate infrastructure or non availability of anesthetists.[2-6]

MATERIAL AND METHODS

This descriptive observational study was done in a Civil Hospital of District Kangra Himachal Pradesh for a period of 10 months from June 2019 through April 2020. This study included 57 cases of males with single sided reducible incomplete uncomplicated inguinal hernia.

Exclusion criteria were female sex, strangulated or obstructed hernia, complete hernia, bilateral hernia and recurrent hernia.

Male patients of single sided reducible uncomplicated hernia were admitted and detailed history was obtained.

Then the patients were thoroughly examined and subjected to routine investigations. Informed consent was obtained after explaining the procedure and the alternatives of anaesthesia. The data was collected, entered and analysed using Microsoft excel spreadsheet. The continuous variables were presented as mean and standard deviations whereas the categorical variables were presented as frequencies and proportions.

Steps of anaesthesia infiltration:

10 ml of 2% xylocaine with adrenaline was diluted with distal water to prepare a volume of 40 ml. Subdermal infiltration of 5 ml of the solution was done along the line of incision as the needle was advanced to decrease the likelihood of intravascular infiltration of the drug. This step blocks the subdermal nerve endings and produces the anesthetic effect for intradermal infiltration. Now without completely extracting the needle, skin wheal was created using 3 ml of the solution along the line of incision in intradermal plane. Furthermore 10ml of the solution was infiltrated in deep subcutaneous adipose tissue. A 5 to 6 cm skin crease incision was given starting from the pubic tubercle. Now 10 ml of the anesthetic solution was infiltrated just below the external oblique aponeurosis at the lateral end of incision. This step blocks all three nerves here and creates a plane to lift external oblique aponeurosis so as not to injure ilioinguinal nerve. About 5 ml of solution was infiltrated at the level of pubic tubercle subperiosteally and rest of 5 ml was splashed in and around the inguinal canal.

Lichtenstein tension free mesh hernioplasty was done in all cases using monofilament polypropylene mesh of size 15*7.5 cm. Postoperatively patients were given injection diclofenac intramuscularly and observed for postoperative complications(urinary retention, hematoma, nausea or vomiting, recurrence, wound sepsis and testicular swelling) during the hospital stay. Patients were discharged on first post operative day. The patients were again observed on third and seventh postoperative day for the late complications.

RESULTS

We conducted surgeries over 57 cases through a period of 10 months. The Mean age of the patients was 39 years (SD 11.4 years) within the range of 32-69 years. (Table 1)

Table 1: Age group of the study participants (n=57)

Age Group	Number of patients	Proportion (%)
30-40	38	66.7
40-50	11	19.3
50-60	6	10.5
60-70	2	3.5

We used Nyhus classification based on the integrity of the posterior wall and deep inguinal ring which classified inguinal hernia as Type 1, Indirect inguinal hernia with a normal inguinal ring, peritoneal sac is in the inguinal canal; Type 2, Indirect hernia with an enlarged deep inguinal ring with the posterior wall intact, sac not in scrotum; Type 3a, direct hernia with a posterior floor defect only; Type 3b, Indirect hernia with enlargement of deep inguinal ring and posterior floor defect, and Type 3c, Femoral hernia, whereas Type 4, recurrent hernia. (Table 2)

Table 2: Nyhus classification based on the integrity of the posterior wall and the deep inguinal ring

Nyhus classification	Number of patients	Proportion (%)
Type 1	0	
Type 2	48	84.2
Type 3a	6	10.5
Type 3b	3	5.3
Type 3c	0	0

All the patients tolerated the procedure very well and were uneventful and no Intra operative complications were documented. We also observed for post operative complications such as Hematoma, urinary retention, nausea, vomiting, wound sepsis, testicular swelling and recurrent of hernia. No such post operative complications were found. All patients were pain free for 6 hours postoperatively however 2 patients complained of pain after 6 hours.

Similarly patients were observed on 3rd and 7th post operative day. No complications were observed.

DISCUSSION

Inguinal hernia is one of the common surgical problems worldwide. In our institute, there was no availability of operation theatre and anaesthetist during this period. Patients from the locality and nearby remote areas had to depend on the faraway institutions for their surgical treatment. This affects the patient routine life in form of increased unmet need for surgical care, time, cost and waiting period. Also this increases the burden of surgical conditions over the secondary and tertiary level health care centres.

Many clinical trials have shown the mesh hernioplasty under local anesthesia to be cost effective, safe, technically more convenient and less hospital stay.[2-6] However many surgeons are not comfortable with this procedure under local anesthesia. Various factors contributing for this may be the technical unfamilarity, lack of awareness, patient apprehension and unacceptance or non compliance of the patient.

Age of the patients included in our study was in range of 30 to 70 years. This is consistent with the studies available in literature which report that inguinal hernia is more common in middle and old age group.[7-8] No co morbidity was present in all our patients. Cardiovascular, pulmonary and urinary complications can occur after inguinal hernioplasty, especially when the procedure is performed under general or spinal anaesthesia.[9] However patients operated under local anaesthesia do not generally have serious peri or post-operative complications[10]

Post operative pain is an important factor among postoperative complications. In our study none of the patients complained of pain till 6 hours however 2 patients complained after 6 hours. VanVeen et al reported in their study that post operative pain in inguinal hernia repair under local anaesthesia was significantly less.[11] Patients were also observed for post operative complications like pain, urinary retention, nausea or vomiting, hematoma, wound sepsis and testicular swelling. There was no complication in all our patients. Saxena et al reported in their study that anaesthesia related complications were significantly less in patients operated under local anaesthesia.[12]

CONCLUSION

Mesh hernioplasty under local anesthesia may be considered as a better option in peripheral health care centre. However patient selection is more important. It is easy applicable, safe, cost effective and low hospital stay. Moreover it helps in meeting the unmet needs of surgical care at peripheral health centres and decreasing the overall burden of surgical conditions at secondary and tertiary level health care centres.

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