LOCAL ANAESTHESIA FOR INGUINAL AND FEMORAL HERNIA REPAIR

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Introduction

Local anaesthesia may be employed in hernia operations, either on its own or combined with general anaesthesia. The choice of technique will be influenced not only by local resources and skills, but also by patient preference.

Advantages of Local Anaesthesia for Hernia Repair

With a careful technique, local anaesthesia causes minimal physiological disturbance. This may be particularly useful for patients with cardiovascular or respiratory disease for whom there may be advantages in avoiding a general anaesthetic. The absence of postoperative sedation or drowsiness allows early ambulation and diminishes the requirement for recovery facilities. Local anaesthesia provides postoperative analgesia for up to four hours and may be administered by the surgeon. When adrenaline is mixed with the local anaesthetic (normally in a dilution of 1:200,000) useful vasoconstriction is produced resulting in a relatively bloodless field.

Disadvantages of Local Anaesthesia for Hernia Repair.

Surgery on the awake patient under local anaesthesia must be carried out gently. Although pain sensation is usually blocked by the anaesthetic, traction on certain tissues, particularly the peritoneum, is uncomfortable. The patient should be warned that some sensation may be experienced during the operation but that it will not be painful. Larger hernias, particularly those with incarcerated bowel may prove unsuitable for local anaesthesia.

Some sedation during the operation may be required for anxious patients which loses some of the benefits of avoiding general anaesthesia. Patients who are excessively nervous may be unsuitable for surgery under local anaesthesia.

Local Anaesthetic Agents

Several anaesthetic agents may be used including lignocaine, bupivacaine, procaine and prilocaine. Lignocaine acts more quickly than bupivacaine but wears off more rapidly. Careful attention should be paid to the maximum doses of the local anaesthetic agent that can be used (see Pharmacology of Local Anaesthetics in this issue of Update). Plain lignocaine 0.5% or 1% lignocaine with adrenaline 1:200,000 or plain 0.25% bupivacaine are satisfactory and the maximum amounts that may be used are shown in table 1.

Technique

The patient should be weighed preoperatively and the maximum permissable volume of local anaesthetic calculated. Resuscitation equipment must be available in case the patient develops a reaction to the local anaesthetic and a cannula inserted into a vein.

Table 1. Volumes and doses of local anaesthetic which should not be exceeded with different sized patients.

	Small adult 50 - 60 kg	**Medium adult 60 - 70 kg**	**Large adult 70 - 100 kg**
0.5% lignocaine plain	30mls (150mg)	36mls (180mg)	42mls (210mg)
0.5% lignocaine + adrenaline	70mls (350mg)	84mls (420mg)	98mls (490mg)
1% lignocaine + adrenaline	35mls (350mg)	42mls (420mg)	49mls (490mg)
0.25% bupivacaine	40mls (100mg)	48mls (120mg)	56mls (140mg)

These may be calculated as shown on p21 of this issue.

Explain to the patient that since the operation will be carried out under a local anaesthetic they will not feel pain but that some sensation of touch and perhaps pulling will remain. Reassure the patient that if they experience any discomfort it can easily be remedied by the surgeon injecting some more local anaesthetic.

As the skin is being prepared for surgery explain to the patient what is happening as he may be aware of the sensation. If possible place a surgical towel so that the patient cannot see the operation site.

The patient must be observed throughout the procedure by a trained attendant. The pulse should be monitored and the blood pressure checked regularly. Nervous patients may enjoy talking quietly to a nurse who will be able to inform the surgeon if the patient is in any discomfort. The surgeon should avoid asking the patient if he can feel anything, but rather ask if he is comfortable.

Anatomy

The nerve supply to inguinal and femoral herniae comes from the anterior branches of the six lower intercostal nerves which continue forward on to the anterior abdominal wall accompanied by the last thoracic (subcostal) nerve. The iliohypogastric and ilioinguinal nerves (T12 and L1) supply the lower abdomen. They are blocked by an injection of local anaesthetic between internal and external oblique muscles just medial to the anterior superior iliac spine. The genitofemoral nerve (L1,2) supplies inguinal cord structures and the anterior scrotum via its genital branch and supplies the skin and subcutaneous tissues of the femoral triangle via the femoral branch.

The local anaesthesia should:

1. Produce skin anaesthesia in the line of the incision. This is best achieved by injecting local anaesthetic subcutaneously in the line of the incision.

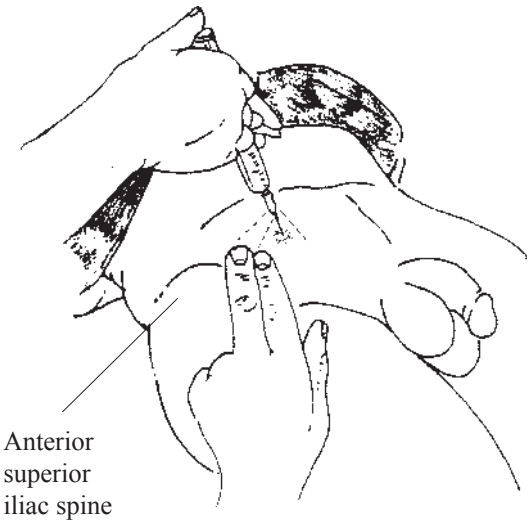
2. Block the nerve supply to the deeper tissues which are to be dissected and manipulated.

3. Produce anaesthesia of the parietal peritoneum of the hernia and especially the neck of the sac which is very sensitive.

Method

Identify the anterior superior iliac spine and the pubic tubercle. From a point 2cm above and medial to the anterior superior iliac spine inject 5 - 10mls of local anaesthetic under the external oblique aponeurosis in a fanwise fashion. You may feel a 'click' as the needle pierces the aponeurosis. Now inject under the aponeurosis from just lateral to the pubic tubercle, 5mls towards the umbilicus and 5 mls laterally. Wait a short time and then infiltrate subcutaneously in the line of the incision. Allow time for the anaesthetic to take effect before starting the operation. Keep some local anaesthetic ready to inject into the sac when it is exposed, and to supplement any parts which are not adequately anaesthetised (figures 1, 2 & 3).

Figure 1.





Figures 2 & 3.