CIRCUMCISION UNDER LOCAL ANAESTHETIC

Miss Rebecca Hamm, Specialist Registrar in Urology, Royal Devon and Exeter Hospital UK

Key Points

Circumcision is a common procedure which can be carried out under local anaesthetic. The block is simple to perform and surgerycauses little patient distress and has few complications.

Introduction

Circumcision in the United Kingdom is normally performed under a general anaesthetic with a penile block used for postoperative analgesia. However, local anaesthesia for the penis is simple to achieve in most cases, and can give good intraoperative pain relief. There are three main approaches to achieving an effective block.

1. Eutectic mixture of local anaesthetics, EMLA (Lignocaine and prilocaine cream).

2. Dorsal penile nerve block.

3. Ring block

Anatomy

The penis is innervated by the left and right dorsal nerves, which are branches of the pudendal nerve. The dorsal nerve on each side passes under the inferior ramus of the pubis and penetrates the layer of superficial fascia to supply the skin and also gives a branch to the corpus cavernosus. The nerves on either side are separated by the suspensory ligament of the penis.

Technique

● **EMLA** The cream is applied to the prepuce on both the skin and mucosal sides if possible and a condom is placed over the penis to keep the cream in position. This is left in place for at least 45 minutes prior to the procedure. It should not be applied to bleeding areas. Before a formal block is administered the condom is removed and the area tested for sensation. In a number of patients, eg elderly diabetics, it will be possible to carry out the circumcision without further anaesthesia.

● **Dorsal Penile Nerve Block** For an adult a mixture of 0.5% bupivacaine 10mls and 1% lignocaine 10mls (both without adrenaline) is made up to a total volume of 30mls with normal saline. With the patient supine, a 27 gauge needle is inserted over the middle of the pubic arch at the base of the penis (see position marked A in figure 1a and b) until it contacts the pubic symphysis, it is then withdrawn slightly and redirected to pass below the symphysis to left or right of midline to a depth of 3-5 millimetres deeper than the depth to the pubic symphysis (see figure 1a). After aspiration to confirm no flash back 5-7mls of solution are injected depending on the size of the patient. Without bringing the needle out of the skin the procedure is repeated on the other side. The needle may then be withdrawn completely or withdrawn to skin and the dorsal part of a ring block performed.

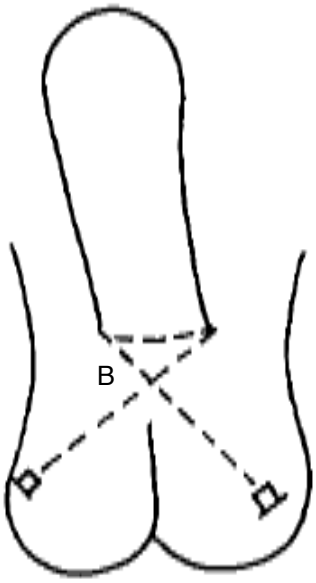

Figure 1a: Cross-sectional view

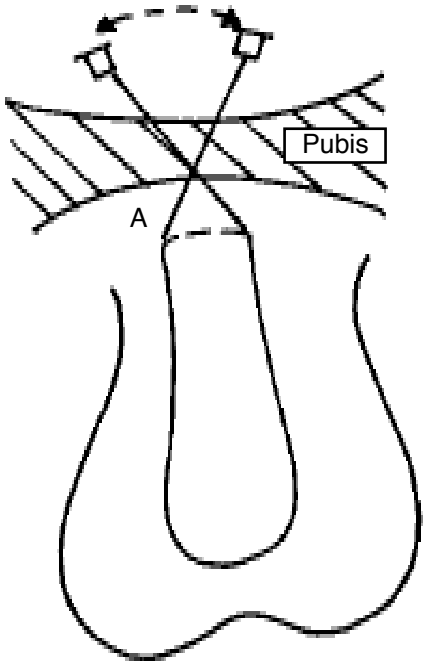

Figure 1b: Anatomical view

● **Ring Block** The same strength of solution as described above can be used to perform a circumferential subcutaneous injection at the base of the penile shaft using a 26 or 27 gauge needle. About 10mls of this solution should be enough to surround the base of the penis from two injection sites one ventrally (A on figure 1a and b) and one dorsally (B on figure 2).

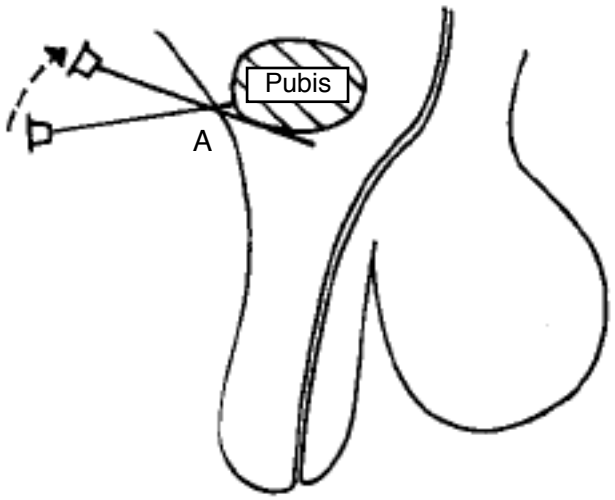

Figure 2: Anatomical illustration showing entry point (B) of needle for administration of frenular block or ring block, the anaesthetic is infiltrated into the subcutaneous tissue

Choice of Anaesthetic Technique

A combination of the three techniques is most likely to give effective cover. However EMLA is not commonly used.

By making up a 30ml solution at the beginning of the procedure, using 10mls for the dorsal penile block and 10mls for the ring block, there should be enough left over to inject additional solution should the block miss one particular area. When injecting during surgery it is better to inject using the ring block technique rather than directly into the affected area to avoid bulging of the subcutaneous tissues at the operative site, which makes identification of tissue planes more difficult. Any of these techniques could be combined with an oral or intravenous sedative in the anxious patient.

Pitfalls and Complications

Dorsal penile nerve block can miss the nerves to the frenulum and it is advisable to inject 1-2mls of anaesthetic at the base of the ventral aspect of the penis (marked B in figure 2) if a penile block without a ring block is being used.

An adequate amount of time must be left between injection of the anaesthetic agents and commencing the operation - normally 10-15 minutes, otherwise the anaesthetic will not have time to work.

Anaesthetics containing adrenaline should never be used because they cause arterial vasoconstriction, which may lead to ischaemia or necrosis of the penis.

A few cases of ischaemia have been described following dorsal penile block and this has been attributed either to using larger volumes of anaesthetic, or local haematoma formation causing compression of the dorsal penile artery.

Permanent numbness following the block is an uncommon complication and has been attributed to damage to the dorsal nerve of the penis.

Conclusion

Adequate local anaesthesia for circumcision can be achieved using a combination of simple techniques in the majority of patients and should probably be offered more frequently than is current practice. The combination of general anaesthesia supplemented with local anaesthesia to the penis is used routinely in many centres.