

Ring Block of the Penis: A Proven Addition to Multimodal Pain Relief for Newborn Circumcision

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Pain in the neonatal period has both acute and chronic consequences. Increased awareness regarding the negative aspects of using narcotic analgesics to control procedural pain in infants and children favors the use of alternative techniques. In healthy neonatal boys, circumcision represents their first exposure to a procedure with the potential for significant pain. The goal of everyone involved in the performance of neonatal circumcisions must be to use techniques that allow this procedure to be performed with minimal discomfort to the infant while at the same time optimizing the risk/benefit ratio between the provision of anesthesia or analgesia and patient safety.

In this month's edition of *Pediatrics*, Sharara-Chami et al¹ present their study entitled "Combination Analgesia for Neonatal Circumcision: A Randomized Controlled Trial," in which they demonstrate that multimodal anesthesia and analgesia techniques are superior to the topical of a eutectic mixture of local anesthetic (EMLA). The authors found that the best combination for newborn circumcision anesthesia and analgesia was the use of EMLA cream, followed by sucrose administration and then a penile block with plain lidocaine before the onset of the procedure.

Sharara-Chami et al¹ used EMLA cream in their control group so that no child was deprived of some form of analgesia. Compared with other forms of topical anesthetic agents, EMLA has both advantages and disadvantages.

Its major pharmacologic concern is that it contains prilocaine. This is more a theoretical consideration than a practical one because a single application of 1 g of EMLA has never been reported to have produced methemoglobinemia in patients undergoing circumcision. In reality, it is the time and application technique that greatly influence the effectiveness of EMLA. The longer one waits between the time of the application of EMLA (up to 4 hours) and the procedure, the greater the effect that is seen in terms of the density of the block and depth of anesthesia or analgesia. Sharara-Chami et al¹ reported, "Sixty minutes before the circumcision, 1 g of EMLA cream was applied by the nurse to the penis of the newborn and wrapped with Tegaderm dressing." Pereira et al² demonstrated that it is imperative that the EMLA be applied between the internal surface of the foreskin and the glans of the penis to obtain adequate anesthesia for the performance of a newborn circumcision. Because the onset time of EMLA is even more rapid when it is applied to mucous membranes, such as the internal surface of the foreskin, the 4-hour application window may not be needed to improve the efficacy of the EMLA block.

Stevens et al³ concluded that sucrose was not effective in reducing pain from circumcision; however, they did find that sucrose was effective in reducing procedural pain (ie, needle sticks). That said, sucrose may still play an important role as part of the

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multimodal approach to enhancing comfort during positioning, the block placement, and the procedure.

All of the blocks in the Sharara-Chami et al¹ study were performed by a skilled pediatric urologist. In reality, only on rare occasions are neonatal circumcisions performed for which a pediatric urologist is available to either assist with the placement of block or the performance of the circumcision. Almost all newborn circumcisions are performed by pediatricians or obstetricians.

The addition of a regional blockade to the penis enhances both the procedural-related anesthesia and postoperative analgesia associated with circumcision. The penile ring block (RB) was first described by Broadman et al⁴ in 1987, and it offers several advantages over the dorsal penile nerve block. The major advantage of the RB is its simplicity. The authors of this commentary have taught more than a thousand anesthesia residents, fellows, and nurse anesthesia students how to place this simple block without a single complication. Additionally, its superficial approach enables one to readily identify a hematoma formation should one occur as the result of RB placement. On the other hand, the dorsal penile nerve block is technically a more difficult block to place; the needle has the potential

to develop a barb on it when one touches the symphysis pubis on the first needle pass to ascertain the depth that will be required for the tip of the needle to subsequently pass deep to the symphysis pubis on the second or third needle pass. This barb has been shown to damage the vascular structures (dorsal penile artery and vein) and has resulted in the formation of sizeable and unrecognized hematomas.

Sharara-Chami et al¹ found that the RB was the block of choice for the provision of adjunct surgical anesthesia and postprocedural analgesia associated with the performance of neonatal circumcision, and we agree. However, we disagree with their conclusion that the RB needs to be done by an “expert” because this block can be readily mastered by most pediatric and obstetric practitioners with little training, and thus, it provides a safe, nonnarcotic approach to providing both surgical anesthesia and postoperative analgesia to neonatal boys undergoing circumcision.

CONCLUSION

Sharara-Chami et al¹ examine options to minimize discomfort during male neonatal circumcisions and demonstrate that a multimodal approach using the following

modalities may provide the best perioperative anesthesia and analgesia: EMLA, sucrose, and an RB. These 3 modalities used in concert offer both enhanced effectiveness and simplicity when compared with other approaches.

ABBREVIATIONS

EMLA: eutectic mixture of local anesthetic

RB: ring block

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