

## **Ultrasound-guided Penile Nerve Block for Circumcision: A New, Modified Technique**

M-Irfan Suleman, MD, Anita N. AkbarAli, MD, Valbona Kanarek, MD, Ashay Patel, Timothy W. Martin, M.D.,

Circumcision is one of the most frequent surgical procedures for pediatric males. Blind landmark-based needle placement, described by Maxwell, et al has been a standard method to block the dorsal penile nerve. Sandeman and Dilley described the ultrasound guided out-of-plane technique. We describe a new, modified ultrasound-guided penile block for male pediatric patients undergoing circumcision.

We describe a new, modified US-guided penile block for male pediatric patients undergoing circumcision. After administering general anesthesia to the patient, we prepared the penis and surrounding area, including the scrotum, with 0.5% chlorhexidine in 70% alcohol. Sterilized gel was used at the site and the US probe was covered with 4 inchsterile Tegaderm® film to ensure sterility, which is easier to apply and less costly than commercial probe covers.

Holding the US probe and positioning the needle against the probe can be problematic, but we found that the 25gauge, 1.5-inch regular needle, which is most commonly used by surgeons, is comfortable to use and easily visible on the US monitor because the targeted structure is close to skin. Our method is different and safe in that we perform anin-plane technique to observe the needle as it advances, to avoid any damage to surrounding structure. (Figure).

We used a linear US probe with a frequency range of 5 to 10 MHz and adjusted the Sonosite M-Turbo® (Bothell, WA) ultrasound machine to the musculoskeletal setting for better viewing of the penile structure on the monitor. We placed the probe transversely along the base of penis with gentle traction of the penis. The corpora cavernosa, dorsal arteries, dorsal veins, and superficial and deep penile Buck's fascia were identified. The needle was advanced using the in-plane technique under real-time US guidance until loss of resistance was felt when the needle passed through the hyperechoic superficial lining of Buck's fascia. Immediately after passing through this superficial layer, the needle tip should be positioned lateral to the dorsal artery into the substance of Buck's fascia. After negative aspiration, we injected 1-2 ml local anesthetic under direct vision.<sup>4</sup> The local anesthetic was evident on US as a black hypoechoic area. We used plain 0.25% bupivacaine, and our maximum dose was 2-3 ml. The same procedure was performed on the other side. We placed a small ventral bleb with local anesthetic at the penoscrotal junction to block the scrotal branches of the pudendal nerve as recommended by Sandeman and Dilley.<sup>2</sup>

## References

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