Ultrasound-guided Penile Nerve Block for Circumcision: A New, Modified in-Plane Technique

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BACKGROUND
- Dorsal penile nerve block (DPNB) requires local anesthetic injection close to the dorsal nerve of the penis.
- We describe a new, modified ultrasound-guided penile block in male pediatric patients undergoing circumcision.

ULTRASONIC GUIDED IN-PLANE TECHNIQUE
- General anesthesia administration
- Preparation of the penis and surrounding area with 0.5% chlorhexidine in 70% alcohol
- Ultrasound probe covered with 4" sterile Tegaderm® film
- A 25 gauge, 1.5-inch regular needle visible on the ultrasound monitor
- Linear ultrasound probe with a frequency range of 5 to 10 MHz
- Ultrasound machine adjusted to musculoskeletal setting
- Probe placed transversely along the base of penis
- Corpora cavernosa, dorsal arteries, dorsal veins, and superficial and deep penile Buck’s fascia identified
- Needle advancement using the in-plane technique
- Needle tip positioned lateral to the dorsal artery into the substance of Buck’s fascia
- Injection of 1 ml local anesthetic under direct vision
- Placement of a small ventral bleb with local anesthetic at the penoscrotal junction to block the scrotal branches of the pudendal nerve.

MATERIALS AND METHODS

CONCLUSIONS
- DPNB ultrasound group showed:
  • Less use of local anesthetic volume
  • Less intraoperative use of narcotics
  • Longer time for rescue pain medication
  • Less vomiting

DISCUSSION
- Ultrasound allows the three-dimensional anatomy of penis & surrounding structures, maneuver the needle under real-time observation.
- Correctly needle placement into the substance of buck’s fascia and administer the local anesthetics at target.
- Needle placement close to the nerves shows a reliable technique that minimizes adverse events
- Procedure is not complicated to learn and we recommend the DPNB ultrasound in plane technique to improve clinical care

REFERENCES

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