INTRODUCTION

- Dorsal penile nerve block (DPNB) is a commonly performed regional anesthetic for male circumcision, that has traditionally been performed using an anatomical landmark technique (1). Successful block of a sensory nerve like the dorsal penile nerve has relied upon blind landmark needle placement by a skilled operator.
- The use of ultrasound is an accepted practice of care in pediatrics for regional anesthesia. It has advantages over traditional nerve location techniques, including higher block success rates, shorter block onset times, lower total dose of local anesthetics, assessment of local anesthetic spread and reduced complications (2).
- We use ultrasound for penile block to identify Buck’s fascia in the subpubic space, the correct placement of the needle, and see LA spread under Buck’s fascia (3). In our institution, DPNB anesthesia is performed both with and without ultrasound after the patient is under general anesthesia. DPNB under US guidance were performed with the “in plane technique”, local anesthetic was injected laterally to each of the dorsal penile arteries.
- In continued efforts focusing on standardization and patient safety, we begin to look at our practice of performing penile blocks with and without ultrasound guidance.

AIM

- Preliminary describe outcomes associated with ultrasound guided and non-ultrasound guided DPNB.

METHODS

- A retrospective chart review is ongoing for subjects meeting the following criteria:
  - ASA I or II
  - Between 1 and 15 years of age
  - Undergoing circumcision surgery at Arkansas Children’s Hospital
  - Dorsal penile block anesthesia with 0.25% bupivacaine
  - Surgery performed between January 2012 and present

RESULTS

- To date, data have been collected on 7 in the Ultrasound group and 17 in the non-Ultrasound group

<table>
<thead>
<tr>
<th>Ultrasound (N=7)</th>
<th>Non-Ultrasound (N=17)</th>
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<tbody>
<tr>
<td>Age (years)</td>
<td>Mean (± sd) Range</td>
</tr>
<tr>
<td>10.4 (3.6)</td>
<td>6 - 17</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>40.5 (19.9)</td>
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<tr>
<td>Bupivacaine volume used (ml)</td>
<td>4.7 (1.9)</td>
</tr>
<tr>
<td>Total intraop opioids (mg/kg)</td>
<td>.08 (.08)</td>
</tr>
<tr>
<td>Postop opioid requirements (mg/kg)</td>
<td>.03 (.06)</td>
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- No subject in either group had pain on arrival to the PACU. However, 14% (n=1) in the Ultrasound group and 41% (n=7) of the Non-Ultrasound group required postop rescue medication (e.g., oxycodone, toradol).
- The only reported complications were 2 subjects in the Non-Ultrasound group experienced nausea/vomiting.

DISCUSSION

- These results seem to suggest that in the hands of our anesthesiologists ultrasound guided DPNB are as effective as Non-Ultrasound guided (i.e., using landmarks). Ultrasound guided DPNB is a new skill and improvement of technique will likely improve outcome.
- Moreover, all the patients were pain free upon arrival to PACU. Both groups had similar doses of narcotic requirements intraoperatively and postoperatively.
- LA was not injected at the ventral side of penis to cover perineal nerve in the Ultrasound group, pain control may improve by using larger volumes of local anesthetic and by injecting LA at the perineal nerve.
- Although not significant, a smaller range of volume of local anesthetic was used in the Ultrasound group.
- This study presents preliminary data with small groups. Thus drawing conclusions should be done cautiously. However, the data begin to give us a snapshot of our clinical practice of placing DPNB with and without ultrasound guidance.

REFERENCES

1. Paediatric Anaesthesia 2003; 13:38–42