USE OF ULTRASOUND-GUIDED SUPERFICIAL CERVICAL PLEXUS BLOCK FOR PAIN MANAGEMENT IN THE EMERGENCY DEPARTMENT

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 Abstract—Background: Although use of the superficial cervical plexus block (SCPB) by anesthesia for perioperative indications is well described, there is a paucity of research on use of SCPB in the emergency department (ED). Objective: This prospective observational study aims to prospectively characterize the feasibility, potential for efficacy, and safety of ultrasound-guided SCPB in a convenience sample of ED patients presenting with painful conditions of the “cape” distribution of the neck and shoulder. Methods: Data were gathered prospectively on a convenience sample of 27 patients presenting to a community ED with painful conditions involving the distribution of the SCPB: para-cervical muscle spasm/pain (n = 8), clavicle fractures (n = 7), acromioclavicular joint injuries (n = 3), radicular pain (n = 3), and rotator cuff disorders (n = 6). Pre- and post-block 11-point verbal numeric pain scores (VNPS) were recorded, as was the incidence of any immediate complications. A retrospective chart review looked for delayed complications in the 14-day post-block period. Results: The mean 11-point VNPS reduction was 5.4 points (62%). There were no early serious complications and one case each of self-limiting vocal hoarseness and asymptomatic hemi-diaphragmatic paresis. No delayed block-related complications were found. Conclusions: While limited by the fact that this was a nonrandomized observational experience with no control group, our findings suggest that SCPB may be safe and have potential for efficacy, and warrants further evaluation in a randomized controlled trial. Crown Copyright © 2018 Published by Elsevier Inc. All rights reserved.

 Keywords—cervical plexus; nerve block; ultrasound; analgesia

INTRODUCTION

Use of ultrasound-guided superficial cervical plexus block (SCPB) is a novel approach to pain management in the emergency department (ED). Literature on the use of SCPB in the ED setting is scarce. The first published use of the SCPB in the ED setting is in the form of a case report by Herring et al. describing the successful use of SCPB in the management of acute pain from a fractured clavicle (1). A second case report by Flores et al. described self-limiting Horner’s syndrome after a successful SCPB for analgesia in a case of a clavicular fracture (2). In contrast to the ED setting, anesthetic practice has included use of ultrasound-guided SCPB mainly in surgery involving neck structures, including thyroid, carotid, and clavicle. With the exception of the case report by Flores et al., no literature exists reporting complications associated with the SCPB in the ED setting. In anesthetic practice, one large systematic review was conducted to evaluate the complication rates of the SCPB as used for carotid endarterectomy (3). This study consists of 69 papers with a total of 2176 superficial blocks performed. There was a total of zero “serious” complications of
intrathecal or intravascular injection of local anesthetic, local anesthetic toxicity, local trauma, or hematoma leading to airway obstruction, and respiratory distress due to diaphragmatic or vocal cord paresis after placement of the block.

In a study population of 27 ED patients, we aimed to evaluate the potential role of the ultrasound-guided superficial cervical plexus block within the ED. Prospectively gathered data included verbal numeric pain score (VNPS) reduction for differing ED diagnoses and the incidence of any immediate complications. A retrospective chart review looked for delayed (within 14-day post-block period) complications from the SCPB.

**Regional Anatomy**

The superficial cervical plexus supplies innervation to the skin and underlying structures of the anterolateral neck. It originates from the anterior rami of the C1–C4 spinal nerves and gives rise to four distinct branches, which emerge from the midpoint of the posterior border of the sternocleidomastoid muscle at the level of the thyroid cartilage (Figure 1) (4). These terminal branches include the greater auricular, lesser occipital, transverse cervical, and supraclavicular nerves (1). Clinically important areas innervated by the cervical plexus include commonly injured structures of the neck, auricle of the ear, acromioclavicular (A-C) joint, and clavicle (Figure 2) (1). Specifically, the supraclavicular nerve provides intrinsic bone innervation to the clavicle and its overlying skin (5).

**Block Technique**

The patient is placed in either a sitting position (Figure 3A) or the lateral decubitus position with the block side up. The mid-point of the posterior border of the sternocleidomastoid is visualized in the transverse plane using a linear high-frequency transducer (Figure 3A and B). With the injection point starting just posterior to the posterior edge of the sternocleidomastoid (SCM) muscle half way between the clavicle and mastoid bone (Figure 2), a standard 1.5" 25-gauge needle is used in an in-plane technique. The needle tip is inserted 1–2 cm directly under the SCM and the local anesthetic should be seen dissecting along the fascial plane, as shown in Figure 3B. Five to ten milliliters of local anesthetic is injected in the fascial plane deep to the SCM.

**Block Contraindications and Complications**

There are very few contraindications to performing the SCPB, but they include infection over the injection site and allergy to the local anesthetic (4). Possible complications of SCPB include local anesthetic toxicity resulting from intravascular injection and inadvertent deep injection involving the phrenic nerve or recurrent laryngeal nerve causing diaphragmatic paresis or hoarse voice, respectively (1). Other complications include infection, hematoma, accidental

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**Figure 1. Cadaveric anatomy of the superficial cervical plexus.** The plexus may be seen emerging from the posterior border of the sternocleidomastoid muscle (1) at the intersection of the muscle and external jugular vein (4). The mastoid muscle (2), clavicle (3), and greater auricular nerve (5) are also seen. Adapted from The New York School of Regional Anesthesia (www.nysora.com).

**Figure 2. The distribution of the cutaneous innervation of the superficial cervical plexus outlined in shaded white area.** The injection site for the superficial cervical plexus block is marked (blue star), which corresponds to the mid-point of the posterolateral border of the sternocleidomastoid muscle (dotted line). External landmarks that help to localize the injection site include the superior border of the thyroid cartilage (red curved line) and the point where the external jugular vein (dashed line) crosses over the sternocleidomastoid.
subarachnoid or epidural anesthesia, transient ischemic attack, and allergic reaction (4).

MATERIALS AND METHODS

Study Design

We conducted a prospective observational study of a convenience sample (n = 27) of ED patients presenting with painful conditions involving the distribution of the superficial cervical plexus. Prospectively gathered data included pre- and post-block VNPS and any immediate post-block complications. A retrospective chart review component was included looking at the 14-day post-block period for delayed complications.

Study Setting and Population

Prospective data were gathered on a convenience basis from January 2013 to May 2015 in a Canadian community hospital ED with approximately 63,000 visits annually. Patients receiving SCPB for painful conditions involving distribution of the superficial cervical plexus from a variety of causes were included: paracervical muscle spasm/pain (n = 8), clavicular fractures (n = 8), A-C joint injuries (n = 3), radicular pain (n = 3), and rotator cuff disorders (n = 5). This convenience sample of patients was selected if they reported a VNPS of ≥7. Pain was severe enough that parenteral opioids were offered to the majority of the patients, but the SCPB was selected as the therapeutic option for a variety of reasons that included fear of opioid-related side effects and inadequate pain relief after parenteral opioids. One of the largest groups included paracervical musculoskeletal (MSK) strain/injuries. In the pre-enrollment phase of the study, the primary author found there was suboptimal analgesic effect with SCPB for painful conditions involving the posterior neck muscles and the trapezius area. Therefore, outside of 1 patient, this group of paracervical MSK pain involves the anterior/lateral neck distribution exclusively. The rotator cuff injury subgroup included diagnoses of subacromial bursitis, calcific tendonitis, and rotator cuff tear. Eighteen of the patients were male and 9 were female, with an age range of 14–78 years (mean age 46.9 years).

Study Protocol

Ethical approval was obtained from the regional Health Authority Health Research Ethics Board. Consent was not obtained before the SCPB; during the study period, the SCPB was offered as a therapeutic option by a number of emergency physicians at our hospital, mainly for pain relief for clavicle fractures and A-C joint injuries. Prospectively gathered data sheets were recorded documenting immediate complications and outcomes of each block initially as part of an internal quality assurance process. This included patient medical record number, clinical diagnosis, verbal 11-point VNPS before and after block, time difference between pain score measurements, amount and type of local anesthetic used, and presence of diaphragmatic paresis as assessed by bedside ultrasound post block. Assessment of ipsilateral diaphragmatic movement was done pre and post block with the post-block ultrasound performed after the recording of the post-block pain score. A 3.5-MHz curvilinear probe using solid organ (liver or spleen) windows in the longitudinal plane was used to assess diaphragmatic movement during resting and a couple of tidal volume breaths. Diaphragmatic paresis was determined to be present if there was noticeable subjective difference in the pre- and post-block diaphragmatic excursion. Evidence of change in voice/hoarseness (either noted by the author or reported by the patient), ptosis/miosis, or evidence of
<table>
<thead>
<tr>
<th>Patient Age, Sex</th>
<th>Indication</th>
<th>Pre-Block NVPS</th>
<th>Post-Block NVPS Time, min</th>
<th>Post-Block NVPS</th>
<th>NVPS Reduction</th>
<th>% Reduction</th>
<th>Immediate Complications</th>
<th>14-d Bounce-Back</th>
<th>Procedure Notes</th>
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<tbody>
<tr>
<td>49 y, male</td>
<td>Rotator cuff tear</td>
<td>NA</td>
<td>2</td>
<td>NA</td>
<td>“Good block”</td>
<td>None</td>
<td>Yes, nausea due to oral morphine use</td>
<td>10 mL 0.25% Marcaine with epinephrine</td>
<td>Injection ×2</td>
</tr>
<tr>
<td>32 y, male</td>
<td>Paracervical + scapular pain (shoulder sprain)</td>
<td>9</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>77.8</td>
<td>None</td>
<td>None</td>
<td>8 mL 0.25% Marcaine with epinephrine</td>
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<td>38 y, female</td>
<td>Trapezius spasm with severe pain on neck movement</td>
<td>9</td>
<td>NA</td>
<td>5</td>
<td>4</td>
<td>44.4</td>
<td>None</td>
<td>None</td>
<td>10 mL 0.5% Marcaine with epinephrine Injection ×2</td>
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<tr>
<td>34 y, female</td>
<td>Subacromial bursitis</td>
<td>8</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>50</td>
<td>Asymptomatic partial diaphragmatic paresis</td>
<td>None</td>
<td>7 mL 0.25% Marcaine with epinephrine</td>
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<td>36 y, male</td>
<td>A-C joint injury, snowboarding</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>62.5</td>
<td>None</td>
<td>None</td>
<td>6 mL 0.5% Marcaine with epinephrine</td>
</tr>
<tr>
<td>62 y, male</td>
<td>Clavicular fracture, MVC</td>
<td>10</td>
<td>3</td>
<td>2</td>
<td>8</td>
<td>80</td>
<td>None</td>
<td>None</td>
<td>7 mL 0.5% Marcaine</td>
</tr>
<tr>
<td>73 y, female</td>
<td>Radicular neck + arm pain</td>
<td>8</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>50</td>
<td>None</td>
<td>None</td>
<td>7 mL 0.5% Marcaine</td>
</tr>
<tr>
<td>14 y, male</td>
<td>Clavicular fracture</td>
<td>8</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>62.5</td>
<td>None</td>
<td>None</td>
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<td>Clavicular fracture</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>7</td>
<td>100</td>
<td>None</td>
<td>Yes, recurrent pain</td>
<td>9 mL 0.25% Marcaine with epinephrine</td>
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<td>58 y, male</td>
<td>Clavicular fracture</td>
<td>9</td>
<td>2</td>
<td>0</td>
<td>9</td>
<td>100</td>
<td>None</td>
<td>8 mL 0.5% Marcaine with epinephrine</td>
<td>Injection ×2</td>
</tr>
<tr>
<td>34 y, male</td>
<td>Paracervical neck pain post seizures</td>
<td>9</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>55.6</td>
<td>None</td>
<td>None</td>
<td>8 mL 0.25% Marcaine with epinephrine</td>
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<tr>
<td>21 y, female</td>
<td>Paracervical muscle spasm</td>
<td>9</td>
<td>2</td>
<td>1</td>
<td>8</td>
<td>88.8</td>
<td>None</td>
<td>None</td>
<td>12 mL 0.5% Marcaine with epinephrine Injection ×2</td>
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<tr>
<td>51 y, female</td>
<td>Subacromial bursitis, subacromial injection of 3 mL Marcaine initially unsuccessful</td>
<td>8</td>
<td>3</td>
<td>1</td>
<td>7</td>
<td>87.5</td>
<td>None</td>
<td>None</td>
<td>7 mL 0.5% Marcaine</td>
</tr>
<tr>
<td>32 y, male</td>
<td>Radicular neck pain</td>
<td>9</td>
<td>4</td>
<td>2</td>
<td>7</td>
<td>77.8</td>
<td>None</td>
<td>None</td>
<td>7 mL 0.25% Marcaine with epinephrine</td>
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<td>52 y, female</td>
<td>Calcific tendonitis</td>
<td>9</td>
<td>5</td>
<td>6</td>
<td>3</td>
<td>33.3</td>
<td>None</td>
<td>None</td>
<td>7 mL 0.5% Marcaine</td>
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<tr>
<td>56 y, male</td>
<td>Paracervical neck pain (neck strain)</td>
<td>9</td>
<td>5</td>
<td>7</td>
<td>2</td>
<td>22.2</td>
<td>None</td>
<td>None</td>
<td>NA</td>
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<tr>
<td>53 y, female</td>
<td>Calcific tendonitis</td>
<td>9</td>
<td>11</td>
<td>5</td>
<td>4</td>
<td>44.4</td>
<td>None</td>
<td>None</td>
<td>7 mL 0.5% Marcaine with epinephrine</td>
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<tr>
<td>78 y, female</td>
<td>Radicular neck pain</td>
<td>10</td>
<td>5</td>
<td>2</td>
<td>8</td>
<td>80</td>
<td>Voice hoarseness</td>
<td>None</td>
<td>NA</td>
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<tr>
<td>55 y, male</td>
<td>Clavicular fracture</td>
<td>9</td>
<td>10</td>
<td>2</td>
<td>7</td>
<td>77.7</td>
<td>None</td>
<td>None</td>
<td>14 mL 0.25% Marcaine with epinephrine Injection ×2</td>
</tr>
<tr>
<td>20 y, female</td>
<td>Chronic neck pain (neck strain) after a MVC 2 y prior</td>
<td>10</td>
<td>7</td>
<td>4</td>
<td>6</td>
<td>60</td>
<td>None</td>
<td>None</td>
<td>6 mL 0.5% Marcaine with epinephrine</td>
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</tbody>
</table>

(Continued)
post-block hematoma at the block site was also recorded if present. The primary author gathered prospective data. A retrospective chart review of the patient’s electronic medical record looking at the 14-day post-block period for return visits to the ED was performed by the second author, who was not blinded to the study objectives. The ED triage and clinical notes were reviewed. A standardized data collection sheet was used recording the presence of fever (≥38°C), respiratory rate (>20 breaths/min), complaints of dyspnea, ongoing numbness in the distribution of the block, voice changes, and neck swelling or redness. Diagnosis of neck hematoma, neck cellulitis, and pneumonia were also recorded if present.

In all cases, SCPB was performed by the primary author with an Ultrasonix SonixTouch machine (BK Ultrasound; Richmond, BC, Canada), using a linear array 14-5 MHz transducer. A standard 1.5\textsuperscript{0} 25-gauge needle was used for the blocks (bupivacaine) and a 30-gauge needle was used to anesthetize the skin (1% lidocaine). All patients had block success determined if there was decreased sensation noted in the supraclavicular nerve distribution (skin overlying the clavicle). If no sensation change was appreciated a few minutes post block, a repeat injection was performed slightly inferior to the original injection site.

RESULTS

Pain Score Reduction

Pain score data were available for 26 of the 27 study patients. Table 1 gives a more detailed results summary of the study population. Table 2 and Figure 4 summarize the pain scores both pre and post procedure for each diagnosis subgroup. The average time lapsed after block completion to recording of the post-block VNPS was 5 min (range 2–25 min). Mean total anesthetic (bupivacaine) volumes used for the block were 8.4 ± 2.2 mL. Bupivacaine 0.25% was used for the majority of the cases, however, when this concentration was not easily available, the 0.5% concentration was used. There were 3 patients that received opioids before the block, but as the time between recording pre/post-block pain scores was <5 min in these cases, this likely had little bearing on the reductions seen.

In 10 patients, the SCPB demonstrated excellent performance resulting in no to mild post-block pain with VNPS of 0 (n = 2), 1 (n = 2), and 2 (n = 6) and a mean pre-block pain score of 8.7 ± 1.1. All diagnostic subgroups were represented here: clavicle fracture (n = 4), paracervical pain (n = 2), radicular (n = 2), rotator cuff (n = 1), and A-C joint (n = 1).

In 4 patients, SCPB performed poorly, resulting in moderate post-block pain with VNPS of 5 (n = 1), 6
and was only noted because of the difference between pre and post-block assessment of ipsilateral diaphragm movement by bedside ultrasound. Recurrent laryngeal nerve involvement occurred in a 78-year-old female with radicular neck pain. Hoarseness completely resolved by the next day and there were no long-term sequelae.

We chose to perform a retrospective chart review looking at the 14-day post-procedure period to follow-up and identify any “bounce back” presentation to the ED. The study hospital is a regional community hospital and all but 1 of the patients in the study population lived in the immediate catchment area. The next closest hospital ED is approximately 80 km away, so there is a high likelihood that any serious complications would result in a return visit to the study ED. The 1 patient who lived outside of the immediate hospital catchment area was contacted directly 1 month post procedure and reported no complications. There were 4 patients who returned to the ED in this time period (range 24–72 h post procedure). None had any of our predefined post-block complications. Three returned with recurrent pain and 1 returned 2 days post block with nausea caused by oral morphine use.

**DISCUSSION**

This study seems to suggest that there is a role for SCPB in the ED setting for treatment of a range of painful conditions involving distribution of the superficial cervical plexus. The average VNPS reduction is well above the threshold for minimal clinical meaningful pain relief reported in the literature across varied patient populations of 1.3–2.4, including a study looking at an ED-specific population where the threshold was 1.3 (6–9). Another study comparing mean triage and discharge pain scores by VNPS found a significant association between patient satisfaction and a reduction in pain of 2 or more points (10). The VNPS reductions seen in our study compare favorably to the reported mean pain score reductions of 4.1–4.5 using 0.1 mg/kg morphine intravenously for treatment of acute painful conditions in the ED (n = 478 in 2 studies) (11,12).
Anecdotally, there also seems to be a role for SCPB in painful procedures involving the “cape” distribution off the anterolateral neck and shoulder, such as central venous cannulation, abscess drainage, and auricular ear laceration repair. Although there are no studies looking at a specific ED population, in a study involving ear, nose, and throat surgical patients, the SCPB was used successfully for submental and submandibular abscess drainage (13). A study of 52 pediatric (aged 1–17 years) patients requiring emergent hemodialysis catheter placement (both internal jugular and subclavian approaches were used) demonstrated minimal pain scores with the procedure performed under SCPB (14).

The shoulder area is innervated by branches of both the cervical and brachial plexus (primarily the suprascapular and axillary nerves); this innervation pattern may explain the varied pain reduction seen in our series with the SCPB in patients with rotator cuff and A-C joint injuries.

A number of studies have shown that there is fairly porous communication between the superficial and deep compartments of the neck, which may result in inadvertent involvement of deep structures, such as the cervical sympathetic chain (Horner’s syndrome), recurrent laryngeal nerve (voice hoarseness), phrenic nerve (diaphragmatic paresis), and brachial plexus (motor/sensory arm symptoms), reported with the SCPB (3,15–17). While there have been no serious complications reported with the SCPB, the incidence of minor complications/side effects, such as self-limiting voice changes and hemidiaphragmatic paresis, have not been reported outside of one paper by Martusevicius et al., looking at 60 patients undergoing carotid endarterectomy using ultrasound-guided SCPB using a significantly different technique than from the one used in our paper (3,18). Their total anesthetic volume was also significantly higher (31.7 ± 3.5 mL). They reported a significantly higher minor complication rate than the one reported here with voice hoarseness noted in 72%, Horner’s syndrome in 37%, cough in 20%, facial palsy in 13%, dysphagia in 12%, and no symptomatic respiratory symptoms or motor symptoms of the upper extremity. In addition to infiltration of anesthetic directly under the sternocleidomastoid muscle, the block technique used in the paper by Martusevicius et al. included a para-carotid infiltration of anesthetic that requires a deeper injection. We hypothesize that the addition of the para-carotid injection and the additional volume of anesthetic used contributed to the higher adverse effect reported compared to our series.

The use of bedside ultrasound has been shown to be a noninvasive method of determining the presence of diaphragmatic paresis in postoperative patients and has been shown to be as effective as fluoroscopy in this regard (19,20). While M-mode measurement of diaphragmatic excursion has been used, we used subjective observed differences in diaphragmatic movement pre and post-block (usually observed <15 min apart in our series). Although the vast majority of diaphragmatic paresis is asymptomatic (e.g., interscalene blocks commonly used in shoulder surgery has reported rates of ipsilateral diaphragmatic paresis up to 100%), caution should be used performing the SCPB in those with significant respiratory impairment (21–23). Likewise, the SCPB should be avoided in those with suspected or known unilateral recurrent laryngeal nerve impairment.

**Limitations**

There are a number of limitations to our study. As the study design is an observational case series with no comparator, no conclusions can be drawn comparing the SCPB vs. current ED care of this patient population. The primary author (BH) performed all of the blocks and recorded the prospectively gathered data (pain scores and immediate side effects) and the second author (MD) performed the retrospective chart review but was unblinded to the study objectives, which may introduce the possibility of measurement and interpretation bias.

This case series is based on a single operator experience and, as such, may not be generalizable to the general ED practitioner, however, the primary author’s experience of teaching attending and resident staff has suggested that the technical skill required to perform this block successfully are well within reach of those with fundamental bedside ultrasound training. Being a convenience sample, the study population may have been subject to selection bias. Our patient population also reported severe pain before the SCPB (mean VNPS of 8.7 ± 0.84) and it is unknown whether the pain score reductions would have been as significant in those with less severe pre-block pain scores. In the majority of cases, pain measurements were recorded by the primary author/block operator and, as such, social compliance pressure on the patient may have had a significant role in the reduction in pain scores recorded. The small numbers of patients in each diagnostic subcategory make it hard to draw any meaningful conclusions about the performance of SCPB in these subgroups.

The immediate complications were recorded at the time of the ED visit—usually just after the post-block VNPS, which was, on average, 5 min after block completion. It is possible that early complications may have occurred after this time frame, but we hypothesize that the complications we were looking for (i.e., allergic reaction, seizure, neck swelling, respiratory distress, voice hoarseness, and ptosis/miosis) would have prompted a return visit to the ED.
The short time interval between block completion and recording of the post-block VNPS in our study may have biased the results against the block performance, as the reported time to onset of the SCPB is 10–15 min. Despite this reported time of onset, the authors found there was often significant analgesic effect observed within 2–3 minutes in the pre-enrollment period as well as during the study period.

CONCLUSIONS

Despite the absence of a direct comparator, our case series does seem to demonstrate a significant analgesic effect from the use of SCPB in dealing with a range of painful conditions involving the distribution of the superficial cervical plexus in ED patients. These conditions include clavicle fractures, A-C joint injuries, rotator cuff pathology (tears, subacromion bursitis, calcific tendinitis), and anterolateral paracervical strain/spasm. In our study population, there were no serious early or late complications, and one case of symptomatic, but self-limiting voice hoarseness and one case of asymptomatic self-limited ipsilateral partial hemi-diaphragmatic paresis requiring no intervention. SCPB may be a useful addition to the emergency physician’s toolbox when treating ED patients with these conditions and warrants further investigation in a randomized controlled trial in which it is compared to standard ED treatment modalities.

REFERENCES

ARTICLE SUMMARY

1. Why is this topic important?
   Severe pain in the distribution of the superficial cervical plexus is fairly common in the emergency department (ED) setting and to have an effective opioid-sparing option with minimal adverse effects would be useful for the practicing emergency physician.

2. What does this study attempt to show?
   The superficial cervical plexus block (SCPB) is an effective and safe option for a variety of painful ED presentations.

3. What are the key findings?
   Overall mean 11-point verbal numeric pain score reduction was 5.4 points (62%) for all clinical indications. The most consistent pain relief occurred in the clavicle fracture group, with the other indications having some minimal responders. There was no significant adverse effects noted and 2 minor adverse effects: 1 patient with asymptomatic ipsilateral partial diaphragm paresis and 1 with self-limited voice hoarseness.

4. How is patient care impacted?
   The ultrasound-guided SCPB may be a safe and effective opioid-sparing option for a variety of painful ED conditions, with the most consistent effect noted in patients with severe painful clavicle fractures.