



# Ultrasound-guided transversalis fascia plane block for alveolar cleft repair with iliac crest bone graft

Jordan M. Ruby, MD<sup>1</sup>, F. Wickham Kraemer, MD<sup>1</sup>, Oksana A. Jackson, MD<sup>2</sup>, Jesse A. Taylor, MD<sup>2</sup>, & Wallis T. Muhly, MD<sup>1</sup>

Children's Hospital of Philadelphia Department of Anesthesiology and Critical Care Medicine<sup>1</sup>, Children's Hospital of Philadelphia Division of Plastic and Reconstructive Surgery<sup>2</sup>



## Introduction

- Alveolar cleft repairs are often completed with iliac crest bone graft (IBG).
- Autologous IBG harvesting is associated with patient morbidity including persistent pain at the donor site, difficulty with ambulation, and limitations in daily activities.<sup>1</sup>
- The transversalis fascia plane (TFP) block has been shown to be an effective technique for managing pain after IBG harvesting in adults.<sup>2</sup>
- We report the use of the TFP block as a safe and useful adjuvant in a small series of pediatric patients undergoing alveolar cleft repair with autologous IBG.

## Methods

- We identified and consented four patients undergoing alveolar cleft repair with IBG for general anesthesia and a single shot TFP block.
- Anesthesia was maintained with sevoflurane and a standardized regimen of intravenous acetaminophen, ketorolac, and morphine titrated to effect.
- Postoperative pain scores, location of pain (when available), and opioid requirements were collected and reported.

## Methods



Patients were positioned supine with a bump under the hip. A linear ultrasound (US) probe was placed in the transverse orientation just superior to the iliac crest. The transversus abdominis (TA) and internal oblique muscles were traced posteriorly until they tapered into a common aponeurosis. Using a 2" spinal needle, 0.5-1cc/kg (max 20cc) of 0.2% ropivacaine was injected in the plane between the TA muscle and the underlying transversalis fascia.

## Results

	Age	kg	PACU pain (location) score/ opioids	Ward admit pain score/ opioid	12am POD1 pain (location) score/opioids	8am POD1 pain (location) score/opioids
P1	15	54	0 (NA)/none	0 (NA)/none	3 (mouth)/oxy 5mg	3 (hip)/oxy 5mg
P2	10	27	5 (mouth)/oxy 0.1mg/kg	0 (NA)/none	7 (mouth)/oxy 0.1mg/kg	1 (NA)/oxy 0.1mg/kg
P3	11	46	0 (NA)/none	0 (NA)/none	9 (mouth)/oxy 0.1mg/kg	1 (NA)/oxy 0.1mg/kg
P4	8	17	0 (NA)/none	0 (NA)/none	4 (mouth)/oxy 0.1mg/kg	2 (NA)/oxy 0.1mg/kg

Table 1: Not available (NA); oxycodone (oxy)

- No patients required an IV opioid rescue dose in the PACU or postoperatively.
- No patients reported pain at the harvest site in the PACU.
- On the ward, patients received oxycodone at a frequency of every four to six hours as needed for pain.
- First site of pain documented in all patients was the mouth.
- Hip pain not reported in any patient except one (24 hours post operatively).
- No adverse effects or complications from the TFP block.

## Discussion

- Previous studies have demonstrated the utility of local anesthetic infiltration, On-Q wound catheters and paravertebral nerve blocks for autologous IBG harvest site analgesia.<sup>3,4</sup>
- Our small case series illustrates that the US-guided TFP block is a potentially safe and efficacious modality for pain management in pediatric patients undergoing alveolar cleft repair with IBG.
- Further study is needed to determine the role of this abdominal wall nerve block in the perioperative management of this patient population.

## Conclusions

US-guided TFP block may be a useful and safe adjuvant in managing patients undergoing alveolar cleft repair with IBG.

## References

- Swan, M.C. et al. Morbidity at the Iliac Crest Donor Site following Bone Grafting of the Cleft Alveolus. *Br J of Or and Max Surg* 2006. Vol 44: 129-133.
- Chin, K.J., et al. Ultrasound-guided Transversalis Fascia Plane Block Provides Analgesia for Anterior Iliac Crest Bone Graft Harvesting. *Can J Anes.* 2012. 59: 122-123.
- Muzaffar, A.R., et al. Use of the On-Q Pain Pump in Alveolar Bone Grafting: Effect on Hospital Length of Stay. *Cleft Palate Craniof J.* 2016. 53(2): 23-27.
- Visoju, M. Outpatient analgesia via paravertebral peripheral nerve block catheter and On-Q pump – a case series. *Ped An.* 2014. 24. 875-878.