

Continuous Lumbar Erector Spinae Plane Block for Acute Post-Hip Disarticulation Pain

Norhan Ibrahim, DO¹; Cooper Quiroz, MD¹; Mackenzie Jacoby, MD¹; Mariam Mehrafza; Khan S; Katherine Becker; Gabrielle Santiago; Ivanov A; Nadia Hernandez, MD¹

Department of Anesthesiology, Division of Regional Anesthesiology and Acute Pain Medicine, UTHealth McGovern Medical School, Memorial Hermann Hospital in the Texas Medical Center, Houston, TX.

Introduction

- Hip disarticulation surgery the removal of the entire lower limb at the hip joint which frequently results in severe post-operative pain.
- Continuous ESP block's following hip arthroplasty have been shown to increase total ambulation time on post-operative (POD) #1. ^[1]
- The absence of contralateral motor blockade allows for early post-operative mobilization, which may lead to shorter hospital stays.
- This is the first case report of a patient who underwent hip disarticulation surgery and received postoperative pain management using regional anesthesia with an erector spinae plane (ESP) indwelling catheter at the L2 level.

Case Report

68 yo male with hypertension, mild dementia, and a total hip replacement presented with recurrent left hip hardware infection requiring a total hip disarticulation. The surgeon requested regional analgesia for the patient. A left ESP catheter was placed under general anesthesia which was accidentally dislodged on POD #1. On POD #2 the left-sided ESP catheter was replaced.

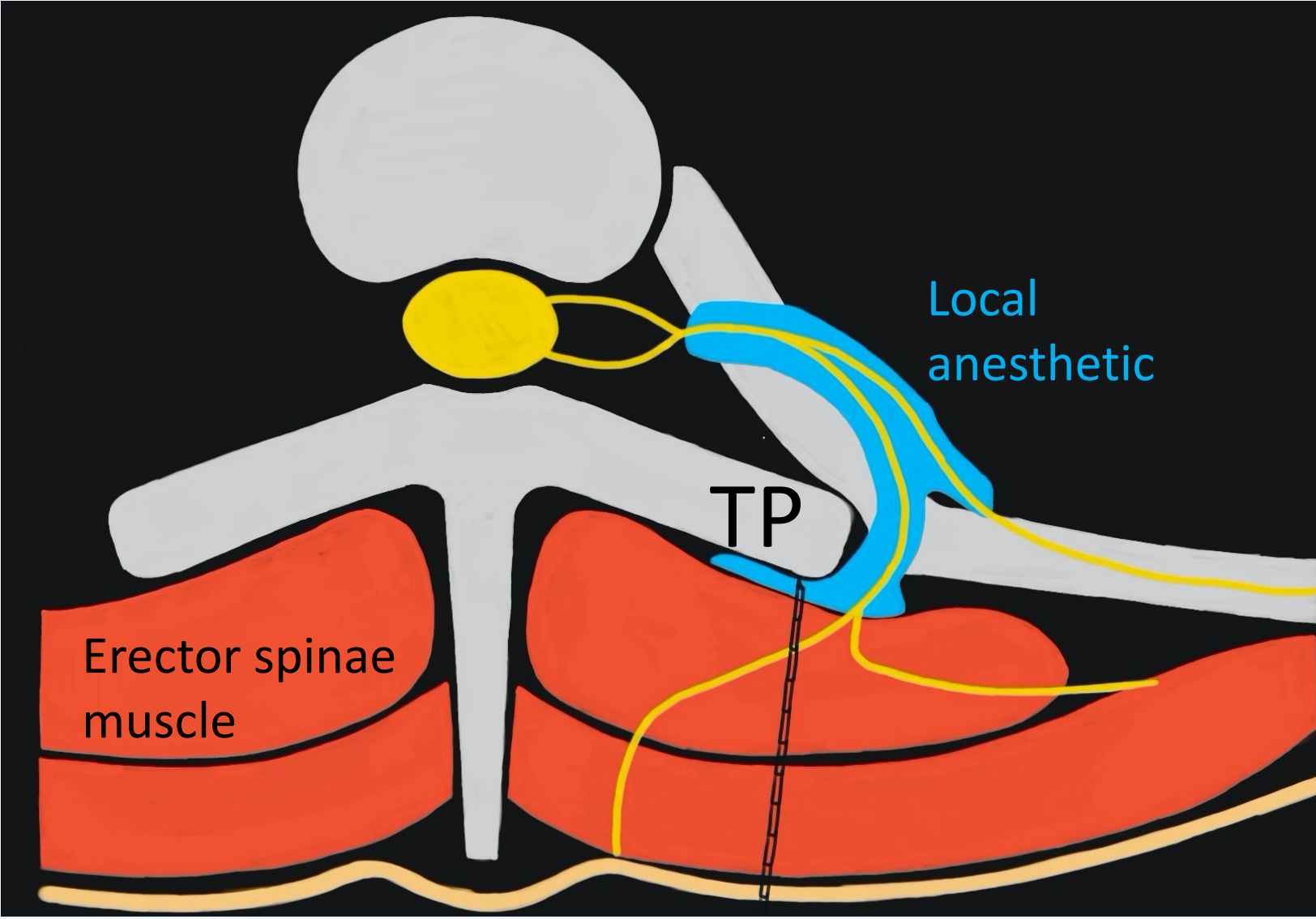


Figure 1: schematic of lumbar erector spinae catheter (ESP)

Intervention

In lateral decubitus position, ESP catheters were placed at the left L2 transverse process using curvilinear low-frequency ultrasound transducer (5-1 Hx). A 20g catheter was threaded 5 mm into the space via an 18 g Tuohy needle. Ropivacaine hydrochloride 0.2% was delivered at 8 mL/hour with a patient-controlled demand dose of 4 mL/hour. The catheter remained in place for 8 days. On POD #10, the catheter was clamped and the patient did not experience rebound pain. On POD #11, the patient was discharged with home health without opioid prescriptions.

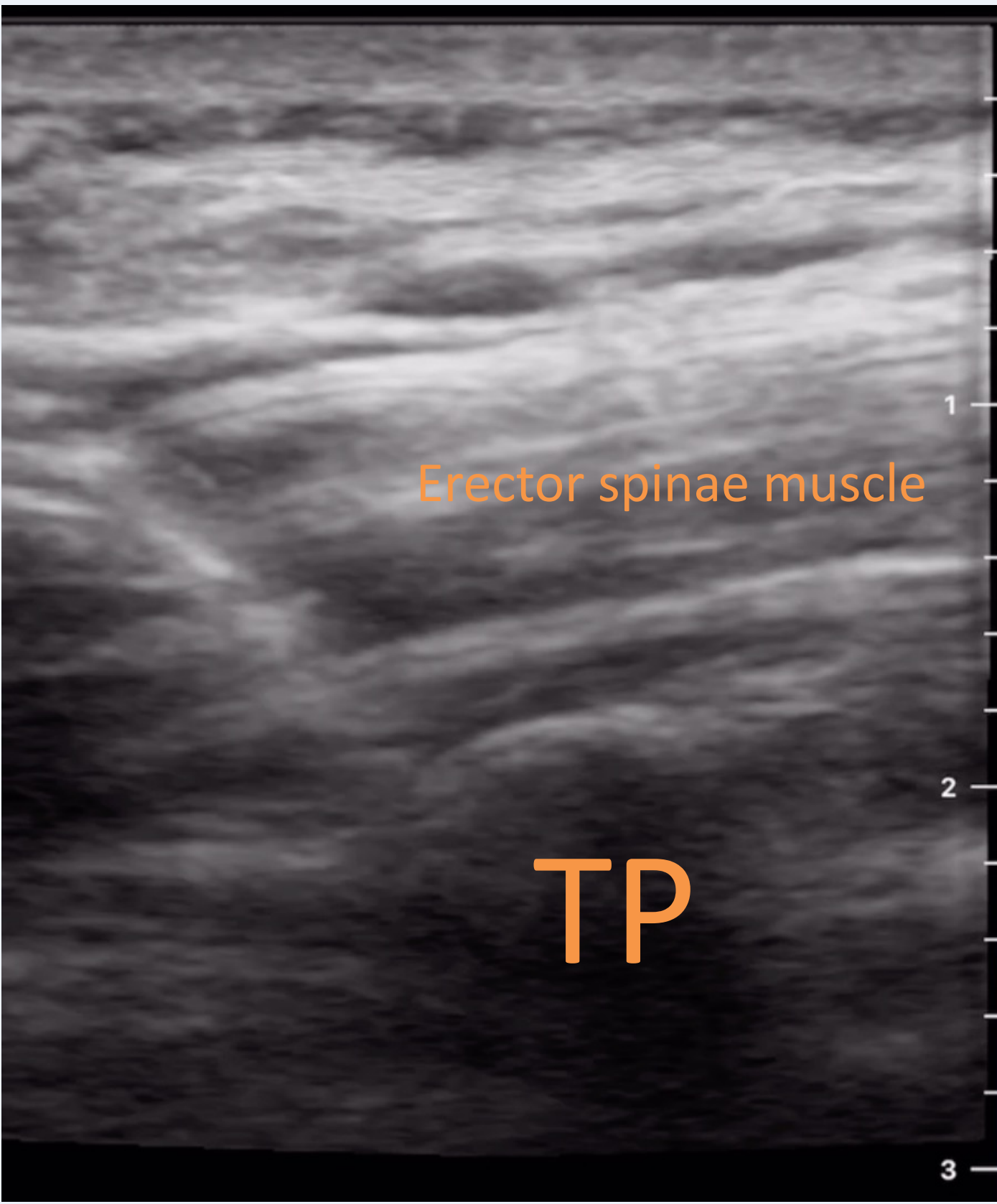


Figure 2: Ultrasound-guided injection of local anesthetic in the erector spinae plane at L2.

Outcome

- From POD #2 to POD#11, pain was well controlled with oral acetaminophen 1000 mg q6h as well as as needed (PRN) oxycodone 5mg every 6 hours.
- The maximum oxycodone requirement during catheter use was 10mg total within a 24 hour period.
- The patient was able to participate in physical and occupational therapy beginning on POD #2 and he continued daily therapy until discharge on POD #11

POD #	Pain Scale
1	8
2	8*
3	9
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	4

Table 1. Pain scale post operative day (POD) #1-11. *Day of ESP catheter placement

Discussion

- L2 ESP catheter provided continuous pain relief throughout our patient's hospitalization.
- We observed minimal opioid requirements for a historically extremely painful procedure.
- Despite extremely poor preoperative functional status, our patient benefitted from early mobilization, physical therapy participation, and shorter hospitalization compared to prior patients.

Conclusions

Continuous regional analgesia with L2 ESP catheter is promising for acute pain management following hip disarticulation surgery. This technique offered effective pain control, reduced opioid requirements and enhanced postoperative recovery for our patient.

While these findings are promising, additional research with larger patient cohorts is needed to establish the ESP catheter as a standard of care in this surgical context.

1. Lei Xu, Jody C Leng, Hesham Elsharkawy, Oluwatobi O Hunter, T Kyle Harrison, Lindsey Vokach-Brodsky, Gunjan Kumar, Natasha Funck, Jonay N Hill, Nicholas J Giori, Pier F Indelli, Alex Kou, Edward R Mariano, Replacement of Fascia Iliaca Catheters with Continuous Erector Spinae Plane Blocks Within a Clinical Pathway Facilitates Early Ambulation After Total Hip Arthroplasty, Pain Medicine, Volume 21, Issue 10, October 2020, Pages 2423–2429

2. Zalavras CG, Rigopoulos N, Ahlmann E, Patzakis MJ. Hip disarticulation for severe lower extremity infections. Clin Orthop Relat Res. 2009 Jul;467(7):1721–6. doi: 10.1007/s11999-009-0769-y. Epub 2009 Mar 10. PMID: 19277805; PMCID: PMC2690754.