

# **The Role of Regional Anesthesia in Opioid Reduction**

**A story about how point of care ultrasound can help  
increase safety and comfort for surgical patients in  
the ambulatory and office setting.**

**A Case Study by**

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# Introduction

There is little debate about the ability of perioperative analgesia to reduce surgical stress response, protect the myocardium, and limit neuroendocrine effects. Effective analgesia can lead to improved postoperative pulmonary function, decreased time to extubation, and earlier mobilization.

However, neuraxial methods are also known to be associated with some risk. This can vary from the minor backache and systemic hypotension to the rare, but devastating spinal hematoma which carries with it a 26% mortality rate.

By contrast, ultrasound guided regional blocks such as the Erector Spinae Plane (ESP) Block presented here offer an alternative. The ESP Block can be utilized to help control pain associated with surgical procedures performed on the back, chest, and abdomen. In addition to somatic coverage from incisional pain, the ESP block has shown some promise to include visceral pain coverage for intra-abdominal procedures. When combined with a multimodal strategy, regional anesthesia can reduce risk and increase patient satisfaction.

# Case History

49 year old female with bilateral breast ptosis presents for a bilateral mastopexy.

# Imaging Exam

The ESP block is performed with the patient either sitting, or in the prone position. The specific dermatome levels to be blocked are determined from the surgical intervention to be performed. The initial studies only described this block being performed at the T5 level. Subsequent studies have expanded this technique to include the lower thoracic and lumbar dermatomes.

The ultrasound probe is placed lateral to the vertebral processes, and the transverse processes are seen underneath the 2, or 3 layers (depending on the level) of the erector spinae muscles. Using the MSK preset, an in-plane technique and utilizing the transverse process as a backstop, the needle is advanced until contact is made with the transverse process, and local anesthetic is injected underneath the erector spinae muscles. The local anesthetic should spread easily when injected in the correct plane. Multiple injection sites may be necessary to accomplish adequate spread to the dermatome levels desired for coverage as spread is not only cephalocaudal, but is also assumed to travel laterally.



Figure 1 and 2. Images of local anesthetic spread under the erector spinae muscles above the transverse processes. Note the echogenic linear reflection of the needle (left) as well as visualization of the spread of local anesthetic contained below the ESP muscles.

## What Does This Teach Us?

This technique seeks to accomplish surgical pain control in a similar manner to a thoracic epidural approach, but without the risks associated with neuraxial anesthesia. This is a newer technique with the exciting promise of mitigating the pain of surgery in many clinical scenarios.

Utilizing regional anesthesia along with other multi-modal strategies in our practice can either greatly diminish or completely eliminate the need for opioid use in the perioperative environment. This greatly improves patient outcomes and satisfaction scores

## References

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