

Fascia Iliaca Compartment Block for Chronic Hip Osteomyelitis: A Case Report

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Abstract

The Fascia Iliaca Compartment Block (FICB) is a regional nerve block that allows for complete anesthesia of the hip, as well as some parts of the thigh and knee. It is frequently administered in the Emergency Department (ED) for hip dislocations and fractures, and its successful application is associated with significantly decreased morbidity and mortality. However, we believe that its value far exceeds hip fractures, and that it should be used to alleviate pain for any acute or chronic form of hip pathology. As emergency room physicians, it is our responsibility to initiate this mortality reduction in the ED.

Keywords: Fascia iliaca compartment block • Anesthesia • Anti-phospholipid syndrome • Interstitial lung disease • Livedo racemosa • Rituximab

Introduction

Hip fractures are a common pathology presenting to the emergency department, affecting 18% of women and 6% of men worldwide [1]. They carry a significant mortality rate, around 7% at 30 days, 10% at 6 months, and 20% at 1 year [2]. Untreated or undertreated pain leads to delirium, which in turn contributes to mortality and increased length of hospital stay [2]. The widespread use of opiates, which are associated with respiratory depression, altered mental status, and increased risk of falls, especially in the elderly, also worsens morbidity [3]. The fascia iliaca compartment block is a simple, easily learned method of regional anesthesia to the hip for hip fractures that offers immediate [4] and enhanced pain relief and fewer adverse effects than opiates, leads to shorter hospital stays [2,3], is safer than spinal anesthesia [5], decreases overall mortality, and leads to better functional outcomes such as decreased time to mobilization after surgery [4]. The FICB has classically been applied in the ED primarily for hip fracture and dislocations requiring reduction. However, use of the FICB should not be restricted solely to hip fractures and dislocations. A review of the literature reveals its value when implemented for other pathologies, such as acute lower limb ischemia [6] and transaortic valve repair [7], resulting in equal or improved outcomes compared to opiates and spinal or general anesthesia. Additionally, we will describe here the case of a patient with acute pain from chronic osteomyelitis who benefited from a FICB.

The FICB

The fascia iliaca compartment is a potential space located above the inguinal ligament. Dalens et al. first conceived the FICB in 1989 as a "new single injection procedure for blocking the femoral, lateral cutaneous, and obturator nerves" [8], a method that served as a novel alternative to a femoral nerve or lumbar plexus block [9]. The extent of anesthesia provided by the FICB depends on the extent of local anesthetic spread. Blockade of the femoral nerve provides anesthesia to the anterior and medial thigh, knee, and hip; while blockade of the lateral femoral cutaneous nerve anesthetizes the

anterolateral thigh [9]. The patient should be placed in the supine position with the bed flattened to maximize access to the inguinal area. A linear transducer is used to first visualize the femoral artery and vein. Lateral to these, the fascia iliaca can be seen as a hyperechoic "bowtie" that borders the sartorius muscle superficially and laterally and the iliopsoas muscle medially and deep. The goal is to place the needle tip under the lateral third of the fascia iliaca and inject a large volume (20-40 ml) of anesthetic that will spread medially toward the femoral nerve, thus providing a "plane" block. Prior to the use of ultrasound a "double pop" technique involved the provider feeling a loss of resistance as the needle passed through the fascia lata and iliaca, but this method is associated with decreased efficacy of sensory blockade compared to ultrasound-guided technique. Differences between local anesthetic primarily include duration of analgesia, with lidocaine providing 30-120 minutes, bupivacaine 120-175 minutes, and ropivacaine 120-240 minutes of relief [10]. All anesthetics begin to take effect within 10-12 minutes, but onset is fastest with lidocaine. There are relatively few contraindications to performing the FICB, including anticoagulant use, overlying infection, history of femoral bypass surgery, pre-existing neural deficits in the region, and crush injury near the site.

Case Presentation

We present the case of a 35-year-old female (MS) who presented to our ED with acute on chronic left hip pain. The patient had been diagnosed with osteosarcoma of the left hip at age 11. She underwent removal and multiple revisional surgeries afterwards, leading to chronic osteomyelitis and frequent episodes of sepsis. Her pain was managed on an outpatient basis with opiates such as Dilaudid, but she presented to our ED with what she described as acute 10/10 pain in her left hip. We consented her to a FICB and injected 48 ml of bupivacaine 0.5% 5 mg/ml. Though she did require admission for sepsis secondary to her left hip osteomyelitis, she rated the pain as a 2/10 after the block and required no more opiates or pain medications in the ER.

Discussion and Conclusion

The FICB, like many other nerve blocks, provides excellent analgesia that is superior to opiate use alone. The block is easy to learn and can last for long durations depending on the anesthetic used. Some hospitals place anesthetic eluting catheters, which allows for opioid free pain control throughout the patient's hospital stay. For acute hip fractures, the FICB reduces pain, delirium, and mortality; provides a means to an earlier discharge; and allows patients to get back to normal functioning more quickly. The benefits of the FICB are not constrained to hip fractures alone, however, as the block can be used to treat pain from almost any hip pathology, whether acute, chronic, or acute on

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chronic. As emergency physicians, we should set a precedent of initiating the morbidity reduction that is conferred by a FICB in the ED.

References

1. Veronese Nicola and Stefania Maggi. "Epidemiology and Social Costs of Hip Fracture." *Injury* 49 (2018): 1458-1460.
2. Evans and Bridie Angela. "Is Fascia Iliaca Compartment Block Administered by Paramedics for Suspected Hip Fracture Acceptable to Patients: A Qualitative Study." *BMJ Open* 9 (2019): 333-398.
3. Juliana Wilson, Kaylah Maloney, Kelly Bookman and Jason W Stoneback, et al. "Training Emergency Physicians in Ultrasound-Guided Fascia Iliaca Compartment Blocks: Lessons in Change Management." *Cureus* 11 (2019): 4773.
4. Scala and Victoria. "Implementing Regional Nerve Blocks in Hip Fracture Programs: A Review of Regional Nerve Blocks, Protocols in the Literature, and the Current Protocol at The Queen's Medical Center in Honolulu." *J Health Social Welfare* 78 (2019): 11-15.
5. Mark R. Jones, Matthew B. Novitch, O. Morgan Hall and Andrew P. Bourgeois, et al. "Fascia Iliaca Block, History, Technique, and Efficacy in Clinical Practice." *Clin Anaesthesiol* 33 (2019): 407-413.
6. Reem Abdelraouf Elsharkawy, Maha Ahmed Abo-Zeid, Mohamed Farag and Sameh Hany Emile. "Fascia Iliaca Block as an Anesthetic Technique for: Acute Lower Limb Ischemia." *Anesthesia Essays Res* 13 (2019): 547-553.
7. Wei C. Lau, Francis L. Shannon, George S. Hanzel and Robert D. Safian, et al. "Transfemoral Transcatheter Aortic Valve Replacement Using Fascia Iliaca Block as an Alternative Approach to Conscious Sedation as Compared to General Anesthesia." *Cardiovascul Revascularizat Med* 2019.
8. Bernard Dalens, Guy Vanneuville and Alain Tanguy. "Comparison of the Fascia Iliaca Compartment Block with the 3-in-1 Block in Children." *Anesthesia* 69 (1989): 705-713.
9. Harry Murgatroyd, Mauricio Forero and Ki Jinn Chin. "The Efficacy of Ultrasound-Guided Fascia Iliaca Block in Hip Surgery." *Regional Anesthesia Pain Med* 38 (2013): 459-460.
10. Malamed, Stanley. "Maximum Recommended Doses of Dental Local Anesthetics." *J Dent Edu* 82 (2018): 1017-1019.

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