

Fascia Iliaca Compartment Block

Introduction

The Fascia Iliaca Compartment block is a simple, safe and effective alternative to a femoral block for analgesia of the lower limb, femur and hip joint. It depends on instilling a large volume of local anesthetic under the fascia iliaca, which will hopefully spread to block the femoral nerve, the lateral cutaneous nerve of the thigh and, occasionally, the obturator nerve.

Nerve supply of the lower limb

There are four main nerves supplying the lower limb as follows:

Femoral

Origin: Lumbar plexus L2 L3 L4

Sensory: Antero-medial thigh, Medial lower leg and foot (via saphenous branch)

Motor: Sartorius, Knee extensors

Lateral Cutaneous Nerve of the thigh LCNT

Origin: L2 L3

Sensory: Lateral aspect of the thigh to the knee

Motor: No motor function

Obturator

Origin: Lumbar plexus L2 L3 L4

Sensory: Medial thigh in variable distribution

Motor: Hip Adductors

Sciatic

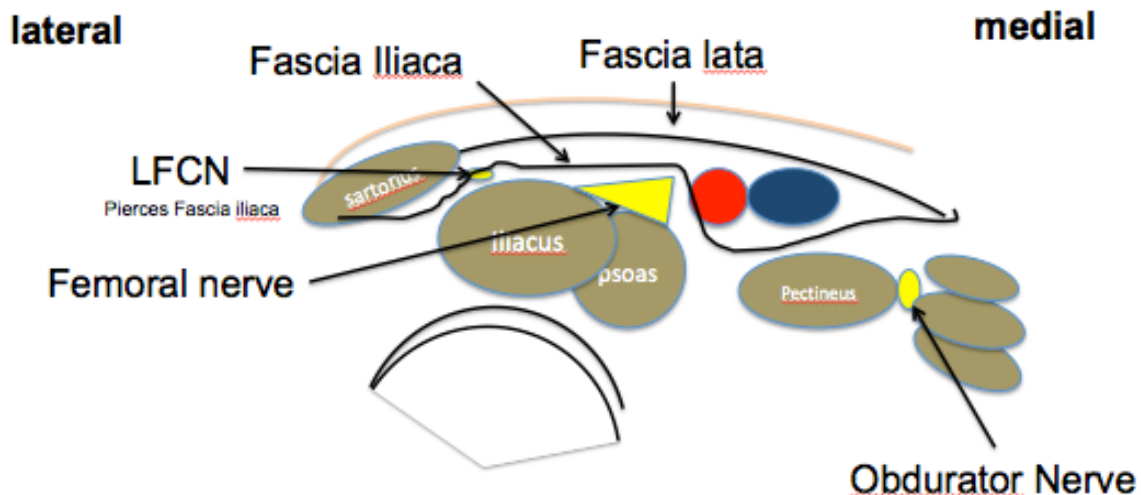
Origin: Lumbosacral Plexus L4 L5 S1-S3

Sensory: Posterior thigh and lower leg except the area supplied by the saphenous branch of the femoral nerve.

Motor: All posterior compartment thigh muscles, all muscles below the knee.

The Fascia Iliaca Compartment

The fascia iliaca covers the anterior surface of iliopsoas in the abdomen, forming the posterior wall of the peritoneal cavity and covering the LCNT, femoral, and obturator nerves. Below the inguinal ligament, it forms the posterior wall of the femoral canal containing the femoral vessels, and is pierced by the LCNT as it passes superficially to supply the lateral thigh. The Fascia iliaca compartment is the potential space between the fascia iliaca and underlying iliopsoas muscle.



The femoral nerve is therefore deep to the fascia iliaca and separated by it from the femoral artery and vein, which lie superficial to the fascia.

The Fascia Iliaca Compartment Block

This block depends on instillation of a large amount of local anesthetic (20-40mls), which spreads medially to block the femoral nerve, and laterally to block the LCNT. While there is potential for spread to extend medially enough to also block the obturator nerve, this is not a reliable effect. The sciatic nerve in the posterior compartment is never reached by this block.

Indications

This is not a suitable anesthetic block but is used to provide adjunctive analgesia in the following clinical situations:

- Analgesia for femur neck and shaft fractures
- Post op analgesia for hip operations
- If combined with sciatic block, post op analgesia for the knee and lower leg

Contraindications

- Previous Femoral bypass surgery
- Infection at the site
- Anticoagulation is a relative contraindication

Local Anesthetic choice

- Lidocaine 1-2% for skin wheal
- Bupivacaine with epinephrine 40 mls volume
- For any patient > 50 kg use 40mls of 0.25% bupivacaine with epi
- For patients < 50 kg use 2mg/kg bupivacaine with epi diluted to a total volume of 40 mls.

Technique

This is a superficial, low skill block. It can be performed with either a landmark or ultrasound guided technique. A number of different approaches have been described with ultrasound. We will focus on an approach imaging transversely at a level distal to the inguinal crease and needling in-plane from the lateral edge of the probe.

Preparation:

Patient supine, linear probe, depth set to 3-5 cm, high frequency setting, preset MSK if available

Procedure steps:

Step 1 External landmark – femoral pulse

Step 2 Internal landmark – femoral artery

Step 3 Area of interest is the fascia iliaca about 3 cm lateral to the femoral artery

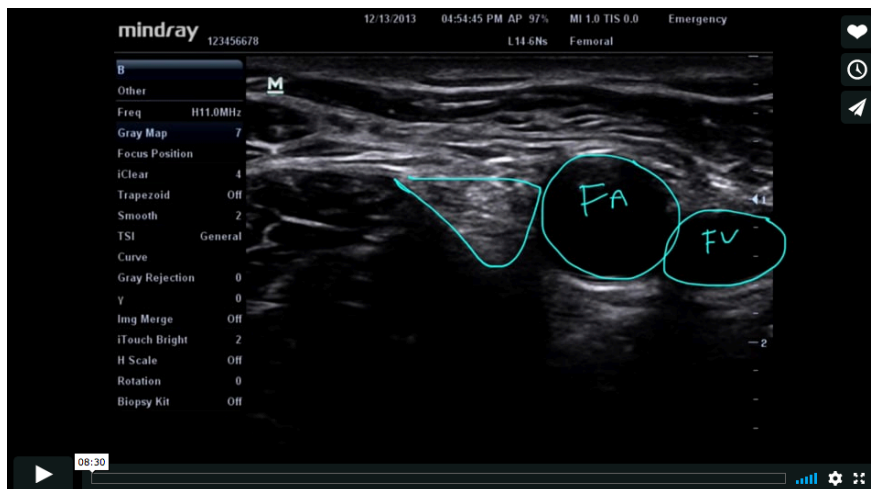
Step 4 In Plane needling approach from the lateral edge of the probe, with hydro-dissection to confirm position

- Visualize needle tip passage through the fascia
- Feel the “pop” as the needle pierces the fascia. This is facilitated by using a blunt tip needle.

Step 5 Instillation of 40 mls of LA in 5 ml aliquots, with negative aspiration for blood, visible separation of fascia from muscle, and medial and lateral spread.

Please watch the following video for needling technique

<https://vimeo.com/97725137>



Resources:

<https://www.nysora.com/regional-anesthesia-for-specific-surgical-procedures/lower-extremity-regional-anesthesia-for-specific-surgical-procedures/ultrasound-guided-fascia-iliaca-block/>

Regional Nerve Blocks for Hip and Femoral Neck Fractures in the emergency department: A Systematic Review. Brandon Ritcey, Paul Pageau, Michael Woo, Jeffrey Perry *CMEJ* 2016; 18(1):37-47

Fascia iliaca block for pain relief from proximal femoral fracture in the emergency department: a review of the literature. Adam Chesters, Paul Atkinson *Emerg Med J* 2014;31:e84-e87