Fascia iliaca Block (FIB or FICB)

"should be available in Emergency Departments as part of the pain management strategy for patients with fractured neck of femur."

P Delbridge, ED Senior Clinical Fellow, STHK
E Benison, Anaesthetics ST6, STHK

Training requirements for performance of FIB.

1. **Indications, contraindications and complications**
2. Relevant anatomy, landmarks
3. LA pharmacology
4. Local anaesthetic toxicity: signs, symptoms and treatment
5. Conduct and post-procedure care

Why perform FIB in NOF patients?

- Hip fractures are painful injuries – analgesia should be a key focus of ED care (RCEM audited topic)
- Less than 70% of patients have their operations on day of, or day after, admission to hospital, in spite of national targets of care (National Hip Fracture Database - 2019)
- Peri-operative delirium is a major problem for patients with NOF fractures with significant short and long term morbidity and a reliance on opiate analgesia is implicated in the aetiology
- FIB has a strong evidence base behind it and is a recommended intervention for the ED in latest guidance from RCEM (2020) & Association of Anaesthetists (2020)
- FIB is better than opiate based pain relief, reduces requirement for other analgesics (and therefore reduces the side effect profile) and is associated with reduced rates of peri-operative delirium in patients with NOF fracture

Why NOT perform FICB?

Contraindications:
- Previous femoral bypass surgery
- Patient refusal
- Allergy to local anaesthetic
- Infection at the block site

Relative contraindications include:
- Coagulopathy, anticoagulants, PLT < 100
- Peripheral neuropathy or neurological conditions
- Unable to consent (proceed in best interests)

Complications include:
- Block failure
- Haematoma
- Neuropraxia
- Local anaesthetic toxicity
- Quadriceps weakness
- Perforation of peritoneal cavity contents and/or bladder

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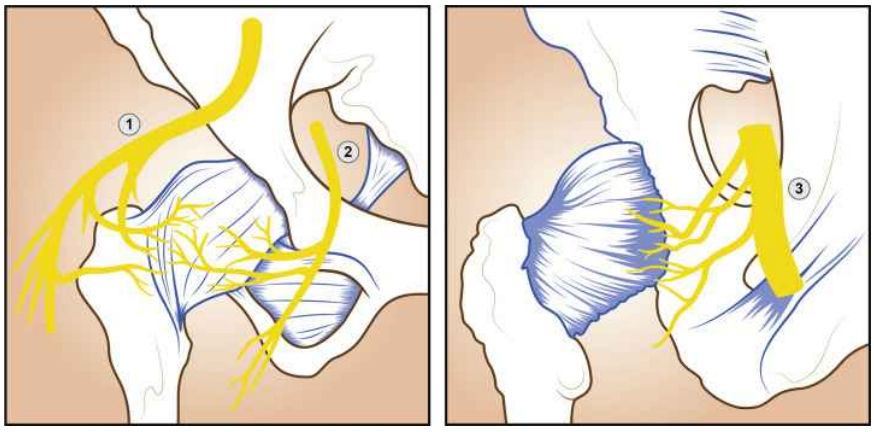
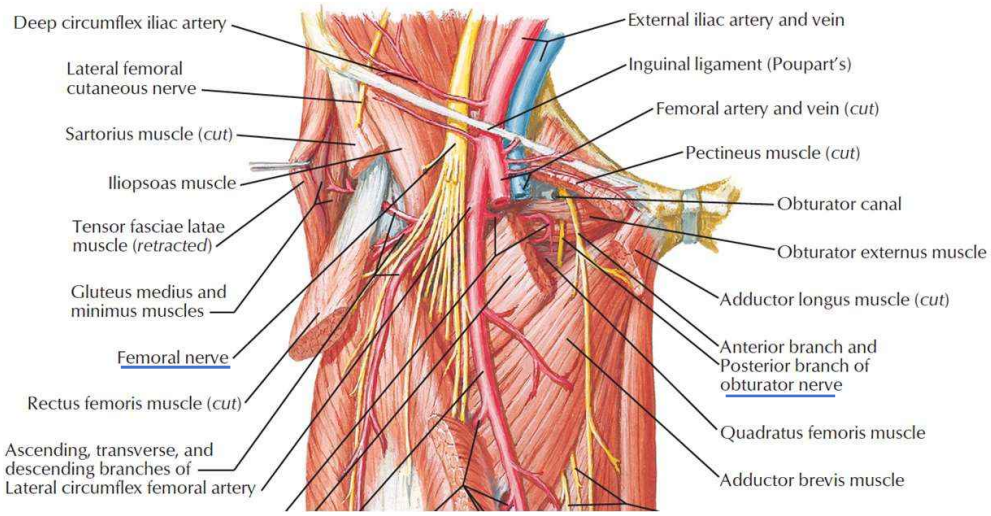


Anterior view of R Hip

Posterior view of L Hip

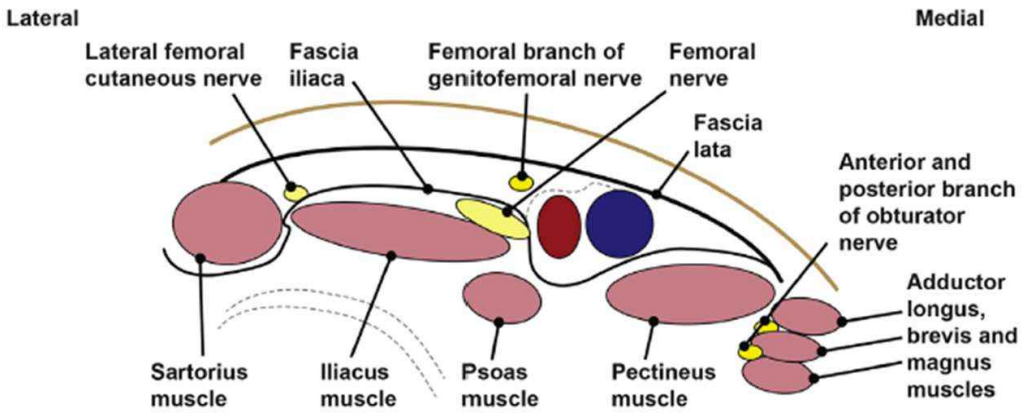
Innervation of the hip:
- Anterior portion of the joint capsule comes from (1) branch of the femoral nerve (L1–L4) along the iliopsoas muscle.
- Anteromedial portion comes from (2) a branch of the obturator nerve (L1–L4).
- Posterior portion comes from (3) branches of the sciatic nerve.

Anterior View R Inguinal Region

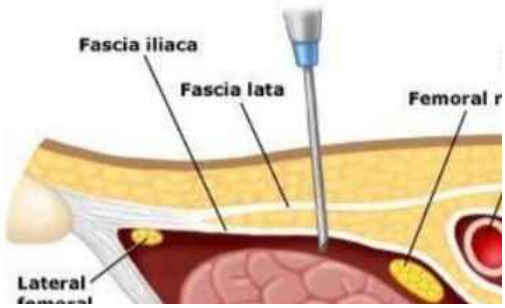


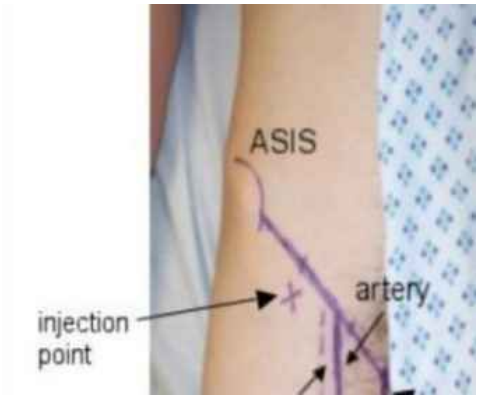
Remember **NAVY** – from lateral to medial: Nerve, Artery, Vein, Y-Fronts!

Cross Section View R Inguinal Region



Local Anaesthetic in the **Fascia Iliaca Compartment** should ideally track medially, laterally and cranially → therefore, volume is key!





Training requirements for performance of FIB.

1. Indications, contraindications and complications
2. Relevant anatomy, landmarks
3. **LA pharmacology and choice of LA**
4. Local anaesthetic toxicity: signs, symptoms and treatment
5. Conduct and post-procedure care

Local Anaesthetics block Sodium channels and **they are all potentially toxic!**

In nerves they cause temporary block of conduction

↓

Hence, pain impulses should be blocked

But… sodium channels are everywhere, so we need to know where to put the LA, what to avoid and what to look out for!

Bupivocaine 0.25% (2.5 mg/ml)

or

Levobupivocaine 0.25% (2.5 mg/ml) (= Chirocaine®)

Weight greater than 50kg:
give 40ml of 0.25% Bupivicaine (contains 100mg)

Weight less than 50kg:
give 30ml of 0.25% Bupivicaine (contains 75mg)

Do not exceed maximum dose of 2mg/kg
Recommended maximum single dose is 150 mg

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Local anaesthetic toxicity usually begins with **prodromal** symptoms and signs:

- Perioral numbness
- Tinnitus
- Agitation
- Dysarthria
- Confusion

These may be **followed** by more severe **CNS and CV derangements**:

OBS!

- hypertension and tachycardia
- bradycardia and hypotension
- ventricular arrhythmias and asystole

The majority of adverse events occur within 1 minute after injection of anaesthetic, but may be delayed even more than 1 hour

AAGBI Safety Guideline

Management of Severe Local Anaesthetic Toxicity

1 Recognition

Signs of severe toxicity:

- Sudden alteration in mental status, severe agitation or loss of consciousness, with or without tonic-clonic convulsions
- Cardiovascular collapse: sinus bradycardia, conduction blocks, asystole and ventricular tachyarrhythmias may all occur
- Local anaesthetic (LA) toxicity may occur some time after an initial injection

2 Immediate management

- Stop injecting the LA
- Call for help
- Maintain the airway and, if necessary, secure it with a tracheal tube
- Give 100% oxygen and ensure adequate lung ventilation (hyperventilation may help by increasing plasma pH in the presence of metabolic acidosis)
- Confirm or establish intravenous access
- Control seizures: give a benzodiazepine, thiopental or propofol in small incremental doses
- Assess cardiovascular status throughout
- Consider drawing blood for analysis, but do not delay definitive treatment to do this

3 Treatment

IN CIRCULATORY ARREST

- Start cardiopulmonary resuscitation (CPR) using standard protocols
- Manage arrhythmias using the same protocols, recognising that arrhythmias may be very refractory to treatment
- Consider the use of cardiopulmonary bypass if available

GIVE INTRAVENOUS LIPID EMULSION
(following the regimen overleaf)

- Continue CPR throughout treatment with lipid emulsion
- Recovery from LA-induced cardiac arrest may take >1 h
- Propofol is not a suitable substitute for lipid emulsion
- Lidocaine should not be used as an anti-arrhythmic therapy

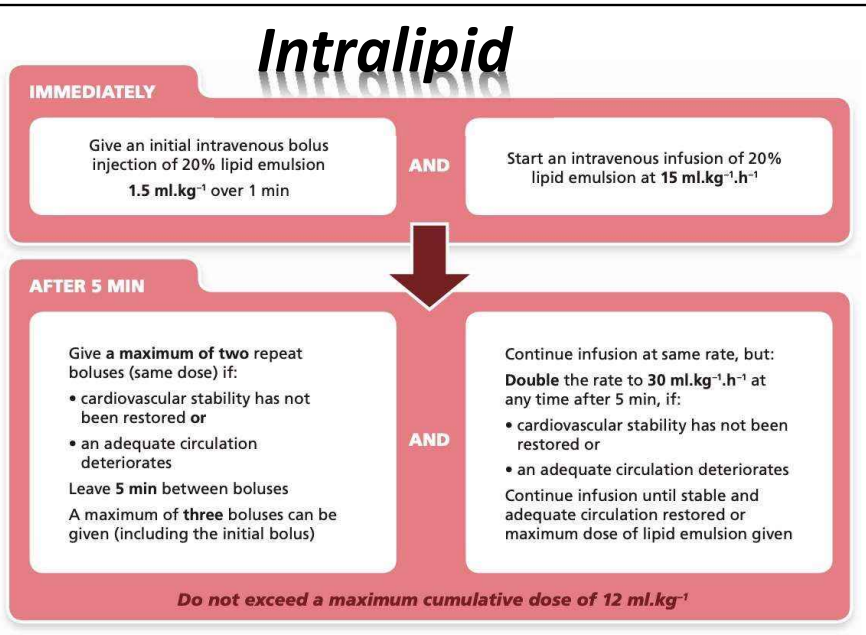
WITHOUT CIRCULATORY ARREST
Use conventional therapies to treat:

- hypotension,
- bradycardia,
- tachyarrhythmia

CONSIDER INTRAVENOUS LIPID EMULSION
(following the regimen overleaf)

- Propofol is not a suitable substitute for lipid emulsion
- Lidocaine should not be used as an anti-arrhythmic therapy

Your nearest bag of Lipid Emulsion is kept Resus, 3 alpha, 3B, operating theatres.



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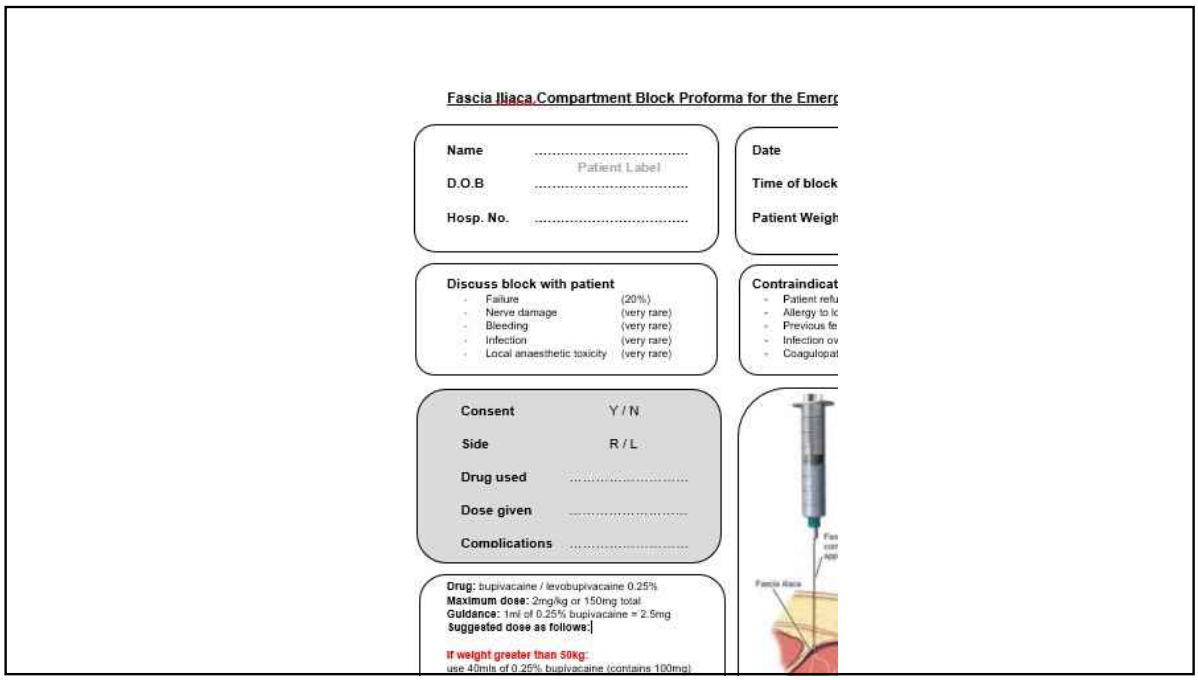


Fascia Iliaca Compartment Block Proforma for the Emerg

Name .....
Patient Label
D.O.B .....
Hosp. No. .....

Date
Time of block
Patient Weigh

Discuss block with patient

Failure	(20%)
Nerve damage	(very rare)
Bleeding	(very rare)
Infection	(very rare)
Local anaesthetic toxicity	(very rare)

Contraindicat
- Patient refu
- Allergy to lo
- Previous fe
- Infection ov
- Coagulopat

Consent	Y / N
Side	R / L
Drug used	.....
Dose given	.....
Complications	.....

Drug: bupivacaine / levobupivacaine 0.25%
Maximum dose: 2mg/kg or 150mg total
Guidance: 1ml of 0.25% bupivacaine = 2.5mg
Suggested dose as follows:

If weight greater than 50kg:
use 40mls of 0.25% bupivacaine (contains 100mg)

NHS

STOP before you block

Notice for anaesthetists and anaesthetic assistants

- A STOP moment must take place immediately before inserting the block needle
- The practitioner (and assistant) must double-check:
  - the surgical site marking
  - the site and side of the block

NHS National Patient Safety Agency

SAFE ANAESTHESIA LIAISON GROUP

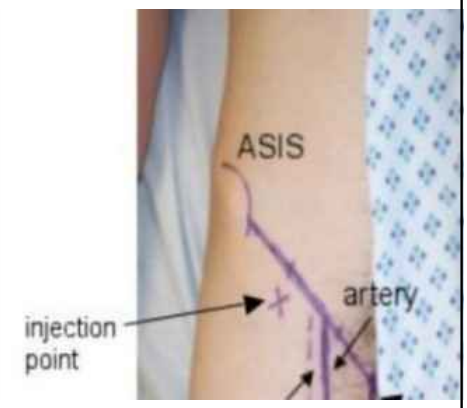
RA-UK

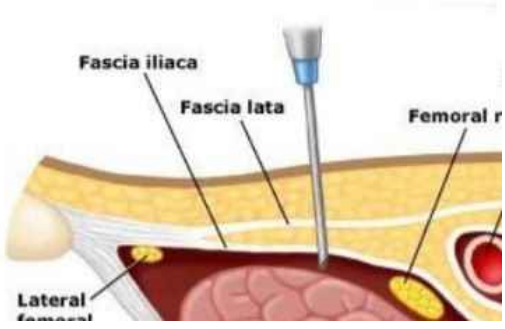
Nottingham University Hospitals NHS

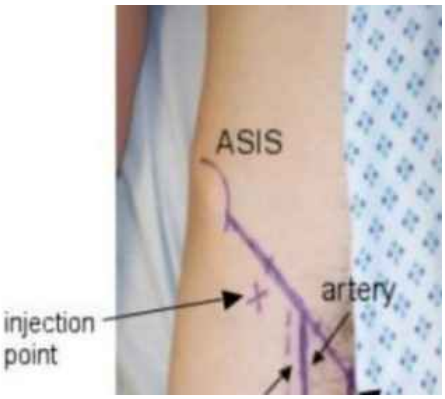
TAKE AND DOCUMENT CONSENT

Conduct of FICB

- Preparation – availability of post procedure obs, IV access, oxygen
- Calculate and prepare anaesthetic (30-40 ml 0.25% bupivocaine. Max 150mg)
- Clean the area and **SBYB**
- Maintain asepsis – skin prep, drape, sterile gloves
- **Injection site:** divide inguinal ligament into thirds and find point between lateral and central third of the ligament, injection site is 1cm inferior to this junction
- Ensure you are not over the femoral artery – palpate for femoral pulse (should be approx. 1.5mc medial to injection site)
- **Insert block needle through the following layers:**
  - **Skin** (may be tough to get through)
  - **Fascia Lata (POP)**
  - **Fascia Iliaca (POP) and advance 1-2mm**
- **Aspirate and steady the needle** - if negative proceed to inject
- Inject local anaesthetic (there should be little or no resistance)
- Aspirate again after every 5mls
- Remove needle and apply firm pressure, then apply dressing
- **Document procedure**
- Monitor patient and confirm pain relief







Any questions?

Thanks!