

Fascia Iliaca Compartment Blocks - Full Clinical Guideline

Reference no.: CG-ED/2023/3701

1. Introduction

Fascia Iliaca Compartment Blocks (FICB) are a method of administering site-specific analgesia to patients who have confirmed or suspected neck of femur/ femoral shaft fractures. This helps to improve and prolong pain relief whilst avoiding side effects from opioid analgesia.

2. Aim and purpose

This guideline is designed to outline the safe and effective use of the landmark approach for Fascia iliaca compartment blocks for hip and femoral shaft fractures.

It aims to:

1. To ensure that procedure is undertaken only by competent individuals
2. To ensure the highest standards of infection control
3. To determine appropriate indications and contraindications
4. To standardise techniques and documentation

3. Definitions used

Hip Fractures	Neck of femur fracture (both intra and extra capsular fractures)
Competent individual	Doctors and Advance Clinical Practitioners who have received instruction in the procedure and have demonstrated these skills to another competent individual

4. Guideline

4.1 Pre-procedure

Patient inclusion criteria	Patient exclusion criteria
Radiologically confirmed or clinically strongly suspected fracture of the hip or femoral shaft.	Known hypersensitivity or allergy to local anaesthetics
	Patient refusal
	Localised infection at the proposed injection site
	Unable to identify patient's femoral artery*
	Previous vascular surgery altering position of arterial pathways*

*consider ultrasound-guided access or anaesthetic team input

Consent

Explain the procedure, benefits and risks (see below) to the patient in order to gain informed consent. In situations where patient lacks capacity, decisions should be made with the patient's best interests in mind.

Risks/Complications

- Intravascular injection
- Local anaesthetic toxicity
- Temporary or permanent nerve damage
- Block failure
- Infection
- Allergy to any of the preparations used

Overall a FICB has a very low risk profile. Identifying the landmarks will minimise the risk of intravascular injection and mechanical nerve injury. Aseptic non-touch technique reduces the risk of infection, and the injection of high volumes of anaesthetic ensures good spread and longevity of analgesia. The risk of local anaesthetic toxicity, although relatively low with levobupivacaine, is highest in the first 15-30 minutes which makes close monitoring mandatory at this stage.

The Royal College of Emergency Medicine recommends the recording of physiological observations at a minimum of 5, 10, 15 & 30 minutes post-procedure.

Anticoagulation and clotting derangement

NICE guidelines do not give a clear statement regarding the use of FICB in patients with deranged clotting. The Royal College of Emergency Medicine states anticoagulation medications and INR of more than 1.4 as a relative contraindication for the procedure.

Discussion with Emergency Medicine, Anaesthetics and Orthopaedics departments at the Royal Derby Hospital have led to a consensus statement that the benefits of the procedure outweigh the risk of bleeding given that the injection site is compressible; individual risks and benefits for each patient should still be assessed.

Patients with Hip and femoral shaft fractures who are on anticoagulant therapy or have an INR of >1.4 should still be considered for the procedure, although the increased risk of bleeding and haematoma should still be mentioned during consent.

Equipment required

- Dressing pack (including sterile gloves)
- Antiseptic skin prep wipes
- Appropriate block needles
- Aspiration needle
- Syringes 20ml x2
- Small dressing (Blue plaster)
- Levobupivacaine ampoules
- Normal saline ampoules

FICB block kit boxes are available in many areas of the department.

Dosage

Local anaesthetic dosage and volume of saline should be adjusted according to patient's weight:

Patient weight (kg)	Levobupivacaine 0.5% (ml)	Normal Saline (ml)
<50kg	15	15
>50kg	20	20

4.2 Procedure

Landmark approach

The landmarks for this block are the anterior superior iliac spine (ASIS) and the ipsilateral pubic tubercle.

- Place one middle finger on the ASIS and the other middle finger on the pubic tubercle.
- Draw an imaginary line between these two points.
- Divide this line into thirds (using the index finger of both hands, Fig 1a).
- Mark the point 1cm caudal from the junction of the lateral and middle third (in this case the junction is at the left index finger). This is the injection entry point (Fig 1b and c).

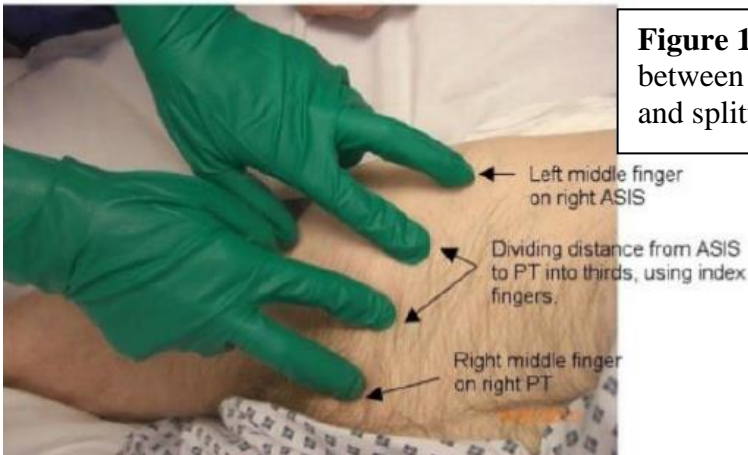


Figure 1a – identifying the line between the ASIS and pubic tubercle and splitting into thirds

Figure 1b - Right-sided FICB. Injection entry point is approximately 1 cm caudal from the junction of lateral and middle third, indicated

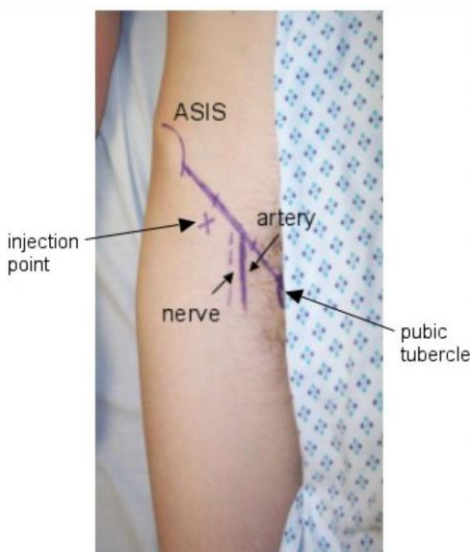


Figure 1c – Landmarks and at-risk structures

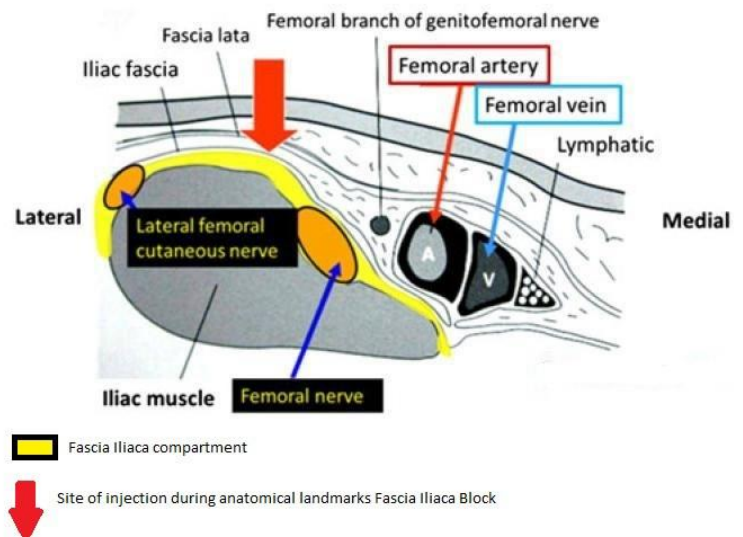


Figure 1d – cross section of block site and surrounding structures

Procedure method

1. Confirm patient details and complete checklist.
2. Gain informed (verbal) consent for the procedure.
3. Ensure appropriate assistance available and monitoring attached (ECG, saturations probe and non-invasive BP).
4. Position the patient correctly (supine, injection site well exposed).
5. Perform landmark identification approach and mark injection site.
6. Locate the position of the (ipsilateral) femoral pulse. This should be palpable approximately 1.5-2cm medial to the intended injection site in order to avoid inadvertent impalement of the femoral nerve.
7. Don sterile gloves and draw up the appropriate amount of local anaesthetic and normal saline in a 50:50 ratio using two 20ml syringes.
8. Attach the first syringe to the block needle and flush out any air.
9. Prepare the skin using an alcohol swab.
10. Using the appropriate block needle pierce the skin at a perpendicular angle to its surface, keeping skin taught.
11. Keep the needle perpendicular to avoid the neurovascular bundle which lies medially.
12. Advance the needle through two distinct “pops” as it perforates first the fascia lata and then the fascia iliaca.
13. Advance the needle a further 1-2mm.
14. Aspirate to ensure needle tip is not intravascular, then inject slowly. There should be minimal resistance to injection. If there is, the needle is likely to be in the iliacus muscle. In this case, withdraw the needle slightly until resistance eases. Aspirate before injecting each time needle is repositioned.
15. Inject the first 20mls slowly, aspirating every 5mls. Then change the syringe, aspirate and inject the remaining volume.
16. Withdraw the needle at the end of the procedure and apply a little pressure to the area for up to two minutes. Apply blue plaster.
17. Ensure that the patient is comfortable and that observations are checked at 5, 10, 15 and 30 minutes post-procedure.
18. Ensure that the local anaesthetic is prescribed, and that the procedure is documented on EDIS.

4.3 Post-procedure

- Inform nursing staff the block has been carried out.
- Observations are to start immediately post FICB – and checked regularly as above.
- All nursing and medical staff need to know the signs of local anaesthetic toxicity and what to do in the event of this occurring (see risks above)
- Ensure that the local anaesthetic is prescribed, and that the procedure is documented on EDIS.

SAFETY POINT – If performing a FICB after administration of opiate analgesia, be alert to the possibility of exacerbating some undesirable side-effects, such as respiratory depression once the painful stimulus has been removed. This is the rationale for the regular observations suggested.

Troubleshooting

Potential issue	Resolution
No distinct pops are felt during needle advancement	Withdraw the needle, check landmarks, change angle to be more perpendicular or more cranially. Ensure correct needle is used
Hitting bone on needle advancement	Too deep, change angle directing more cranially
Blood on aspiration	Remove needle, apply pressure to needle insertion site for 2 minutes. Re-attempt, directing more laterally
Resistance to injection of local anaesthetic	Slightly withdraw the needle as it may be positioned in muscle tissue
Pain on injection	Mild burning sensation around the injection site is normal - slow your injection rate to ease Severe pain is not normal – stop injecting if this occurs
Signs of local anaesthetic toxicity (circumoral numbness, tinnitus, dizziness, seizure)	Stop injecting, call for help, give high flow oxygen, provide life support as required

5. Summary

- FICB should be offered to adult patients without contraindications who present with hip or femoral shaft fractures.
- Block can be performed in situations where there is a strong clinical suspicion (trauma/fall to hip, pain in hip, short and rotated) before imaging as it will help with early pain control and patient handling.
- Check contraindications for procedure.
- Anticoagulation medicine or INR of more than 1.4 is not an absolute contraindication for this procedure.
- Nursing team must be informed when the procedure is performed.
- Regular observations are required immediately after the procedure has been performed.
- Document procedure notes clearly with at least time, site and dose of medicine.
- Prescribe the local anaesthetic administered on the drug chart
- Apply a blue band-aid at the site of the injection

6. References

1. National Institute for Health and Care Excellence (2017) Hip fracture: management NICE Clinical guideline (CG124)
2. [Fascia Iliaca Compartment Block: Landmark Approach: Guidelines for use in the Emergency Department](#), 2016 Davies, N. Based on :
C. Range, C. Egeler. "Fascia Iliaca Compartment Block: Landmark and ultrasound approach," Anaesthesia Tutorial of the Week 193, August 23rd 2010. (www.frca.org.uk).
3. [RCEM Safety Alert, February 2018](#)

7. Documentation Controls

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Version / Amendment History	Version	Date	Author	Reason
	1.0.0	Nov 2020	Salman Islam Mina Abdalla Mohamed Abdelaziz	Development of guideline in consultation with Andrew Tabner
Intended Recipients: State who the Clinical Guideline is aimed at – staff groups etc.				
Training and Dissemination: How will you implement the Clinical Guideline, cascade the information and address training				
Linked Documents: State the name(s) of any other relevant documents				
Keywords:				
Business Unit Sign Off			Group: Emergency Department: Andrew Tabner - Emergency Department Consultant Date: 24/11/2020 Group: Orthopaedics: Steve Milner – Orthopaedic Consultant Date: 24/11/2020 Group: Anaesthetics: Paul Marval and Alison Fiorini – Anaesthetic Consultants Date: 27/11/2020 Reviewed no changes Dec 2023	
Divisional Sign Off			Group: Medical Division Date:	
EIRA Stage One	Completed	Yes / No	<i>Delete as appropriate</i>	
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Contact for Review			Andrew Tabner, Emergency Department Consultant	
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